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## INTRODUCTION

TO THE

# RESOURCES OF TENNESSEE

BY

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ASSISTED BY

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*To whom local assistance was rendered by*

C. W. CHARLTON,  
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of West Tennessee.

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PREPARED UNDER THE DIRECTION OF THE BUREAU OF AGRICULTURE.

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PRINTERS TO THE STATE.

1874.

COMMISSIONERS  
OF THE  
BUREAU OF AGRICULTURE.

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A. B. HAYNES,.....White's Station, “  
J. M. SAFFORD, *Chemist to the Bureau*..... Nashville, “

*To the General Assembly of the State of Tennessee, and to His Excellency,  
John C. Brown :*

Herewith are submitted the first and second reports of the Bureau of Agriculture. The publication of the first report was delayed because it was thought best by the Commissioners that a review of the whole resources of the State should, with the accompanying map, be included in one volume, and because Parts II., III. and IV., which constitute the first report, should be preceded by Part I., which is a general introduction to the whole State. It is believed that the report is original in its conception and character, and will serve, in a most effective way, to bring before the world the almost illimitable resources, yet undeveloped, of the great State of Tennessee. The plan of the work, together with the idea of introducing the agricultural and geological map, is the united conception of the Commissioners of the Bureau, and it gives me pleasure to bear testimony to the zeal, interest and good judgment displayed by them in all their meetings; but to J. B. Killebrew, the efficient Secretary, is eminently due the credit for his good judgment, correctness, zeal, enthusiasm and untiring energy, coupled with a remarkable versatility in the preparation of the matter of the report, and unremitting labor in getting it through the press. He has been a faithful and assiduous public agent, and has not only earned the salary given him, but has, in my opinion, merited the thanks of the people of the State for this work of such magnitude, requiring, as it did, so much and such constant and persistent labor, and one which will certainly add millions of property to our State. I regard the outlay of the funds for the collection and dissemination of facts pertaining to the resources of the State as the best possible method of increasing its wealth, reducing taxation, and affording general and early relief to the people.

The enquiry for this Report from most of the Northern States and Territories, and many of the Southern States, as well as from Canada, England and Switzerland, is truly gratifying, and shows the general desire for information in respect to the resources of the State, and confirms me in the opinion I have entertained from the first, that the expense incident to the work will prove the best outlay the State has ever made.

On account of the pressing demand for such information, and at the suggestion of Gov. Brown, the Commissioners, at their last meeting, instructed the Secretary to prepare and send out advance sheets of such chapters as

would prove of general interest, and I am pleased to be able to state that these sheets were sought for eagerly, well received and copied by the leading papers of the North and of our State, and have already served to attract special attention to the State. With due respect to the wisdom of the last Legislature, I will add that the number of the Reports ordered will prove totally inadequate to the demand.

In conclusion, permit me to call special attention to the accompanying Map, as one of the important features of the Report, and the meed of praise is due to Dr. Safford for his skill, care and good taste in its preparation. It is the most accurate map of the State ever published.

As the financial agent of the Bureau under the law creating it, I respectfully request of the General Assembly that it will appoint a committee to examine and pass upon my accounts, which I insist on, as I think it a rule that should be adopted and adhered to with all agents of the State who handle public funds.

Respectfully submitted.

W. H. JACKSON,  
President of Bureau.

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### CORRECTIONS.

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The readers attention is called to the following errors and omissions :

On page 93, third line from the top, read 1,445,000.

On page 339, seventh line from top, Murfreesboro should have been put fourth as a wayside shipping point for cotton, having shipped 9,743, and on this account, on page 743, sixteenth line from bottom, Murfreesboro should have been excepted.

There are numerous verbal errors, many of which were detected and corrected before the whole edition passed through the press. It is not deemed necessary to point them out specifically.

In preparing the manuscript from notes, Tennessee Central College and the Pharmacal College, located at Nashville, were unintentionally omitted in the reference to the educational institutions of Davidson county.

## P R E F A C E .

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The volume now presented to the public is the result in part of the work done by the Bureau of Agriculture since its establishment in 1872. Its publication has been delayed simply because of the amount of work requisite to its proper preparation, and of the unwillingness of the Bureau to send out an unsatisfactory and unreliable report. This introduction embraces a general review of the agricultural, mineral and industrial resources of the entire State, with brief notices of each county. No pains have been spared to obtain the facts. All localities of special interest have been visited—the coal fields, iron belts, the best as well as the worst agricultural sections. Altogether, the preparation of the Report has involved a travel of 15,000 miles by myself and assistants, and has necessitated the writing of nearly 2,000 letters, besides circulars. It has been the chief aim to make a reliable, rather than a popular, report. Facts have been stated impartially and without exaggeration. No considerable industry has been overlooked, no valuable resource left unnoticed, no subject in which strangers would probably feel an interest left untouched. The great leading idea in its preparation has been to give just such information about the State as ordinary, unscientific men would like to know. Capital and enterprise being greatly needed, every subject calculated to attract them to the State has been touched upon. But it is not claimed that the work is perfect. It is only an introduction to the resources of the State. Tennessee is too large, too varied in its rough wealth, too diversified in its industries, too magnificent in its possibilities to be exhausted in one, two, or a dozen reports. But while it is by no means perfect or exhaustive, it is believed that it will compare favorably with similar reports in this country, or in England.

Mr. C. W. Charlton, from East Tennessee, contributed the articles, with the exception of what refers to the geology, on the following counties: Bledsoe, Blount, Bradley, Campbell, Carter, Cocke, Greene, Hawkins, James, Jefferson, Loudon, Marion, Meigs, Monroe, Morgan, Polk, Rhea, Roane, Scott, Sevier, Sequatchie, Sullivan, Union, and a portion of Johnson. Mr. Bentley, of West Tennessee, supplied the larger part of the articles on Benton, Carroll, Crockett, Decatur, Dyer, Gibson, Hardeman, Haywood, Henderson, Lake, Lauderdale, Madison, McNairy, Obion, Tipton and Weakley, and a part of the general description of West Tennessee.

In addition to the aid received from my regular assistants, my acknowledgments are due to Judge Shields, Prof. Nicholson, Hon. H. N. Snyder, and Hon. T. Nixon Vandyke, of East Tennessee; to Mr. B. F. Lillard, Dr. W. M. Clarke, J. M. Carnes, Dr. D. Lee, A. B. Robertson, W. T. Nixon, D. H. Goodrich, Col. R. C. Morris, Col. Tom Claiborne, Dr. J. W. J. Payne, Hon. J. A. Trousdale, B. F. Cockrill, Judge C. W. Tyler, and many others, of Middle Tennessee; and to Dr. S. T. Gilbert, W. J. Sykes, John S. Toof, L. J. Dupree and others, of West Tennessee. These gentlemen have taken a decided interest in the work from its inception, and have cheerfully furnished me with all the information in their power pertaining to their respective localities. To Hon. H. N. Snyder the Bureau is under special obligations for the faithful and elaborate description of the trade and resources of Hamilton county, which work cost him months of hard labor. Other acknowledgments of aid received are given in the Report. The small maps, illustrative of the surroundings of particular cities, were furnished by the cities themselves. The larger map was prepared expressly for the Bureau by Dr. J. M. Safford, who, in addition to his labors in this particular, has rendered me constant assistance in all matters pertaining to the geology of the State, and the proofs of the whole work have passed under his supervision. Indeed, his aid has been invaluable. To the officers of the East Tennessee, Virginia and Georgia Railroad, as well as to those of the Nashville, Chattanooga and St. Louis Railway, my obligations are eminently due, not only for facilities afforded, but for valuable assistance rendered in procuring facts. These railroads, owned and operated mostly by citizens thoroughly identified with the State, have shown every disposition to further all the plans of the Bureau looking toward the material development of the State. My thanks are also due to A. H. Shrader, of the St. Louis and Southeastern Railroad, for kindly courtesies.

It may be well to state that since the facts upon which this report is based have been collected, real estate has fallen in a majority of the counties not less than fifteen per cent. in price.

J. B. KILLEBREW, *Secretary.*

July 28, 1874.

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# PART I.

## TENNESSEE IN GENERAL.

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### CHAPTER I.

#### TOPOGRAPHICAL FEATURES—NATURAL AND CIVIL DIVISIONS.

THE State of Tennessee lies between lat.  $35^{\circ}$  and  $36^{\circ} 30'$  north, and long.  $81^{\circ} 37'$  and  $90^{\circ} 28'$  west from Greenwich. Its greatest length from east to west is 432 miles, and its extreme width 109 miles. The longest straight line that could be drawn in the State, would be from the north-east corner of Johnson to the south-west corner of Shelby, and would be near 500 miles in length. The entire area of the State is about 42,000 square miles, or 26,880,000 acres. Rhomboidal in shape, the symmetry of form which Tennessee presents is striking when seen upon the map. It is bounded on the north by Kentucky and Virginia, on the south-east by North Carolina, on the south by Georgia, Alabama and Mississippi, and on the west by the Mississippi River, which separates it from Arkansas and Missouri. It touches eight States on its borders, a greater number than is touched by the boundaries of any other State in the Union except Missouri. It is unequalled in the number and excellence of its navigable rivers. The great Father of Waters washes its western boundary, and the placid Tennessee and beautiful Cumberland, with sources in other States, sweep in concentric semicircles through the fairest and most valuable portions of the State, furnishing cheap water transportation for the varied products of the soil and of the mine.

## NATURAL DIVISIONS.

The State has eight great natural divisions. On its eastern borders rises, in great ridge-like masses and treeless domes, the huge Appalachian chain, the loftiest peaks of which attain an elevation of more than 6,000 feet above the sea, and upon whose brows and bald summits the flora of Canada and the climate of the north may be found. These mountains form one of the natural divisions of the State, and are called the Unakas. Many beautiful and fertile valleys and coves nestle amid this grand range of mountains; but aside from these, this division is of but limited agricultural importance. Its average elevation above the sea is 5,000 feet, and it has an area of 2,000 square miles.

Adjoining this on the west, and enclosed between the Unakas and the Cumberland Table Land, is the beautifully fluted Valley of East Tennessee. This Valley, so called because of the relations it bears to the mountains on each side, is a succession of ridges and minor valleys, running in almost unbroken lines from north-east to south-west. If one could sail over it from east to west at a moderate elevation, this division would resemble the tumultuous waves of a stormy ocean that have been arrested and hardened into stony firmness, but viewed from the highest peaks of the Unakas, the ridges and valleys melt into a common plain. The innumerable valleys of this division make it, agriculturally, one of the most important in the State. The average elevation of this great Valley is 1,000 feet above the sea, and it has an area of 9,200 square miles.

Next in order comes the Cumberland Table Land, a high, elevated plateau, that rises in massive grandeur 2,000 feet above the sea, and 1,000 feet above the Valley of East Tennessee. Buried in the bosom of this plateau are huge treasures of coal and iron. On its eastern edge it forms almost a continuous line running in a north-easterly direction, and rises with an abruptness that is marked and striking, presenting a formidable, gray, rocky, cliff-lined rampart. The western edge is irregular and jagged, notched and scalloped by deep coves and valleys, which are separated by finger-like spurs pointing for the most part to the north-west. The soil of this division is sandy, thin, porous and unproductive, and it is of but little agricultural importance. Its area is 5,100 square miles.

Resting against the western edge of the Cumberland Table Land and extending to the Tennessee River, with an average elevation of

1,000 feet above the sea, are the Highlands, Rimlands or Terracelands. This division is diversified in places with rolling hills and wide valleys. For the most part, however, it is a flat plain, furrowed by numerous ravines and traversed by frequent streams. The soil of this division is of varying fertility, but altogether it is a region of great agricultural importance and wealth. Its area is 9,300 square miles.

In the center of these Highlands, and surrounded by them, is the great Central Basin, elliptical in shape, and resembling the bed of a drained lake. It may be compared to the bottom of an oval dish, of which the Highlands form the broad, flat brim. The soil of this basin is highly productive of all the crops suited to the latitude, and it has been well named the Garden of Tennessee. In this basin stands the capital of the State. It is of the first importance as an agricultural region. Its area is 5,450 square miles, and it has an average depression of 300 feet below the Highlands. This whole basin, with the surrounding Highlands, is slightly tilted towards the north-west, and has a less elevation on that side than on any other.

The Western Valley, or the Valley of the Tennessee, forms the next natural division. This is comparatively a narrow valley, with spurs from the Highlands pointing in towards it, and sometimes running down to the margin of the Tennessee River. The surface is broken and irregular. The soil is fertile, but marshy spots, covered with cypress forests, occur in places along the river. The main valley sends out various subordinate ones, extending sometimes as far as twenty or twenty-five miles before they are lost in the Highlands. The Western Valley is not considered as including all the territory drained by the tributaries of the Tennessee, but "its general limits are the lines along which the Highlands on both sides for the most part break away." The average width of this valley is ten or twelve miles, and its length the breadth of the State. It has an area of 1,200 square miles, and an elevation of 350 feet above the sea.

The Plateau or Slope of West Tennessee is the seventh natural division, and is peculiar in having but few rocks, differing in this particular from all the divisions mentioned above. It is a great plain, that slopes gradually towards the Mississippi River, gently undulating, and differing widely in the character of its soil and scenery. Here the streams are sluggish, and the banks unstable. Furrowed with river valleys, this division extends for an average distance of about eighty-four miles, when "it abruptly terminates, falling off into a long and steep bluff or escarpment, that overlooks the great alluvial low plain or bottoms of the Mississippi." The soil of this division is light,

porous, siliceous, and charged with the elements of an abounding fertility. Its superficial extent is about 8,850 square miles, with an average elevation of five hundred feet.

The Bottoms of the Mississippi form the eighth and last natural division, and constitute a low, flat, alluvial plain, teeming with a rank luxuriance of vegetable life that is almost tropical. Lakes and morasses are frequent. The soil is of exuberant fertility, and will produce year after year, with no apparent diminution in quantity, enormous crops of corn and cotton. Its agricultural resources are immense, and when reclaimed from the dank, dark forests, will subsist a larger population than any other portion of the State in proportion to its area. The surface embraces 900 square miles, and it has an average elevation of 295 feet above the Gulf of Mexico.

We have thus hurried rapidly over the eight natural divisions of the State, giving the salient points of each and leaving out all details, in order that the reader may have a clear conception of them, for these divisions furnish the best possible basis for the classification of our soils and for a thorough understanding of the extent of our mineral wealth.

To recapitulate:

I. *The Unakas.* High, mountainous, with enclosed valleys.

II. *The Valley of East Tennessee.* A fluted region; a succession of parallel valleys and ridges. One of the most beautiful, populous and fertile portions of the State.

III. *The Cumberland Table Land.* The region of coal. A high plateau or table, capped with sandstone.

IV. *The Highlands, or Rimlands, or Terrace-lands,* that encircle a basin of rich lowlands in the center of the State. Soil clayey, siliceous, and for the most part productive, but of great variability of aptitudes and capabilities.

V. *The Central Basin,* enclosed by these Highlands. The center of wealth and political influence, and rich in all the elements of a splendid civilization.

VI. *The Western Valley of the Tennessee.* Narrow, irregular, low, swampy, productive, but sparsely settled; in a condition of comparative wildness.

VII. *The Plateau or Slope of West Tennessee.* Slightly rolling; streams sluggish; soil for the most part light, siliceous, fertile, and capable of sustaining an immense population.

VIII. *The Mississippi Bottoms.* Dark with a dense vegetation; spotted with lakes and marshes; soil of inexhaustible fertility.

## CIVIL DIVISIONS.

These eight natural divisions have been reduced to three civil divisions:

I. *East Tennessee*. Comprising all the territory from the North Carolina line to about the center of the Cumberland Table Land, embracing the first and second natural divisions and about half of the third.

II. *Middle Tennessee*. Extending from the dividing line on the Cumberland Table Land to the Tennessee River, and comprising the whole of the fourth and fifth natural divisions and about half of the third and sixth.

III. *West Tennessee*. Extending from the Tennessee River to the Mississippi, and including the whole of the seventh and eighth natural divisions and half of the sixth.

These three civil divisions are sub-divided into 93 counties, of which East Tennessee has 33, viz:

Anderson,	Greene,	Knox,	Rhea,
Bledsoe,	Hamblen,	Loudon,	Roane,
Blount,	Hamilton,	McMinn,	Scott,
Bradley,	Hancock,	Marion,	Sevier,
Campbell,	Hawkins,	Meigs,	Sequatchie,
Carter,	James,	Monroe,	Sullivan,
Claiborne,	Jefferson,	Morgan,	Union,
Cocke,	Johnson,	Polk,	Washington.
Grainger,			

Middle Tennessee has 40, viz:

Bedford,	Franklin,	Macon,	Rutherford,
Cannon,	Giles,	Marshall,	Stewart,
Clay,	Grundy,	Maury,	Sumner,
Cheatham,	Humphreys,	Montgomery,	Trousdale,
Coffee,	Hickman,	Moore,	Van Buren,
Cumberland,	Houston,	Overton,	Warren,
Davidson,	Jackson,	Putnam,	Wayne,
Dickson,	Lawrence,	Perry,	White,
DeKalb,	Lewis,	Smith,	Williamson,
Fentress,	Lincoln,	Robertson,	Wilson.

West Tennessee has 20, viz:

Benton,	Fayette,	Hardeman,	McNairy,
Decatur,	Gibson,	Henry,	Obion,
Dyer,	Henderson,	Lake,	Shelby,
Carroll,	Hardin,	Lauderdale,	Tipton,
Crockett,	Haywood,	Madison,	Weakley.

## CHAPTER II.

## CLIMATE.

THE climate of a country is the result of all its meteorological influences. It is modified by latitude, height, mountains and their direction, proximity of large surfaces of water, winds, and the nature of the soil. It acts an important part in agricultural development. If it is too hot, muscular energy is relaxed; if too cold, it is benumbed. If the climate is too moist and too hot, the exuberance of vegetation renders the labors of man insufficient to keep it in subjection, and the infections of malaria destroy the habits of systematic and hardy industry; if too dry, vegetation withers and the labors of the husbandman are not rewarded by a bounteous yield of the fruits of the earth. If the growing season is short, the variety of crops is small; if continuous, the ameliorating effects of freezes are lost. The most happy combination of climate appears to be that in which the amount of humidity and sunshine is just sufficient to produce the highest degree of perfection and maturity in the crops, and where the degree of cold is just enough to invigorate the physical system, ameliorate the soil, and destroy the germs of disabling disease. Such a combination is to be met with in by far the larger portion of the State of Tennessee. Healthy breezes, by reason of elevation, sweep over the State and dispel the noxious exhalations of the soil. The atmosphere is kept in purity by motion, as the waters of a stream. The miasmata which arise from low spots, charged with disease and death, are dissipated almost as fast as formed. The malarious districts of the State are very small. The days of rain and sunshine, of heat and cold, are beautifully ordered. Health is the rule, sickness the exception. Visitors often wonder at the large number of healthy old men, active, strong and vigorous. No State can boast of greater health, with greater advantages of soil and climate, and at the same time such a variety of crops, that are grown to perfection. The hills, the knobs, the

mountains, the intervenient coves and valleys, give great diversity of sub-climate. Tennessee has indeed a double climate—one resulting from latitude, and the other from elevation—so interwoven and modified by varieties of soil, position, exposure, trend of mountain ranges, etc., that the characteristics of the climate of every State from Mississippi to Canada may be found in it. The deliciousness of the climate in spring and autumn is unsurpassed by that of Italy. The glory of our Indian summer, when the whole physical nature, attuned to the surrounding influences, exults in an abounding and jubilant vitality, has been a fruitful theme for the poet and the philosopher. At that season, which usually occurs in November, the softened tints of the landscape, beautified by the blended colors of decaying leaves, are charming and ravishing to the eye. An agreeable haziness pervades the atmosphere, which attempers the rays of the sun, destroying the glare without lessening the brightness. It is the most delightful season of the year. Spring resembles it in all save the haziness of the atmosphere and the bright colors of the decaying leaves of the forests.

In treating of the climate of the State, we shall notice the means, maxima and minima of temperature, the number of days between killing frosts, quantity of rain, and general direction of wind. The figures and results given will refer mainly to the Valley of East Tennessee and to the part of the State west of the Cumberland Table Land, the climatic features of the latter division, as well as those of the Unaka Range, which rise so much above the general level, being noticed parenthetically as we proceed.

1st. *Temperature.* Along a line running east and west through the middle of the State, which we may call the middle parallel, the mean temperature of the year is about  $57^{\circ}$  in the Valley of East Tennessee,  $58^{\circ}$  in Middle and  $59^{\circ}$  in West Tennessee. This gives a range, in traversing the State longitudinally, of three degrees. The difference is partially due to elevation, but not wholly. Making allowance for this, it will still be found that the temperature increases going westward. Along the southern boundary of the State the annual mean will be found to be about one degree higher than it is on the corresponding part of the middle parallel, while on the northern boundary it will be as much lower, thus giving a range of two degrees. This is an approximation. The Eastern Valley presents an exception, on account of the great difference in the elevations respectively of the northern and southern boundaries. The range here is fully three degrees, one degree by reason of the difference of elevation and two by variation of latitude.

The mean annual temperature of Tennessee is the same as that of some of the most delightful regions of the globe. Its isothermals pass through North Carolina, the northern part of Spain, touch the south of France, traverse the vine-clad hills of Italy and the classic land of Greece, through fig-growing Smyrna, crossing the Caspian Sea near its southern extremity, through the great tea-growing districts of China, and through the spicy fields of the Japan Islands, re-entering the United States near San Francisco. Thus it is seen that Tennessee, climatologically, is in the same belt in which originated the laws, religion, the civilization and refinement of the western world. Though upon the same isothermals there is a marked difference between the climate of Tennessee and that of the European States mentioned. The range of the thermometer is not so great in the latter. Our summers are hotter but not so long continued, and our winters are colder. The orange, the olive, the lemon and the fig, that flourish upon the shores of the Mediterranean, do not mature in our climate. But for the production of those plants that require a high degree of heat, it far surpasses the countries of the same isothermals in Europe. Indian corn, melons, annual vines, grow with amazing rapidity upon fertile soils. Under the more favorable conditions, corn will sometimes grow three inches in a single night, and the melon and grape-vine almost as much. European grapes rarely do well with us. Attempts to acclimate the Malaga grape-vine proved unsatisfactory. The rainfall, being greater in Tennessee than in the Levantine States of Europe, induces a premature rot. The native varieties of grapes, however, are brought to a high degree of perfection, as may be seen by reference to the chapter on grape culture. The amount of annual rainfall in Turin is 36 inches, while the annual temperature is 53°. In the Madeira wine-growing districts the rainfall is 30 inches and the average temperature 67°—winter averaging 61° and summer 71°—showing an average range of only 10°. Our annual temperature is about 58°; rainfall, 46 inches; and range of thermometer, when summer and winter averages are compared, about 45°.

The following tables present monthly and annual means derived from observations taken at Knoxville, Falls of Caney Fork, Lebanon, Nashville, Glenwood and Memphis. They were prepared with great care, and the utmost pains were taken to insure accuracy in the observations, by prompt regularity and by using the most approved instruments, and placing them in positions where they were not subject to any undue influences, either of the sun or of the wind.



No. 1.—(Knoxville, 1873,) Elevation of College Hill 993 feet.

MONTHS.	THERMOMETER.						
	Mean.	MEAN OF			RANGE.		
		A. M. Ob.	P. M. Ob.	Night Ob.	Maxi- mum.	Mini- mum.	Differ- ence.
January .....	34.3	30.9	38.6	33.4	63	9	54
February .....	41.2	35.9	45.9	40.2	65	6	59
March .....	44.2	35.4	52.3	43.5	73	6	67
April .....	56.8	49.6	66.9	56.3	85	35	50
May .....	68.9	61.9	77.0	65.1	90	50	40
June .....	74.3	69.7	81.0	71.7	91	61	30
July .....	76.2	71.0	83.5	73.4	92	64	28
August .....	75.3	70.1	83.6	72.6	90	66	24
September .....	68.6	62.3	78.4	65.9	91	50	41
October .....	53.1	45.8	63.2	50.7	76	26	50
November .....	44.5	38.8	49.9	42.8	70	15	55
December .....	42.2	37.8	46.1	41.6	69	16	53
Annual .....	56.6	50.8	63.9	54.8	79.6	33.7	46

No. 2.—(Nashville, 1873.)

MONTHS.	THERMOMETER.						
	Mean.	MEAN OF			RANGE.		
		A. M. Ob.	P. M. Ob.	Night Ob.	Maxi- mum.	Mini- mum.	Differ- ence.
January .....	35.4	32.3	39.2	34.2	65	5	60
February .....	43.6	38.8	47.8	43.6	70	13	57
March .....	47.4	40.1	53.9	45.6	72	11	61
April .....	59.4	52.8	66.5	57.8	87	39	48
May .....	70.0	65.7	76.2	67.0	91	51	40
June .....	77.9	75.8	83.1	74.9	93	67	26
July .....	80.0	76.9	84.9	76.6	95	68	27
August .....	80.1	74.7	87.0	77.4	94	66	28
September .....	72.5	67.2	79.1	69.7	95	50	45
October .....	56.8	49.5	64.3	54.2	80	28	52
November .....	47.1	42.3	52.7	45.9	77	20	57
December .....	44.6	40.1	48.2	43.3	73	22	51
Annual .....	59.5	54.3	65.2	56.6	95	5	90

The hours of observation were 7 A. M., and 2 and 9 P. M., Knoxville and Nashville time respectively.

No. 3.

Showing the Monthly Mean Temperature for the Years 1852 to 1873 inclusive, and Means for Twenty-one Years, at Glenwood, Montgomery County, Tenn. Hours of Observation, 7 A. M., 2 P. M. and 9 P. M. Lat. 36° 29' 12" N; Long. 10° 6' 30" W, West of Washington. Altitude above Sea Level, 500 feet.

MONTHS.	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870	1871	1872	Means for 21 Years
January.....	31.25	37.36	37.43	29.67	25.57	25.45	44.09	36.66	38.62	37.55	42.11	40.91	32.91	31.39	38.11	31.71	30.94	42.03	39.75	40.18	32.03	34.08
February.....	44.55	39.34	44.24	34.37	33.34	50.68	34.12	13.66	40.88	44.55	39.53	41.62	38.80	41.61	37.36	45.26	39.91	42.15	40.29	45.70	38.83	41.00
March.....	54.56	46.87	52.84	43.97	40.19	43.28	48.74	52.08	50.11	48.49	47.83	47.38	42.70	50.88	47.28	39.86	55.04	44.44	43.76	53.04	41.94	47.30
April.....	56.98	60.36	58.65	62.07	59.35	46.65	57.78	55.18	62.14	57.65	58.57	57.39	52.80	58.67	61.54	57.58	55.44	56.49	56.08	61.71	60.07	57.84
May.....	67.78	65.37	66.29	66.07	63.72	61.28	65.59	61.81	68.60	63.57	65.03	63.88	63.00	65.70	62.82	61.40	65.30	63.04	65.78	65.64	67.41	64.98
June.....	71.01	76.55	71.79	69.71	74.25	72.34	70.76	72.90	74.61	69.58	67.84	72.30	74.61	71.33	73.86	71.93	70.24	70.82	74.62	73.54	72.14	72.14
July.....	77.10	73.48	80.50	76.82	76.94	72.85	76.01	76.46	79.73	75.19	73.29	75.87	75.72	77.44	74.67	75.29	76.00	76.00	75.31	76.85	76.22	76.22
August.....	73.00	73.45	80.78	76.35	73.13	73.81	73.86	72.55	77.56	73.20	70.33	73.03	73.92	74.35	72.24	74.54	72.98	77.65	74.84	76.02	77.05	74.85
September.....	68.42	69.19	76.17	73.79	64.99	67.99	67.55	67.99	69.22	68.19	70.33	65.20	68.94	67.95	71.90	65.76	66.10	68.04	66.01	69.08	69.00	69.00
October.....	62.46	54.02	60.39	54.68	54.99	54.78	60.63	54.36	58.65	57.64	57.05	60.60	52.70	55.91	58.09	69.59	55.99	48.17	59.14	59.41	56.43	57.17
November.....	44.68	53.30	45.30	52.57	45.12	43.06	40.03	51.70	44.89	49.96	45.73	46.89	47.37	47.57	48.88	49.57	44.71	42.70	47.89	43.78	40.08	46.45
December.....	44.34	39.26	38.69	38.08	31.18	44.74	44.74	31.99	35.69	43.75	42.49	40.57	37.37	40.40	37.43	42.07	33.37	37.47	35.74	36.96	30.65	38.54
Annual Mean.....	58.08	57.62	59.45	57.34	54.23	54.62	57.12	56.63	58.25	57.70	57.53	55.73	54.88	57.57	56.70	57.67	55.90	55.47	56.72	58.08	55.42	56.63

The figures show the temperatures to hundredths of a degree.

Mean for 21 years, 56.79.

The following means for 1873, taken at Glenwood, were received too late to be incorporated in the above table:

MONTHLY MEAN TEMPERATURE.

January.....	31.25	April.....	53.54
February.....	39.30	May.....	56.63
March.....	44.52	June.....	56.11
		July.....	56.00
		August.....	55.04
		September.....	57.94
		October.....	53.54
		November.....	45.50
		December.....	41.41
		ANNUAL MEAN.....	56.01

Table No. 1 has been supplied by Professor J. K. Payne, of East Tennessee University, officer in charge of the United States signal station at Knoxville; table No. 2 by Mr. A. C. Ford, officer in charge of the same service at Nashville. These two tables include the observations of but one year, 1873, and supply the means of making comparisons between the temperatures of Nashville and Knoxville for twelve months. In a few years the data of the signal service will yield us invaluable aggregates and means.

Table No. 3 is of special interest. It embraces results of continuous and unbroken observations covering a series of twenty-one years. We are indebted for this and many other tables in this report to Prof. Wm. M. Stewart, of Montgomery county, to whose learning and zeal in the cause of science, indefatigable industry and tireless patience the State owes a debt of lasting gratitude. This gentleman has done more towards making out the meteorological characteristics of our climate than all others combined.

The following table, No. 4, is copied entire from Dr. Safford's Report, and contains data not otherwise accessible. It presents annual means, in degrees and hundredths of a degree, derived from observations made at six stations. The means of Glenwood are the same as those of the corresponding years in Table 3:

	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	Aver- age of Means
Knoxville.....	"	55.67	"	57.67	57.75	"	"	"	"	"	57.03
Lebanon.....	57.43	58.10	"	"	"	"	"	"	"	"	57.76
Nashville.....	"	"	"	"	59.83	57.77	57.05	59.16	58.52	"	58.47
Glenwood.....	59.31	58.08	57.62	59.46	57.34	54.23	54.62	57.12	56.63	58.25	57.26
Falls of Caney Fork.....	Period of 2 years, (1855—1856).....										58.48
Nashville.....	" " 5 " (1840—1844).....										58.44
Memphis.....	" " 3 " (1850—1852).....										60.80

From these tables a number of interesting conclusions may be drawn, in addition to the means already mentioned. At Glenwood the mean temperature of winter, as deduced from the observations of twenty-one years, is  $37^{\circ}.87$ ; of spring,  $56^{\circ}.71$ ; of summer,  $74^{\circ}.40$ ; of autumn,  $57^{\circ}.54$ . From limited Knoxville data, four years, we have as the mean of winter  $38^{\circ}.66$ , and of summer  $74^{\circ}.02$ . These means do not present as great differences between the winter and summer temperatures of the two places as we have a right to expect, for when the means of these seasons in the same year are compared, we find the

summer of Knoxville to be from one to two degrees cooler than that of Glenwood. The summer mean of Knoxville is, doubtless, nearer  $73^{\circ}.6$ , at which it was placed in Dr. Safford's report. Assuming this to be correct, Knoxville has about the summer temperature of Philadelphia, Penn., as well as that of several points in Central Virginia, of Cincinnati, Louisville, Ky., Southern Indiana, and Central Illinois. It is, too, that of the central part of Spain and the northern part of Italy. The summer of the East Tennessee Valley is, therefore, considering its valley-like character and its low latitude, a comparatively cool one. This is mostly due to the considerable elevation of the region above the sea.

This lower summer temperature has its influence in giving to East Tennessee agricultural features, to some extent, different from those found elsewhere in the State.

It might be thought that the mountain ranges which bound the Valley on both sides would materially affect its climate. This, however, is not the case. These ranges are happily so situated as not to obstruct, to any considerable extent, the southwesterly and westerly winds, which of all others, in an agricultural point of view, are most important. The great trough, of which the Valley is a part, is open towards the southwest, so that these winds, coming from the Gulf of Mexico, and charged with warmth and moisture, flow freely through it, imparting, during the spring and summer, fertility to all its parts. The mountain ranges, doubtless, change the direction of the winds to some extent, and thus make southwesterly and northeasterly winds more frequent than they would be otherwise.

The summer of the Central Basin, the mean of which for the middle part may be placed at  $75^{\circ}$ , but ranging from about  $74^{\circ}$  to  $76^{\circ}$  in passing from the northern to the southern portions, is approximately the same as that of the northern parts of Georgia and South Carolina.

West Tennessee has summer means higher by about a degree than those of the Central Basin. The differences are sufficient to lengthen the growing season, and so to modify the climate as to throw a large part of this division into the cotton-growing region.

The average winter temperature of the middle parallel of the State may be placed at about  $38^{\circ}$ , and it is doubtless nearly the same in East, Middle and West Tennessee.

From the Glenwood table (No. 3) it is seen that January is the coldest month,  $34^{\circ}.08$  being the mean of this month for 21 years; then follows December, its mean being  $38^{\circ}.54$ ; then February,  $41^{\circ}$ ; and

then the remaining months in order as follows: November,  $46^{\circ}.45$ ; March,  $47^{\circ}.30$ ; October,  $57^{\circ}.17$ ; April,  $57^{\circ}.84$ ; May,  $64^{\circ}.98$ ; September,  $69^{\circ}$ ; June,  $72^{\circ}.14$ ; August,  $74^{\circ}.85$ ; July,  $76^{\circ}.22$ , which, as the hottest month, terminates the climax.

The temperature of the Cumberland Table Land is from four to five degrees lower than that of points on the same parallel in the Central Basin, and from two to three lower than corresponding points in the Valley of East Tennessee. The difference in temperature is most apparent at night. The Table Land has been for years a favorite resort during the hot months. Scores of summer retreats, public and private, may be found upon its flat tops, most of them located on or not far back from its cliff-bound edge. At several points, as at Beer-sheba and Lookout, summer hotels have been erected, and these have clustered around them many elegant cottages, altogether forming attractive mountain villages. This has been brought about by the agreeable summer temperature and the pure air of the Table Land, in connection with its pleasing and, in the vicinity of its escarpments, its wild and grand topographical features.

During the summer of the year 1859, Benj. Bentley, Esq., of Spring Grove, upon the Table Land in Cumberland county, and Prof. A. H. Buchanan, of Cumberland University, Lebanon, made regular and systematic observations, at their respective residences, in order to furnish data for the comparison of the mean temperatures of the two places. The following tables contain the results:

No. 5.—*Mean Temperatures for the Summer of 1859, at Spring Grove, Cumberland County, Tenn.*

	June.	July.	August.	Summer.
6 A. M.	64.03	66.74	64.16	64.98
2 P. M.	78.46	83.71	77.00	79.72
9 P. M.	66.83	71.03	68.58	68.81
Mean.	69.77	73.82	69.91	71.17

No. 6.—*Mean Temperature for the Summer of 1859, at Lebanon, Wilson County, Tenn.*

	June.	July.	August.	Summer.
6 A. M.	66.96	71.09	68.80	68.95
2 P. M.	80.55	85.87	80.42	82.28
9 P. M.	72.65	78.06	74.30	75.00
Mean.	73.38	78.34	74.50	75.41

No. 7.—*Extremes of Temperatures, or the Maxima and Minima, observed during Summer.*

	Maxima.	Minima.	Range.
Spring Grove..	July 19 & 21...93°	June 5...42°	51°
Lebanon.....	July 18 & 19...97°	June 5...46°	51°
Difference.....	4°	4°	00

According to the first two tables, the summer mean at Spring Grove is 4.24 degrees less than at Lebanon. The former has, however, a lower latitude than the latter. Correcting for this, or supposing the points to be on the same parallel, the difference in temperature becomes greater, and is equal to about 4.5 degrees. Observations taken at Nashville during the same summer show very nearly the same result. The highest ridges of the Unakas have a mean yearly temperature of about 42°, which is that of the northern shore of Lake Superior and of Quebec and Montreal. This will account for the presence of trees and other plants on these mountains belonging to a Canadian flora.

2d. *Extreme Temperatures.* The following table, No. 8, prepared by Prof. W. M. Stewart, from his observations taken at Glenwood, is full of interest from an agricultural point of view. It shows the vicissitudes of temperature to which vegetation is exposed—an important consideration. It is, also, highly interesting in other respects, which will be appreciated by the intelligent reader.

In the following table the minus sign (—) indicates temperatures below zero. The thermometers employed in these observations are of the most careful construction, are provided with adjusting arrangements at the top of the tube, and are at least verified once during the year by reference to the freezing point. They are free from reflected heat, and exposed to an open circulation of air, on a northern aspect.

It will be observed, by an inspection of the table, that during the period over which these observations extend, the temperature has never reached 100° Fahrenheit during the warmest terms, a temperature which is frequently attained in the Northern States and Canada. In July, 1860, the mercury rose to 99°, which is the highest range. During the same period, it will appear, the temperature has fallen below zero on several occasions, the lowest being minus 8°, in January, 1857 and 1864, respectively, making the range for the period, 107°. Our coldest days occur in January; the warmest in July, with very few exceptions.

No. 8.—CLIMATOLOGICAL TABLE, Showing the Monthly Extremes and Range of Temperature for the Years 1851 to 1872 inclusive.

MONTHS.	1851.			1852.			1853.			1854.			1855.			1856.			1857.			1858.			1859.			
	Max.	Min.	Range.	Max.	Min.	Range.	Max.	Min.	Range.	Max.	Min.	Range.	Max.	Min.	Range.	Max.	Min.	Range.	Max.	Min.	Range.	Max.	Min.	Range.	Max.	Min.	Range.	
January.....	68	11	57	64	17	47	59	17	42	70	5	65	65	9	54	47	7	54	45	9	57	16	41	16	28	36	8	50
February.....	72	25	47	67	14	53	70	14	56	70	21	49	62	17	58	47	11	54	45	9	61	16	45	16	28	36	8	50
March.....	77	36	41	73	24	49	49	24	25	70	31	39	31	37	58	46	12	54	42	12	61	22	39	22	39	22	39	22
April.....	80	40	40	82	45	37	37	45	37	80	31	49	49	31	54	42	12	54	42	12	71	44	27	27	44	27	44	27
May.....	81	34	47	84	41	43	43	41	43	86	42	44	42	44	86	46	40	46	40	46	80	44	36	36	44	36	44	36
June.....	92	46	46	93	50	43	43	50	43	92	45	47	45	47	92	45	47	45	47	92	45	47	45	47	92	45	47	45
July.....	96	51	45	96	53	43	43	53	43	96	45	51	45	51	96	45	51	45	51	96	45	51	45	51	96	45	51	45
August.....	96	65	31	96	68	28	28	68	28	96	65	31	31	31	96	65	31	31	31	96	65	31	31	31	96	65	31	31
September.....	96	42	54	96	49	47	47	49	47	96	42	54	42	54	96	42	54	42	54	96	42	54	42	54	96	42	54	42
October.....	83	26	57	84	37	47	47	37	47	83	26	57	57	57	83	26	57	57	57	83	26	57	57	57	83	26	57	57
November.....	81	24	57	74	25	49	49	25	49	81	24	57	57	57	81	24	57	57	57	81	24	57	57	57	81	24	57	57
December.....	69	6	63	65	4	61	61	4	61	65	4	61	61	4	61	61	4	61	61	65	4	61	61	4	61	61	4	61
ANNUAL MEANS.....	83	34	49	78	36	46	79	37	41	78	37	45	79	34	45	77	30	47	77	33	44	77	33	44	79	36	46	46
MONTHS.	1860.			1861.			1862.			1863.			1864.			1865.			1866.			1867.			1868.			
January.....	67	5	62	60	18	42	70	16	54	65	15	52	72	8	64	80	45	35	45	73	12	61	12	49	66	11	55	
February.....	80	27	53	73	25	48	48	25	23	68	19	49	68	16	52	58	22	36	22	69	10	59	10	49	78	18	60	
March.....	86	35	51	78	38	40	40	38	42	74	28	46	73	15	58	64	14	50	14	81	24	57	24	33	78	21	57	
April.....	87	42	45	85	42	43	43	42	43	87	37	50	46	43	80	41	39	41	39	84	37	47	37	40	84	33	51	
May.....	90	57	33	90	57	33	33	57	33	90	57	33	57	33	90	57	33	57	33	90	57	33	33	33	90	57	33	33
June.....	90	61	29	90	58	32	32	58	32	90	61	29	90	61	29	90	61	29	90	90	60	30	30	30	94	59	32	32
July.....	98	60	38	90	62	28	28	62	28	90	62	28	90	62	28	90	62	28	90	90	60	30	30	94	59	32	32	
August.....	90	44	46	86	43	43	43	43	43	85	42	43	87	43	88	43	45	43	43	91	44	47	47	47	91	44	47	
September.....	82	31	51	78	33	45	45	33	45	82	31	51	84	33	45	84	33	45	84	33	45	84	33	45	84	33	45	84
October.....	68	13	55	77	25	52	52	25	52	74	25	49	74	25	49	74	25	49	74	77	25	49	25	49	77	25	49	77
November.....	62	15	47	75	19	56	70	9	61	61	61	61	69	3	68	68	68	68	68	75	28	48	48	48	75	28	48	75
December.....	62	15	47	75	19	56	70	9	61	61	61	61	69	3	68	68	68	68	68	75	28	48	48	48	75	28	48	75
ANNUAL MEANS.....	81	32	49	80	37	43	80	35	45	78	33	45	79	31	48	80	40	40	80	33	47	80	33	47	80	33	47	80

## No. 8.—Continued.

MONTHS.	1869			1870			1871			1872		
	Max.	Min.	Range.	Max.	Min.	Range.	Max.	Min.	Range.	Max.	Min.	Range.
January .....	62	13	49	62	15	47	67	16	51	52	6	46
February .....	68	14	54	66	7	59	69	24	45	64	14	50
March .....	77	15	62	71	14	57	78	33	45	70	21	49
April .....	80	30	50	84	30	54	84	38	46	86	34	54
May .....	85	47	38	88	47	41	84	45	39	82	51	31
June .....	88	54	34	88	53	35	85	61	24	90	58	32
July .....	91	69	21	88	62	26	91	57	34	91	68	23
August .....	97	60	37	88	62	26	91	56	35	96	60	36
September .....	85	42	43	82	58	24	88	39	49	94	50	44
October .....	78	24	54	82	42	40	79	39	40	86	30	56
November .....	73	28	45	79	24	55	69	25	44	66	9	57
December .....	57	22	35	65	—0	65	69	4	65	57	1	56
ANNUAL MEANS .....	78	34	44	78	34	44	79	36	43	78	33	45

The average of the extreme low temperatures of the years in the above table is 2°.6. In but six out of the twenty-two years was the thermometer below zero. Uniting the lowest temperature of December, 1872, as given in this table, with the lowest of January and February in tables Nos. 1 and 2, it is seen that the thermometer did not fall to zero during the winter of 1872-3, which was so remarkable for its extreme cold at the north.

It may be added here, that in general, a median line drawn east and west through the State is the limit of domestic ice-houses. South of this the ice season is too uncertain to justify the expense or trouble in constructing them. North of the line, about once in seven years there is a failure in the ice erop. On the north side of the Highland Rim the ice, probably once in ten years, attains a thickness of six or seven inches; in the Central Basin it very rarely attains a thickness of four inches. The most usual thickness, however, of both regions is from two to three inches.

3d. *Period between Killing Frosts.* The length of the growing season is measured, to a great extent, by the period between killing frosts. This is, therefore, an important element of climate. Here again we are indebted to the extremely useful labors of Prof. Stewart.



No. 9.—Table of the Occurrence of Frost, (Earliest and Latest) from Observations made at Glenwood, near Clarksville, Montgomery County, Tennessee, 1851 to 1873 inclusive.

YEAR.	Last Frost in Spring.	First Light Frost in Autumn.	First Killing Frost or Skim Ice.	No. of Days Free from Frost.	No. of Days Free from Killing Frost.
1851.....	May 2.	Oct. 23.	Oct. 23.	173	173
1852.....	March 23.	Oct. 15.	Nov. 8.	205	228
1853.....	March 29.	Oct. 11.	Oct. 25.	195	210
1854.....	April 18.	Oct. 19.	Nov. 5.	184	201
1855.....	April 17.	Oct. 22.	Oct. 25.	187	200
1856.....	April 23.	Oct. 16.	Oct. 18.	175	176
1857.....	April 20.	Sept. 30.	Oct. 20.	162	181
1858.....	April 25.	Oct. 9.	Nov. 14.	166	201
1859.....	April 18.	Oct. 10.	Oct. 19.	174	182
1860.....	April 2.	Sept. 21.	Oct. 12.	171	192
1861.....	April 20.	Sept. 21.	Oct. 24.	153	186
1862.....	April 26.	Oct. 18.	Oct. 20.	174	176
1863.....	April 9.	Sept. 19.	Oct. 6.	162	178
1864.....	April 18.	Oct. 10.	Oct. 14.	174	177
1865.....	March 26.	Oct. 5.	Oct. 16.	192	202
1866.....	April 10.	Oct. 21.	Oct. 24.	193	195
1867.....	May 8.	Oct. 1.	Oct. 31.	145	175
1868.....	April 8.	Sept. 18.	Oct. 9.	164	184
1869.....	April 14.	Sept. 27.	Oct. 16.	166	185
1870.....	April 6.	Oct. 4.	Nov. 1.	181	209
1871.....	April 23.	Sept. 29.	Nov. 3.	159	194
1872.....	May 3.	Oct. 11.	Oct. 12.	161	162
1873.....	April 26.	Oct. 7.	Oct. 21.	164	178
Mean for 23 years.....				173	189

The following table, No. 10, which has been kindly supplied by Prof. Payne, presents similar data for the years 1871 to 1873 inclusive, at Knoxville:

No. 10.

YEAR.	Last Frost in Spring.	First Frost in Autumn.	First Skim Ice.	Days Absolutely Free from Frost.	Days Free from Killing Frost.
1871.....	April 23.	{ Sept. 16, light. Nov. 12, killing.	Nov. 12.	146	203
1872.....	April 3.		Oct. 10, light.	190	190
1873.....	{ April 10, heavy. April 25, light.	Oct. 6.	Oct. 6, light.	164	149

This table is good so far as it goes, but the observations of at least a decade of years are required before very satisfactory comparisons can be made.

According to the Glenwood table, the length of the growing season in the northern part of Middle Tennessee is 189 days. It is seen, too, that April and October respectively are pre-eminently the frost months of spring and autumn. From the third week in April to the middle of October the farmer can afford to risk the occurrence of frost; it may come within these dates, but the probabilities are against it. In the southern part of the State the period of no frost is twelve days, or two weeks, longer, and embraces, therefore, 200 or 203 days. This difference is of considerable importance to the cotton region of the State.

*Rain and Snow.* In general, the quantity of rain (including snow) which falls upon the surface of Tennessee, although not so great as that precipitated upon the States further south, is amply sufficient. The summers are sometimes too dry, but severe droughts are exceptional. It may be said that the rainfall is just enough to ensure a vigorous growth of vegetation and not too much to interfere with the proper cultivation of the earth.

The average annual fall of rain upon the surface of the globe is about sixty inches. In the Torrid Zone, which, by reason of its greater circumference, has a far larger surface than either the Temperate or Frigid Zones, the annual fall of rain is 96.5 inches, in the Temperate Zone 36.5, and in the Frigid Zone 12.25. If the whole amount of rain which falls annually were collected into a single place, it would be sufficient, according to Commodore Maury, to form a lake 24,000 miles long, 3,000 broad, and sixteen feet deep.

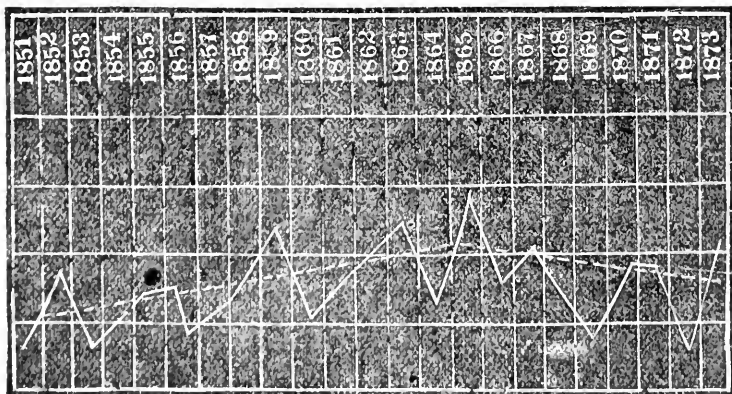
The following table, No. 11—another of Prof. Stewart's—is our main dependence for conclusions as to the rainfall of the State. It will be seen from this that the mean quantity of rain and melted snow for twenty-one years, at Glenwood, is 45.715 inches, or in round numbers, 46 inches. Of the months, April has the highest average, 4.7 inches; December follows, 4.6; then March, 4.4; February, 4.2; May, 4 inches, &c. The driest month is October, 2.5 inches, while September has but little more, 2.9. The greatest rainfall in any one year was in 1865, when it amounted to 60 inches; the least was in 1872, it being 34 inches in round numbers.



The annual means of the above table have been arranged by Prof. Stewart in a diagram, for the purpose of exhibiting any relation that may exist among them. The diagram is given below. Each space between the horizontal lines represents ten inches. The lowest line begins with 30 inches, as no mean falls below this. The annual means are represented by the points in the vertical columns, each under its respective year. Successive points are connected by straight lines, so that a zigzag is formed, running through the diagram. The dotted line represents the average of the oscillations, and shows that in the period beginning with 1851 and ending with 1865, there was a general tendency to an increase in the rainfall, and that since, the tendency has been in the opposite direction.

Prof. S., in a note with reference to this diagram, says: "In looking over my records, I can trace an ascending line (in the tables of precipitation) in the advancing years; very much zigzagged by the oscillations from year to year, but still *generally* ascending. Taking the year 1851 as the minimum, there is a general increase in the annual quantities of rain which culminates in a maximum in 1865.

The tables give, it is true, a double curve, but the general mean line is unmistakable. It would appear, therefore, that the period of these observations covers two-thirds of a curve of a great oscillation (21 years), and that a whole oscillation, from maximum to maximum, would require thirty years. The tables appear to show that, since 1865, the curve has been falling to another minimum. Whether this will be realized or not, will remain to be determined by future observations. As it seems almost certain that in other meteorological phenomena there are such periodical oscillations, it would be highly interesting to determine whether this is the case with the aqueous meteors."



In order that all the data we have may be recorded, the following tables are appended. No. 12 is from Prof. Payne, and presents results of observations made at Knoxville in 1873; No. 13 from Mr. A. C. Ford, and presents results obtained at Nashville for the same year; No. 14 is from Glenwood, for same year:

*Rainfall, including Melted Snow.*

MONTHS.	12.—AT KNOXVILLE.		13.—AT NASHVILLE.		14.—AT GLENWOOD.
	Rain, &c., in inches.	Days of R'n or Snow.	Rain, &c., in inches.	Days of R'n or Snow.	Rain, &c., in inches.
January .....	3.85	17	2.96	17	3.92
February .....	12.42	14	7.14	12	6.50
March.....	5.32	15	4.11	15	3.40
April.....	2.82	7	3.59	8	5.18
May.....	4.46	18	4.11	13	4.83
June.....	5.94	16	4.20	17	9.00
July.....	4.34	13	4.63	14	2.08
August.....	2.87	11	2.36	5	2.24
September.....	3.79	10	1.81	10	1.84
October.....	3.75	8	4.26	8	6.42
November.....	4.86	14	4.36	10	3.37
December.....	4.83	13	5.94	12	4.70
ANNUAL.....	59.25	156	49.47	141	53.48

The table below, No. 15, is from Dr. Safford's Report:

No. 15.—*Quantities of Rain and Melted Snow for the Seasons and the Year, in inches and hundredths of an inch. The Years of Observation are given under each Station.*

SEASONS.	KNOXVILLE. 1854-1855, two years.	LEBANON. Dec. 1850, August 1853, nearly three years.	NASHVILLE. 1844-1849, five years.
Spring.....	10 12	10.55	15.04
Summer.....	15.45	9.57	14.47
Autumn.....	8.02	7.54	13.49
Winter.....	11.02	15.95	11.99
ANNUAL.....	44.61	43.61	54.99

Tables 12, 13 and 14 supply data for comparing the rainfall of 1873 at three different points, one in East, the others in Middle Ten-

nessee. The reader must recollect, however, that inferences drawn from the observations of so short a period have very little general value; the data of another year would most likely give different results. Simultaneous observations for at least a decade of years are required before reliable differences can be made out in the distribution of rain, or in any other element of climate. In the tables above, however, we observe certain synchronous agreements. The number of rainy days, for example, at Knoxville and Nashville respectively was the same in January, as well as in the months of March and September. At both points, moreover, the most rain fell in February, though the quantities were quite different. At Nashville and Glenwood the least rain fell in September. Table No. 15 embraces aggregates not elsewhere given. Those of Knoxville may be compared with those of corresponding years in the Glenwood table.

The table below, No. 16, by Prof. Stewart, explains itself. It refers to snow alone:

No. 16.—Table showing the Quantity (in depth) of Snow fallen during the cold Months, for the Years 1852 to 1872 inclusive, and the Annual Quantity, at Glenwood, Montgomery County, Tenn. Depth given in inches and hundredths.

Years.	Nov.	Dec.	Jan.	Feb.	March.	Annual Quantity	Years.	Nov.	Dec.	Jan.	Feb.	March.	Annual Quantity
	In.	In.	In.	In.	In.	In.		In.	In.	In.	In.	In.	In.
1852.....	0	0	Spits	Spits	Spits	Spits	1863.....	0	0.50	10	3.25	0	13.75
1853.....	0	0	0.88	1	0	1.88	1864.....	0	3	1.25	0	3	7.25
1854.....	0	0.50	2.00	0	0	2.50	1865.....	0	0	3.50	0	0	3.50
1855.....	0	0	1.63	2.50	0	2.13	1866.....	0	0	2.50	2	0	4.50
1856.....	0	3.50	4.50	1	0	9	1867.....	0	7	6.75	8.25	5.75	27.75
1857.....	0	0	7.00	0.25	0	7.25	1868.....	0	1	0.50	0	0	1.50
1858.....	0	0	0	7	7	14	1869.....	0	3.25	0	0	0	3.25
1859.....	0.50	0	0	2.50	0	2.50	1870.....	0	0	10	0	0.13	10.13
1860.....	0	0	4.50	0	0	4.50	1871.....	2	1.50	0	0	0	3.50
1861.....	0	0	1.87	0	0	1.87	1872.....	0	1.75	0.25	6.25	1.50	9.75
1862.....	0	5	0	1.75	0	6.75							
MEANS FOR THE MONTHS.....								0.12	1.28	2.72	1.70	0.83	

All the snows and sleets which have fallen during the period are given above, except those which barely covered the ground. In 1852 such was the case the whole winter; the falls of snow and sleet are recorded as only "spits" for that year. In October, 1852, (month not included in the above table) there was a fall of snow the depth of about  $1\frac{3}{4}$  inches, the only instance of a measurable depth for that month. The above measures are given only as approximations; it is seldom possible to obtain accurate measurements, as the snow is frequently more or less drifted. The deepest snow of which there is any recol-

lection in this section of country, commenced falling about 10 A. M. on the 3d January, 1840, and continued until about 3 o'clock the next morning, leaving thirteen inches of snow on the ground, glazed with a thin coat of ice; it was attended with a strong north-east wind.

*Winds.* The winds often constitute an important element in climate. The southerly and south-westerly winds, charged with warmth from the tropical regions, and with moisture from the Gulf of Mexico, flow over the surface of the State, giving to it geniality of climate and stimulating the vegetation of its fertile soils. It is to be noted that the higher mountains of the State trend in such a direction as not to interfere with these life-giving and fructifying breezes. Table No. 17 gives the number of winds from the different points of the compass in a decade of years. The southerly winds exceed the others in frequency. Tables Nos. 18 and 19, contributed by Prof. J. K. Payne and Mr. A. C. Ford, show the prevailing direction for each month of 1873 and for the year, at Knoxville and Nashville respectively, and also the rate at which the winds travel, or the number of miles they are supposed to pass over. The prevailing direction at Knoxville was south-west, and at Nashville west.

No. 17.—Table showing the Changes of the Wind to Eight Points of the Compass for Ten Years, from 1863 to 1872 inclusive, at Glenwood, Montgomery County Tennessee.

	1863	1864	1865	1866	1867	1868	1869	1870	1871	1872	Mean 10 yrs.
N.	158	115	135	130	126	128	116	88	88	113	119.7
N. E.	97	107	103	121	181	137	118	122	149	143	127.8
E.	105	105	91	85	85	110	81	122	116	155	105.5
S. E.	129	99	97	120	139	129	116	104	131	125	118.9
S.	122	129	208	211	194	206	192	143	203	156	176.4
S. W.	114	137	112	117	95	97	154	140	99	98	116.3
W.	104	94	76	54	55	74	70	99	47	77	75.0
N. W.	137	144	113	154	116	112	124	147	113	137	129.7
Calm.	129	165	160	103	104	102	124	130	149	91	125.7

NOTE.—The hours of observation are the Smithsonian hours, viz: 7 A. M., 2 P. M. and 9 P. M., for this as well as all the other tables furnished by Prof. Stewart.

The figures in the above table show the number of times the wind has been observed to blow from the indicated quarter for the successive years.

No. 18.

No. 19.

MONTHS.	WIND.					WIND.							
	Prevaling Direction.	NUMBER OF MILES.				Prevaling Direction.	NUMBER OF MILES.						
		Noon to 6 P. M.	6 P. M. to Mid- night.	Midn't to 6 A. M.	6 A. M. to Noon.		Highest Wind.	Total.	Noon to 6 P. M.	6 P. M. to Mid- night.	Midn't to 6 A. M.	6 A. M. to Noon.	Highest Wind.
January.....	N. W.	12.42	8.38	7.70	10.52	18	39.02	N. W.	17.60	14.34	11.01	13.60	40
February.....	N. W.	8.97	6.40	5.61	7.31	16	23.29	N. N. W.	16.73	12.62	11.51	10.94	48
March.....	N. W.	13.02	5.90	4.22	9.35	16	32.49	W. S. W.	22.40	15.11	12.10	12.90	84
April.....	W.	13.60	6.92	5.84	10.73	13	51.09	S. W.	22.80	15.84	10.37	14.71	40
May.....	W.	9.94	4.54	2.80	6.94	25	27.50	S.	17.08	12.90	9.35	10.68	40
June.....	S. E.	9.81	4.78	2.97	7.98	16	21.95	S. S. W.	14.38	8.98	7.33	8.81	20
July.....	S.	9.83	4.47	3.08	7.39	24	25.53	S. S. W.	14.87	7.43	5.76	10.41	30
August.....	N. W.	9.82	3.60	2.60	5.71	12	21.41	S. W.	14.07	7.78	5.90	9.21	50
September.....	N. N.	10.51	4.75	3.54	8.20	16	26.53	E. S. E.	14.11	7.75	7.44	10.59	90
October.....	W.	10.52	5.26	6.07	8.76	24	30.58	S. W.	17.07	8.52	9.35	13.19	36
November.....	W.	9.94	6.54	6.51	10.47	20	33.46	S. W.	17.07	13.38	11.56	14.27	60
December.....	S.	7.61	5.35	5.23	6.19	20	34.13	S. W.	15.41	13.99	9.78	11.60	32
ANNUAL.....	W.	10.50	5.57	4.68	8.30	19	35.418	S. W.	20.308	13.594	11.032	14.139	49

NOTE.—In the above tables, excepting in the columns of "Highest Wind," the numbers indicate hundreds of miles—for example, 12.42 is twelve hundred and forty-two miles. This 12.42 is obtained by adding together the miles the wind traveled each day during the month of January between the hours from noon to 6 P. M. In like manner 8.38 is the aggregate of the miles traveled each day from 6 P. M. to midnight. So with the other columns, there being one for each quarter of the day. The "Total" is the whole number of miles traveled during the month. The "Highest Wind" is the greatest velocity attained, or the maximum rate per hour reached during the month.

For the benefit of those who may wish to know the barometrical variations at Glenwood, for the long series of years during which observations were taken, a table embracing these data will be given in the appendix. Tables of similar observations for the year 1873, recorded at Knoxville and Nashville, will also be given.

The southern States, as appears from the census reports, are much more favorable to old age than the northern ones. The largest num-



ber of persons over one hundred years of age is to be found in Georgia, which reports 297; Louisiana, 279; North Carolina, 265; Mississippi, 263; South Carolina, 236; Tennessee, 207; while Pennsylvania, with nearly three times the population of Tennessee, has but 103; Massachusetts, 46; New York, 167; Ohio, 90, Maine, 21; New Hampshire and Vermont, 7 each. Nearly the same proportion obtained in the census returns of 1850 and 1860.

The percentage of deaths to the whole population of the United States was, for the census year beginning 1st of June, 1869, and ending May 31, 1870, 1.28. In Tennessee it was 1.13. There are twenty-four States and Territories in which the percentage was greater than in Tennessee, and twenty-two in which it was less. But it is a noticeable fact, that those States or Territories which were reported as most healthy were those which were being settled, and the proportion of children small. The proportion of deaths in the United States under five years of age to the whole number of deaths, is 41.2 per cent. This proportion in Tennessee is less, being about 39 per cent. By leaving out those States and Territories which are being settled, it will be found that Tennessee ranks in the list of the healthiest States in the Union. The agency of climate is far more important in determining the intellectual improvement and material prosperity of a State than even the soil itself; for as health is due in a great degree to climate, so wealth is dependent upon health and enterprise. The two latter are almost the necessary antecedents to the former. However fertile a region may be, it cannot become the focus of wealth unless its conditions are favorable to health, and consequent activity of the mind and body. The two united, fertile soil and salubrity of climate, coupled with a fair degree of enterprise, will ensure a high social and material development, and happily for the State of Tennessee, both are found within its borders.

## CHAPTER III.

## THE GEOLOGICAL FORMATIONS OF THE STATE

THE formations of the State, like its topographical features, are numerous and varied. They are mostly made up of rocky strata, such as limestone, sandstone, slate and gneiss; in the western part of the State their materials are beds of sand and clay, which are not hardened into rock, though more or less compact. A formation, in a technical sense, is a stratum, or *a group of strata*, having characteristics which make it an individual thing, and which separate it from other strata, or groups, analogously characterized. This definition the reader will appreciate after reading the chapter. The formations are generally wide-spreading, but differ greatly in thickness. The Black Shale, for example, though outcropping in very many counties of East and Middle Tennessee, and thus at intervals showing itself over an area of thousands of square miles, will not average more than fifty feet in thickness. It is now, as a formation, very fragmentary, much of it having been removed in the washing out of river valleys, basins, and in the general erosion to which the surface has been subjected; but it was once continuous—an unbroken, comparatively very thin sheet spreading out, not only through this State, but far into adjacent ones north and south. On the other hand, the great Magnesian Limestone—the *Knox Dolomite*—upon which Knoxville is located, is several thousand feet in thickness, which, with the great extent of the formation and its calcareous character, gives it great agricultural value.

It is important to notice the geological formations in a report like this, for the reason that the soils are derived from them. At the start, we may say, the whole surface of the State was bare rock or bare stratum. By the action of the elements, or, what is the same, by

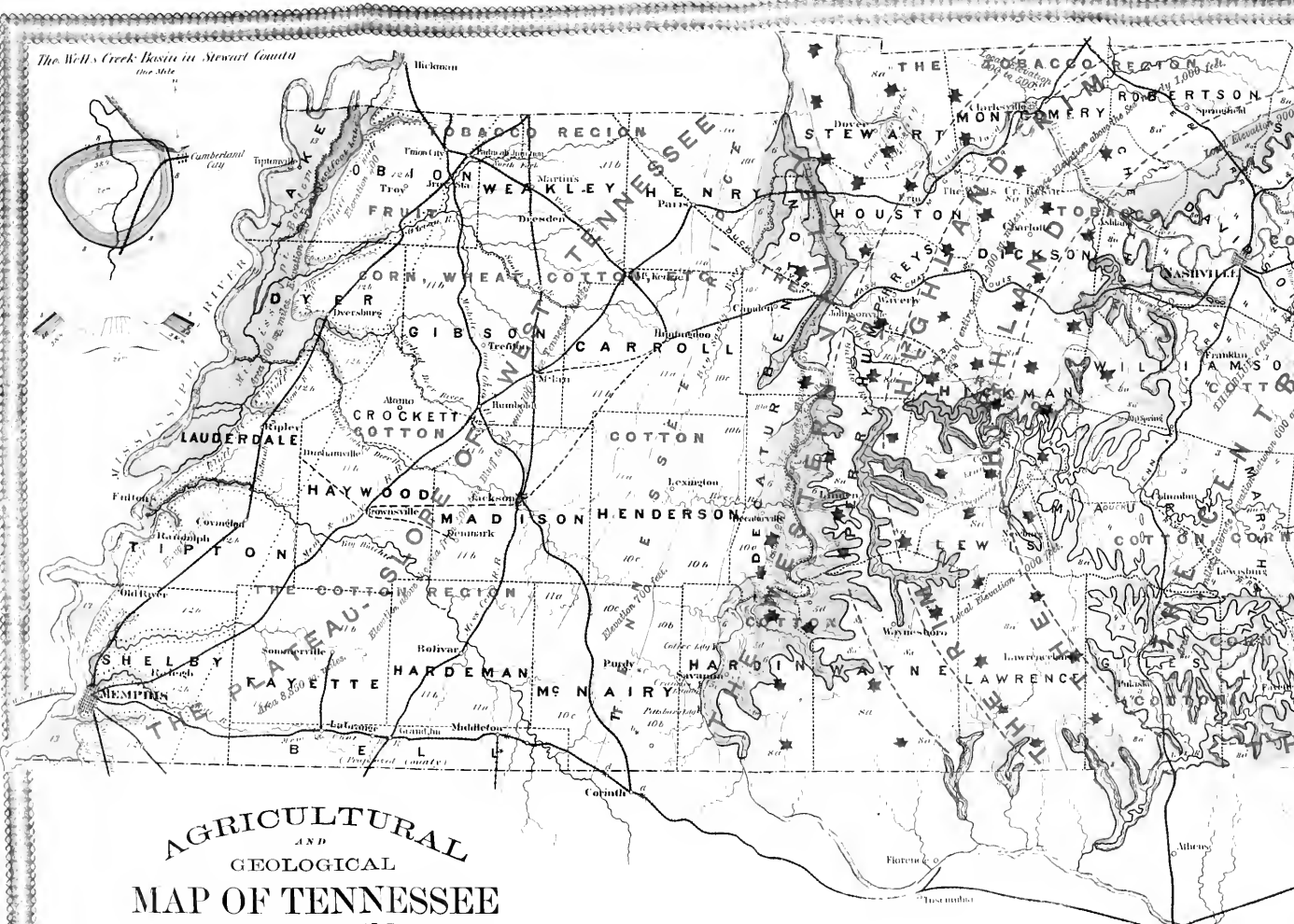
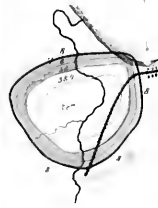
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1880-1881  
1882-1883

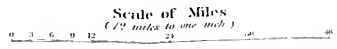
WATER

The Wells Creek Basin in Stewart County  
the 5th



# AGRICULTURAL AND GEOLOGICAL MAP OF TENNESSEE

Showing also TOPOGRAPHICAL FEATURES,  
As well as  
RAILROADS, COUNTY BOUNDARIES, COUNTY TOWNS, &c.  
To accompany the Reports of the  
**BUREAU OF AGRICULTURE,**  
Prepared by order of the Bureau by JAS. M. SAFFORD.

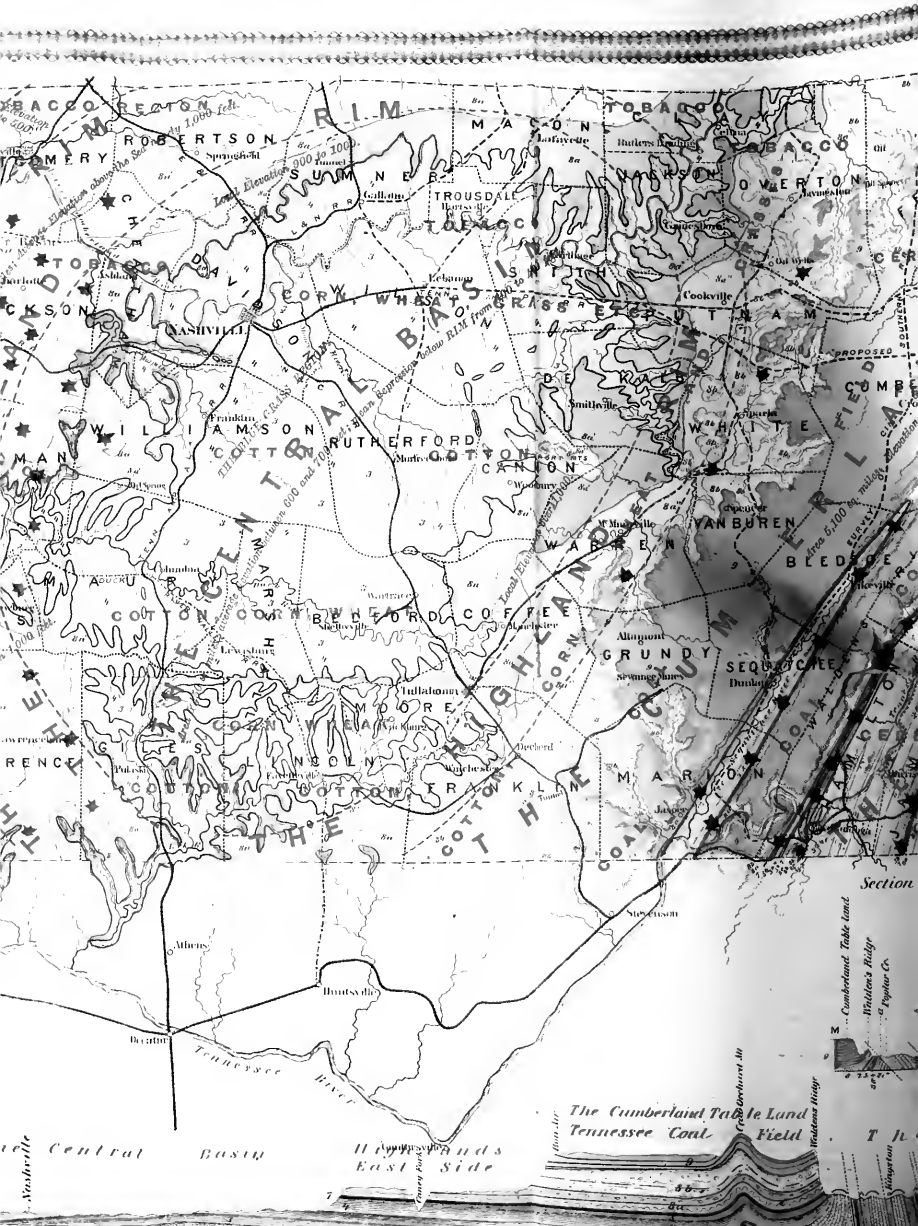


Plateau, top of West Tennessee

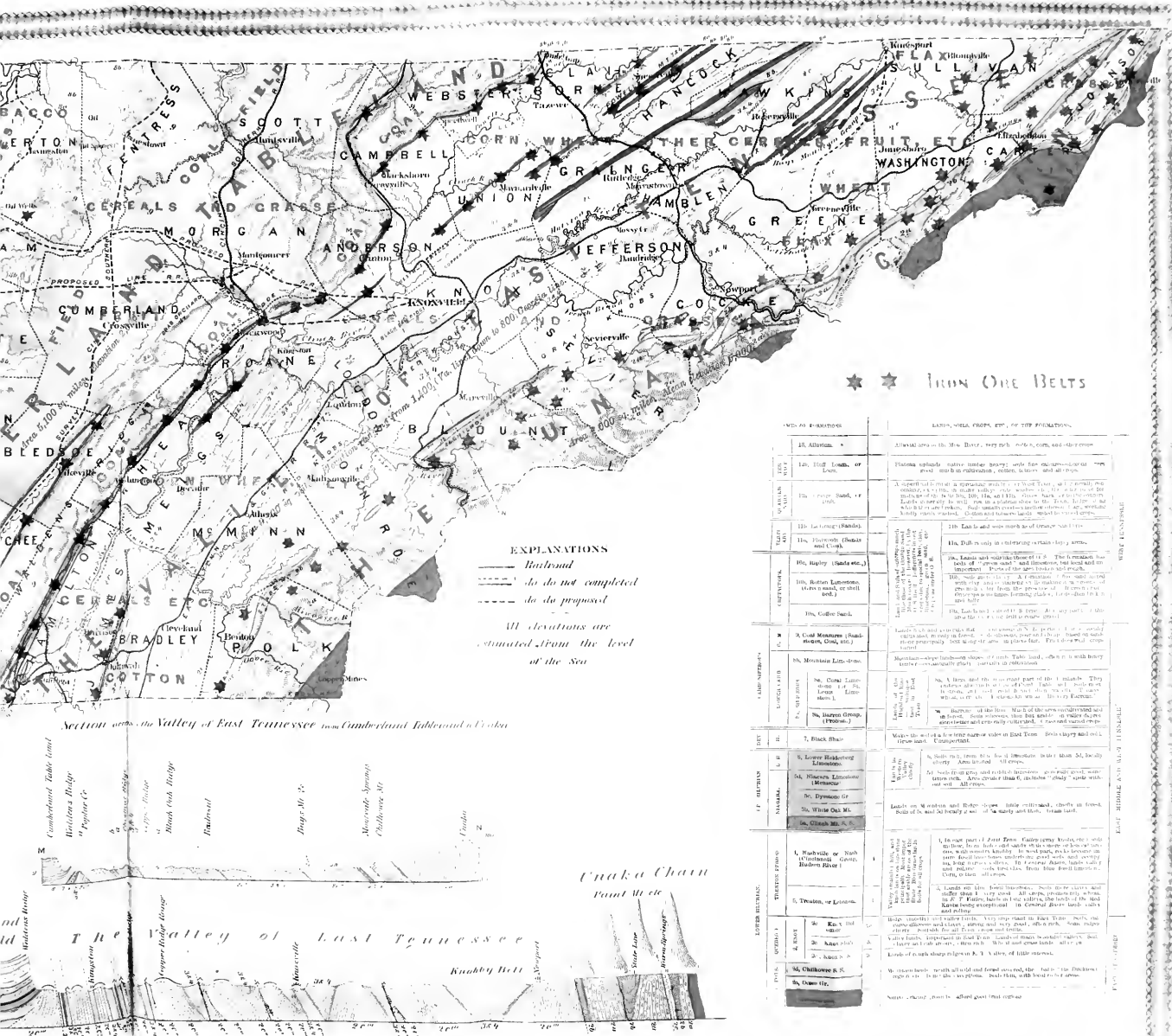
Highlands  
West Side      The Central Basin

**TAMTOS BROS.**  
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**A GEOLOGICAL SECTION FROM THE MISSISSIPPI RIVER THROUGH DYER COUNTY, NASHVILLE, SPARTA, AND KNOXVILLE.**  
Vertical Scale, 3000 Feet to the inch. Horizontal 12 miles to the inch. The great difference in scales makes the dip of the rocks in the Valley



COUNTY, NASHVILLE, SPARTA, KINGSTON, KNOXVILLE, NEWPORT, PAINT ROCK TO THE WARM SPRINGS. The scale makes the dip of the rocks in the Valley of East Tennessee appear much greater than it really is.—See notes on Map.



**EXPLANATIONS**  
 ——— Railroad  
 - - - - - do do not completed  
 - - - - - do do proposed

All Elevations are situated from the level of the Sea

Section across the Valley of East Tennessee from Cumberland to Clinch



**★ ★ IRON ORE BELTS**

NO. OF BELTATIONS	NAME, WIDE, DEPTH, ETC., OF THE BELTATIONS
1	1. <b>Clinton</b> — 10 to 15 miles wide, very rich, and of great extent.
2	2. <b>East Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
3	3. <b>West Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
4	4. <b>North Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
5	5. <b>South Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
6	6. <b>Central Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
7	7. <b>Northwestern Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
8	8. <b>Southwestern Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
9	9. <b>Eastern Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
10	10. <b>Western Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
11	11. <b>Central Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
12	12. <b>North Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
13	13. <b>South Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
14	14. <b>Central Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
15	15. <b>North Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
16	16. <b>South Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
17	17. <b>Central Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
18	18. <b>North Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
19	19. <b>South Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.
20	20. <b>Central Tennessee</b> — 10 to 15 miles wide, very rich, and of great extent.

**THE WARM SPRINGS IN NORTH CAROLINA**  
 See notes on Map and Section in the Report

EAST TENNESSEE  
 EAST TENNESSEE  
 EAST TENNESSEE

weathering, the rocks have crumbled and disintegrated into earthy matter, thus originating the soil. The surface portion of this weathered material, modified and enriched by vegetable growth and the addition of dead vegetable matter, is the soil proper, the remainder being the subsoil. By this process limestones, for example, have given us limestone soils, and sandstones sandstone soils; and indeed, it may be added, each variety of limestone and each variety of sandstone respectively its particular variety of soil. It follows from this that a map of the formations will be a map of the soils, and that a knowledge of the composition of the former will aid much in acquiring a knowledge of the composition, and hence the strength, capabilities and deficiencies of the latter. The Map which accompanies this report has this double character; it is a representation of both the geological and agricultural features of the State. What is said is intended to have reference to the formations mainly as soil-originating and soil-producing masses, though some notice will be taken of them as depositories of important minerals.

The outcrops, or the areas, which the formations severally contribute to the making up of the surface, are represented on the Map by different colors. In the Valley of East Tennessee these outcrops occur in long lines or bands, for the reason that, in this part of the State, the strata have been, by disturbing elements, greatly tilted or thrown upon their edges. Dipping or inclined strata are the rule here, while in the middle and western portions of the State the strata are approximately horizontal. This difference in the position of the rocks will account for the peculiarly banded aspect of the east end of the Map, so different in appearance from its other portions. The reader is supposed to have the Map before him. In the south-east corner will be seen a table of the formations. At the bottom a vertical section running east and west through the State is represented, which is intended to show how the formations are superimposed upon each other, and how they lie with reference to the surface as well as to a horizontal line. The dip of the rocks at the east end of this section is too great, being distorted on account of the great difference between the vertical and horizontal scales. The true dip is more like that indicated in the small section, M. N.

The following is a table of the formations occurring in Tennessee. It commences with the oldest and lowest, geologically, and proceeds in order to the most recent. The table corresponds with that on the Map:

## (a) LOWER SILURIAN.

- |      |                                    |                   |
|------|------------------------------------|-------------------|
| 1.   | Metamorphic Rocks,                 |                   |
| 2a.  | Ocoee Group, . . . . .             | } Potsdam Period. |
| 2b.  | Chilhowee Sandstone, . . . . .     |                   |
| 2c.  | Knox Sandstone, . . . . .          | } Quebec Period.  |
| 2c." | " Shale, . . . . .                 |                   |
| 2c." | " Dolomite, . . . . .              |                   |
| 3.   | Trenton or Lebanon, . . . . .      | } Trenton Period. |
| 4.   | Nashville or Cincinnati, . . . . . |                   |

## (b) UPPER SILURIAN.

- |     |   |                         |
|-----|---|-------------------------|
| 5a. | Clinch Mountain Sandstone, . . . . .    | } Niagara Period.       |
| 5b. | White Oak Mountain Sandstone, . . . . . |                         |
| 5c. | Dyestone Group, . . . . .               |                         |
| 5d. | Niagara Limestone, . . . . .            |                         |
| 6.  | Lower Helderberg, . . . . .             | Low. Helderberg Period. |

## (c) DEVONIAN.

- |    |                        |                  |
|----|------------------------|------------------|
| 7. | Black Shale, . . . . . | Hamilton Period. |
|----|------------------------|------------------|

## (d) CARBONIFEROUS.

- |      |  |                       |
|------|--|-----------------------|
| 8a.  | Barren Group, . . . . .                  | } Lower Carb. Period. |
| 8a." | Coral, or St. Louis Limestone, . . . . . |                       |
| 8b.  | Mountain Limestone, . . . . .            |                       |
| 9.   | Coal Measures, . . . . .                 | Coal Measure Period.  |

## (e) CRETACEOUS.

- |      |   |                      |
|------|---|----------------------|
| 10a. | Coffee Sand, . . . . .                    | } Cretaceous Period. |
| 10b. | Rotten Limestone or Green Sand, . . . . . |                      |
| 10c. | Ripley Group, . . . . .                   |                      |

## (f) TERTIARY.

- |      |                                      |                    |
|------|--------------------------------------|--------------------|
| 11a. | Flatwoods Sands and Clays, . . . . . | } Tertiary Period. |
| 11b. | La Grange Sands, . . . . .           |                    |

## (g) QUATERNARY AND MODERN.

- |      |                                 |                    |
|------|---------------------------------|--------------------|
| 12a. | Orange Sand or Drift, . . . . . | Quaternary Period. |
| 12b. | Bluff Loam or Loess, . . . . .  | Terrace Period.    |
| 13.  | Alluvium, . . . . .             | Human Period.      |



In the descriptions below, the order presented in this table will be followed. We begin with the Lower Silurian Division.

### 1. THE METAMORPHIC ROCKS.

This and the two following divisions, the *Ocoee Group* and the *Chilhowee Sandstone*, are very thick and massive formations. They embrace the rocks of the great Unaka ridges. Their strata are hard and pre-eminently mountain formations, and are not found outside of the Unaka area, or, in other words, outside of the great raised and mountain border, the summit of which presents the line separating Tennessee from North Carolina.

The first of the trio, the Metamorphic Formation, is made up of thick and thin-bedded granite-like rocks, which belong mostly to the varieties called by geologists *gneiss*,\* *talcose slate* and *mica slate*. These rocks are mainly composed of quartz, mica, talc, feldspar, and allied minerals. They were once common sandstones, conglomerates, shales, &c., but have lost their original character, and have become crystalline, through the agency of subterranean heat, or through the *steaming* and *baking* to which they have been subjected.

This formation is represented on the Map by the deep red or crimson color which is seen in four patches on the North Carolina line. In the latter State the group outcrops in a continuous belt, running from Georgia to Virginia. The red patches are projections of this belt into Tennessee. The copper mines of Polk County and the *magnetic iron ore* of Carter are in this formation.

### 2a. THE OCOEE GROUP.

This is a great series of half altered rocks, having an estimated thickness of 10,000 feet, and making up the greater part of the Unakas. The series includes heavy beds of conglomerates, sandstones, clay slates, semi-talcose and roofing slates, and locally beds of magnesian limestone (dolomite), all of which generally dip at a high angle. The mass often holds veins of quartz, some of which, in the more southern counties, are gold-bearing. The group makes a wide belt in the counties south of the French Broad River. The formation is marked 2a on the Map, and is colored light chestnut. Profitable quarries of roofing slates might be opened at a number of points within the area of this formation were they accessible by railroad.

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\*Gneiss is simply a name for stratified granite.

2*b.* THE CHILHOWEE SANDSTONE.

This is a mass of sandstone having, it is estimated, a maximum thickness of not less than 2,000 feet. It is the rock of Chilhowee Mountain and of the other similar mountains which together make up the most north-westerly interrupted range of the Unakas. The green bands on the Map show the outcrops of this formation, and at the same time as many mountains. The sandstone is generally heavy-bedded and grayish white when weathered. It often presents itself as whitish quartose sandstone, and sometimes includes sandy shales. It is curious to observe how its mountains, in a broken chain, skirt the higher Unakas.

We pass now, for a while, from mountain-yielding formations—that is to say, from those so hard and insoluble that the elements, by wear and tear, have not been able to remove their lofty portions—to formations mainly valley-yielding, or to those so soft that erosive natural agencies have been able to scoop out of them our valleys and basins. The mountain formations are hard because their rocks are, in good part, siliceous or flinty; the valley rocks are soft because mainly calcareous and magnesian. The valley formations may have reached once as high as the others, but they have yielded to the wear of time, making low lands, and leaving their more durable associates in mountains and high ridges.

The next five formations contain more or less limestone and dolomite. The first, the *Knox Sandstone*, of least importance, contains, as its name imports, beds of sandstone, makes ridges, and presents in fact a sort of transition group between the mountain and valley formations. The first three outcrop in the Valley of East Tennessee; the others of the five belong in common to the Valley of the East and the Central Basin. The last three are, in an agricultural point of view, the most important formations of the State.

2*c.* KNOX SANDSTONE.

Following the last in ascending order, is the *Knox Sandstone Formation*. This is a series of variegated sandstones and shales, with which occur occasionally beds of dolomite. The aggregate thickness may be placed at 800 or 1,000 feet. The formation is of little impor-

tance agriculturally, but in some sections of the East Tennessee Valley it contributes a marked feature to the topography of the country. The formation is presented in sharp, roof-like or "comby" ridges. Of these, Webb's, or Rosebury's Ridge, a few miles west of Knoxville, and the so-called Bays Mountain on the south-eastern boundary of Knox County, as well as Beaver, Bull Run and Pine Ridges, in the western and north-western part of the great Valley, are examples. This and the two following formations, the *Knox Shale* and the *Knox Dolomite*, are represented on the Map by the belts of light pink marked 2c. The sandstone division, when present, lies generally at the north-western margin of the 2c belts.

#### 2c." KNOX SHALE.

This division is a group of variegated—brown, reddish, buff and green—calcareous shales, 2,000 or more feet in thickness. It often contains thin layers of oolitic limestone; in fact, leaving the middle line of the Eastern Valley and approaching the Unakas, the formation becomes more and more calcareous, in some counties being a sort of slaty limestone or dolomite. This, of the three formations surnamed *Knox*, is emphatically the valley-yielding one. Especially is this true of the north-western, western and southern portions of the Valley of East Tennessee. It is the formation of many long and beautiful and generally rich valleys. Rogersville, Madisonville and Cleveland, in part, are located on the shale. The outcrops of this formation are indicated on the Map by those strips of light pink, marked 2c, which are without "hatchings;" those with them are areas of the *Knox Dolomite*. Fossil shells and trilobites are found in some of the limestone layers of this group, and are about the oldest traces of animal life as yet met with in Tennessee.

#### 2c.'" KNOX DOLOMITE.

The surface of a large part of the Valley of East Tennessee is formed by the outcrops of this formation. The division is the most massive calcareous formation in the State. It is estimated to be not far from a mile in thickness. It consists of heavy bedded strata of blue and gray limestones and dolomites,\* the blue prevailing in the lower part and the gray in the upper. At the base the rocks are often oolitic, while above they are generally crystalline or sparry. There is

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\*Dolomite is a limestone-like rock containing magnesia.

another feature of the formation which has, when the strata dip at a high angle, not a little to do with its topography, and that is the presence of more or less chert or flint in the formation. The chert occurs sparsely in thin layers and nodules.

The topography of the Knox Dolomite is quite varied. It presents valleys, plateau-like areas, and broad rounded ridges. These ridges, however, pertain to the great Eastern Valley, and are not high and precipitous like the Unaka ranges and the high sandstone mountains, to be mentioned. They are undulations of the Valley. This formation is mainly that of the eoves and valleys entangled among the ranges of the Unakas, though with it others occur, such as the *Knox Shale* and even *Trenton* and *Nashville* rocks. The plateau-areas have been formed in regions where the strata of the Dolomite happen to be nearly horizontal. Such a region is found in Hamblen County and the northern part of Jefferson. A portion is called the New Market Valley, and is noted for its fertility. Another plateau area is in Campbell and Claiborne counties, which is much broken by the considerable canon which Powell's River cuts through it. Some of these areas, when the chert for any reason predominates, become "knobby regions," as, for instance, a strip of country lying between Chattanooga and the mouth of the Hiwassee River, and the belt east of Missionary Ridge. When the strata of the *Knox Dolomite* are much inclined, the formation generally presents us with characteristic chert-covered rounded ridges. These are very long, some of them being traceable for a hundred miles or more. Well marked ridges of this kind occur in the southern part of the Valley of East Tennessee, and in the northern part west of the middle line. Knoxville is on one of them, Athens being on the same. Missionary Ridge, Black Oak, Copper and Chestnut ridges, Wallin's Ridge in Claiborne, as well as Chestnut or Big Ridge in Sullivan and Greene, are examples. The fragmentary chert, which has been liberated by the solution of the calcareous rocks which originally enclosed it, has accumulated in such quantities as to form a sort of protective cap, shielding the strata during later ages from erosion, thus giving origin to the ridges.

The rocks of the *Knox Dolomite* are made up of the carbonates of lime and magnesia, with which there is more or less sand and argillaceous and ferruginous matter, the composition being such as to supply a strong soil. The lower blue and oolitic strata are fossiliferous, the soil derived from them being none the worse for this character. Very generally the soil of the formation is good.

The outcrops of the Knox Dolomite are confined to the Valley of East Tennessee, with the exception of a single limited outcrop far west to be mentioned. It nowhere comes to the day in the Central Basin, though nearly reached by the denudation. West of the Basin it reappears in a very curious spot called the Wells' Creek Basin. This is located on Wells' Creek in Houston County. At this place there has been an uplift of the rocks, by which the Knox Dolomite has been brought to the surface. In the north-west corner of the Map is an enlarged representation of this Basin, with a section indicating the position of its rocks.

The Knox Dolomite is represented on the Map in common with the Knox Shale by the light pink color, 2c, but the areas of the former, as already stated, are to be distinguished by the presence of hatchings.

### 3. THE TRENTON OR LEBANON GROUP, AND 4. THE NASHVILLE OR CINCINNATI GROUP.\*

The strata included in the above formations are best considered together, so far as the purposes of this Report are concerned. The prevailing rock is blue limestone, rich in fossil matter and yielding first-class soils. The groups are represented by the same blue color on the Map, and marked 3 and 4. They are especially *the* rocks of the Central Basin, where they lie approximately in a horizontal position. In the Valley of East Tennessee they make up much of the surface, two large belts occurring southeast of the middle line, and many long strips, the location of as many valleys, north-west of the same line. To the west beyond the Central Basin they are uncovered in the bed of the Tennessee River.

These rocks, yielding to denuding and erosive agencies, have presented us with our richest valley and lowland depressions. In the Eastern Valley the double series has locally interpolated in it some hard, sandy layers, which have given origin to certain ridges and knobs, nevertheless even here it is mainly valley-making. It will be best to consider these rocks with reference to their occurrence, first, in the Eastern Valley, and secondly, in the Central Basin.

1. *In the Valley of East Tennessee.* The maximum thickness of the entire series in this part of the State may be placed between 2,500 and

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\* *Trenton* is a New York name, and was first applied to this formation as it occurs in that State. Lebanon, in this State, is located on the same formation. The formation next above the Trenton is seen both at Nashville and Cincinnati, hence both names have been used. For some reasons Nashville is to be preferred. In New York these rocks are known as the Hudson Formation.

3,000 feet. It is divided into two principal members, the lower embracing strata which appear as blue limestones on both sides of the Valley, and the upper, which are calcareous throughout, but very sandy in the south-east half of the Valley. The lower member varies from 200 to 600 feet in thickness. It is thin and of little importance in the north-eastern counties. It is more or less argillaceous, but always presents itself as blue limestone. In connection with adjacent strata (the uppermost strata of the Knox Dolomite and the upper member of this series) it forms many rich valleys. Its strata often dip at high angles, and when this is the case it outcrops in very narrow strips.

The upper member is, in the south-eastern half of the Valley (Unaka side), a great mass of sky-blue calcareous shale, more or less sandy. It often contains thin layers of limestone and locally thin sandstones. Here is also its maximum thickness, which is not far from 2,000 feet. The two great blue belts (see Map) in this part of the Valley represent areas formed chiefly by the outcrops of this member. The most easterly is denominated the belt of "Gray Knobs," the other, the belt of "Red Knobs," or respectively the "Gray Belt" and the "Red Belt." The first is remarkable for the crowded, bold, pointed and steep hills which many of its portions present. These gray hills or knobs, and the vales winding among them, owing to the composition of the rocks from which the soil has been derived, are often very rich. Many little farms lie on and among the knobs. The existence of these knobs is due to the way the sandy calcareous shales have yielded to erosion. The dipping position, together with the occurrence now and then of hard layers with the soft, have determined the topography. The other belt, the "Red Knobs," gets its name from the presence within it of remarkable lines of red hills, which are primarily due to the interpolation, in the Trenton and Nashville series in this part of the Valley, of a few plates of a hard ferruginous sandy limestone. The strata dip and the hard plates half way protecting the softer rocks, have given origin to the hills, and the iron oxide, liberated, colors the soil deep red. There are a number of lines of these "red knobs." One can be seen from Knoxville, pursuing its south-westerly course on the opposite side of the Holston. This line originates in the vicinity of Strawberry Plains, passes in sight of Knoxville and Athens, and reaches a point a few miles east of Cleveland, being nearly one hundred miles in length. The slopes of the red hills are often exceedingly rich. Within this belt are also locali-

ties of gray knobs, like those of the first belt mentioned, and also vales and tracts showing limestones of the lower strata of the series. In addition to the *Iron Limestone*, there is another interpolated rock which outcrops in the Red Belt, and that is *marble*—some of which is red and white variegated, and some grayish white. The marble occurs in heavy layers, outcropping in long lines and in inexhaustible quantity. Its outcrops, however, are not confined to the Red Belt. One, especially, in the blue strip near Rogersville, in Hawkins County, may be mentioned.

The blue strips in Sullivan County are areas full of gray knobs. The long narrow ones in Greene and Washington are ridges of a dark shale mainly, which lies at the base of the upper member we are considering.

Passing into the north-west half of the Valley (Cumberland Plateau side), the upper member of the Trenton and Nashville series loses much of its sandy, shaly character and becomes finally, for the most part, thin-bedded, blue limestones, which are impure, loaded with fossils, and sandy enough to yield an excellent soil. The mass also loses in thickness, and the interpolated beds mentioned, the *Iron Limestone* and the marble, thin out gradually to nothing. The strata become like those seen around Nashville. Many very long, attractive valleys are based upon these limestones in the north-western half of the Valley. Among them may be mentioned, as examples, the Beaver Creek, Raccoon, Hickory, Big, Powell's, Tennessee, Lookout, and Savannah Valleys. The reader can see the blue valley ranges on the Map.

Before passing to the Central Basin, a word as to Sequatchie Valley. This is regarded as a part—rather an outlier—of the Valley of East Tennessee. In its trend, formations, dip of rocks, topography, &c., it is like the Eastern Valley. Of the formations so far considered, it has outcropping ranges of the Knox Dolomites as well as of the blue limestone formations we have just considered.

2. *In the Central Basin.* We are now in a different country. The strata are practical horizontal, and the parallelism of ridges and valleys, of outcrops and axes, resulting from a universal dipping of rocks, is no longer seen. The Trenton and Nashville rocks make the bottom and much of the sides of the Basin. Their area of outcrop is seen at a glance on the Map. The two divisions, Trenton and Nashville, are easily made out in the Basin. On the Map the Trenton is the part of the blue marked 3, and the Nashville that marked 4. All the rocks are blue, fossiliferous limestones, their analysis showing them to be

rich in the components of a good soil. The Trenton strata are more argillaceous; the Nashville more sandy, and have generally a darker blue color. The aggregate thickness of the strata of the two divisions exposed is not far from 1,000 feet, each being 500.

The Trenton has been sub-divided into minor divisions. First the *Central Limestone*, a mass of dove-colored thick-bedded limestones, containing often much chert or flint. It is the lowest rock in the Basin, and exposes a thickness of about 100 feet. It outcrops within a circular area having a diameter of about thirteen miles. Murfreesboro is within the area. The soil of this rock is rich and red, the color being due to oxide of iron derived from the decomposing chert. The chert is found, by analysis, to contain considerable iron.

Outcropping around this, in a ring, is a bed of flaggy limestones 27 feet thick, called *Pierce Limestone*.

Around the last, in another ring, the two forming concentric rings around the central area, is the third division, the *Ridley Limestone*. It is a group of heavy-bedded, dove-colored limestones, 95 feet in thickness, and making a fine country.

This is followed, in another ring, by an important division called *Glade Limestone*, which is made up of light blue, flaggy limestones, with an aggregate thickness of 120 feet. The Glade Limestone is the rock upon which the Red Cedar forests of the Basin grow, and the boundaries of its outcrop could be made out by these forests. The division spreads out and is the surface-rock of considerable areas in Rutherford, Wilson, Bedford and Marshall. Such areas occur also in Maury, Williamson and Davidson. Lebanon, Shelbyville and Columbia, in part, are located upon this division.

The Glade Limestone is followed by the uppermost division of the Trenton, the *Carter's Creek Limestone*, the thickness of which varies from 50 to 100 feet. It is found, as are the others, everywhere, in its proper horizon, within the Basin. It is another series of heavy-bedded, dove-colored limestone. On Carter's Creek it is whiter than usual, and is much used for making lime.

The Nashville Formation is tolerably homogeneous. About seventy feet near the base is much more sandy than that above, and is the surface-rock of several of the best farming regions in the Basin, of which the country between Columbia and Mount Pleasant is one.

West of the Basin there are only two outcrops of the Trenton and Nashville rocks, and these are of small extent. One is in the Wells' Creek Basin, in which the rocks outcrop in a ring around the Knox



Dolomite; and the other is in the bed of Tennessee River, in the Western Valley, where the rock is mainly hydraulic limestone.

The marbles of the Eastern Valley, the hydraulic limestones of the same Valley, of the Basin and the Western Valley, flagstones and the varied and choice building materials and lime rock are the useful contributions of the Trenton and Nashville formations to the wealth and industry of the State.

We come now to a series of half a dozen formations of comparatively little interest to the farmer, though one of them is of great interest to iron men. The first three belong exclusively to the East Tennessee Valley; two of the others have their principal development in the Western Valley, while the last, the *Black Shale*, is common alike to both Valleys and to the Central Basin.

#### 5a. CLINCH MOUNTAIN SANDSTONE.

Next above the Trenton and Nashville formations is a bed of *Red Calcareous Shale*, which has in Hawkins County a thickness of 400 feet. Following this is a grayish white thick-bedded sandstone, also not far from 400 feet in thickness. This Sandstone forms the southeastern slope of Clinch Mountain, and is there a very conspicuous rock. The Red Shale is always found next below the Sandstone, and is provisionally included with it as one formation. The group is 5a on the Map, and is represented by a deep ochre yellow. It is not found outside of the East Tennessee Valley, nor in this south of Knox County. The hard sandstone is always associated with high ridges, which are mountains in the Valley. These are Clinch Mountain, already mentioned, Stone Mountain, Devil's Nose, House Mountain, Bays Mountains, Newman's Ridge, Powell's and Lone Mountains. The Sandstone yields a poor soil; the Shale a better, though generally cropping out near the crests of the mountains, it presents but a limited area.

#### 5b. WHITE OAK MOUNTAIN SANDSTONE.

This is a group of variegated sandstones and shales, generally reddish-brown, but alternating with greenish, buff and differently colored strata. These rocks are found on the summit and eastern slope of White Oak Mountain in the southern part of the Valley. This mountain is partly in James County and partly on the line between James and Bradley. A limited development of the group is also seen on the

eastern slopes of Powell's and Lone Mountains in the northern part of the Valley. Like the Clinch Sandstone, it is a mountain formation, with a maximum thickness of about 500 feet.

#### 5c. THE DYESTONE GROUP.

Next in ascending order is the group of strata enclosing the red iron ore (dyestone) of the north-western side of the Eastern Valley. The formation is a series of variegated shales and thin sandstones, from 100 to 300 feet in thickness, and holding from one to three or more layers of fossiliferous iron ore. Much of the mass either is, or has been, quite calcareous. In some localities thin beds of limestone occur. This formation, associated with two others to be mentioned, (the *Siliceous* or *Barren Group* and the *Black Shale*, constituting a trio of formations,) is found in numerous small but long ridges. One of these runs almost continuously along the eastern base of the Cumberland Table Land from Virginia to Georgia, everywhere presenting more or less iron ore. The part of the Valley in which these ore ridges occur, is indicated on the Map by the belt of green stars immediately east of the Table Land. The formation itself is represented by a red line.

#### 5d. NIAGARA LIMESTONE.

We now reach a limestone again. This formation pertains mainly to the Western Valley. It consists of thick-bedded fossiliferous limestones, more or less argillaceous, often crystalline. At many points its rocks weather into shale-forming glades. In the Western Valley, where the formation has its greatest development, it is about 200 feet thick, and is equally divided into two members, the lower presenting red and variegated strata, some of which are fair marble, and the upper including gray rocks. The group forms the greater part of the surface of the Western Valley. On the Map its outcrops, together with that of the next formation, the *Lower Helderberg*, is shown by the red color, the two formations being distinguished by the numbers 5a and 6. The Niagara Limestone extends eastward, showing itself in the valleys of Duck River and Buffalo, to the Basin, on the western slope of which its upper or gray member, much reduced in thickness, outcrops. It is not seen on the eastern side of the Basin. In the Valley of East Tennessee there is very little of it. A strip of it is

met with at the eastern base of Powell's Mountain, and another at the base of Newman's Ridge.

#### 6. LOWER HELDERBERG LIMESTONE.

This limestone, like the last, has its greatest development in the Western Valley. It is a series of blue, thin-bedded, fossil limestones, frequently containing cherty layers, especially in its upper part, and has a maximum thickness of about 70 feet. The formation outcrops in the valleys of Buffalo and Duck River. It is occasionally met with on the north-western slopes of the Basin, but is not prominent. In East Tennessee it has not been observed. It is represented on the Map, as stated by the portion of the red marked 6. These blue rocks, rich in fossil matter, make an excellent soil, rather better than the Niagara limestones, but its outcrops present comparatively small areas.

#### 7. BLACK SHALE.

In the introductory part of this chapter this rock was referred to as an illustration of the wide spread a formation may have, although comparatively very thin. The Black Shale is a stratum of nearly black, bituminous, rather tough shale, or slate, which can sometimes be obtained in plates a yard or more across. It outcrops in East Tennessee, the Central Basin, and in the Western Valley wherever, with but few exceptions, its proper geological horizon is brought to the surface. Its maximum thickness, 100 feet, is in the Eastern Valley. Its general average throughout the State is less than 50 feet. Its outcrops are marked on the map by black lines. These outcrops are themselves linear, occurring in the Eastern Valley on the slopes of ridges, or in narrow straight valleys at the bases of ridges, and in the Basin and the Western Valley generally on slopes. The shale contains pyrites, which unfits it for roofing purposes. It contains enough hydrocarbon oil to make it burn with flame for a time, a property which leads many to mistake it for stone coal, but it does not consume to ashes. Should the petroleum wells give out, this rock may become a source of "coal oil," or kerosene, a burning fluid that has become almost indispensable.

The four following formations belong to the *Carboniferous Age* of geologists—so called because the last, or uppermost, is the great depos-

itory of our stone coal. They form large areas of surface, and their consideration is very important from an agricultural point of view. The *Barren Group* and the *Coral Limestone* are the surface rocks of the *Highland Rim* of Middle Tennessee; the *Mountain Limestone* outcrops on the slopes of the *Cumberland Table Land*, while the *Coal Measures* make its broad table-top.

#### 8a' BARREN GROUP.

This and the *Coral Limestone* are sometimes included under one name—the *Siliceous Group*—for the reason that both contain much flinty matter. It is chiefly characterized by the presence of heavy layers of flint or chert, interstratified with more or less limestone. In some regions the mass becomes a tolerably homogeneous blue calcareous shale. It often includes heavy beds of crinoidal limestone.

In the Valley of East Tennessee its cherty layers always accompany and rest upon the Black Shale. It is one of the trio which, as stated, is found in the dyestone ridges. In this Valley its outcrops are linear, and are represented, like the Shale and Dyestone, by lines.

In Middle Tennessee the Barren Group includes the rocks of the edge and the portion of the Rim immediately around the Central Basin, as indicated by the dark buff color and the mark 8a' on the Map. It is seen, in general, to be the formation immediately above the Black Shale wherever the Highland Rim breaks off into valleys, gorges, &c. The thickness of the formation is 250 to 300 feet, falling, however, below this in the southern part of the State.

#### 8a''. THE CORAL LIMESTONE.

This formation is gray and bluish limestone, almost always containing nodules of chert, fossiliferous, sometimes siliceous and argillaceous, and everywhere characterized by a large fossil coral, known to geologists as *Lithostrotion Canadense*. It has a maximum thickness of about 250 feet, and is separated from the Barren Group mainly on account of its greater agricultural value. In the Eastern Valley it outcrops with the Barren Group, from which here it is not desirable to separate it. In Middle Tennessee it is the rock of the higher and greater part of the Highland Rim. Its color is light buff and its mark

8a". The chert of the formation contains iron, which by disintegration yields a pigment coloring the soil red. The area occupied by this rock is remarkable for the "sinkholes," and underground streams associated therewith, which it very generally presents. It might be called the Sinkhole formation.

#### 8b. THE MOUNTAIN LIMESTONE.

Resting upon the Coral Limestone, and outcropping on both the easterly and westerly slopes of the Cumberland Table Land, is a heavy group of limestones and shales known by the name above. The formation forms the base of the Table Land, and could be reached at any point by piercing the sandstone top of the latter. The Mountain Limestone is thickest in the southern part of the State; it becomes less going north, until on the Kentucky line it is reduced to 400 feet. About one-fourth of the mass is shale, the most of which is near the top. Here a part is marly, and might be applied with advantage to the siliceous soils of the Table Land. The limestone strata present many varieties; some of them are choice building material. For the most part the strata are highly fossiliferous, and of such a composition as to yield a strong soil on the slopes. In the northern part of the State, in White and Overton, a sandstone stratum, from 40 to 50 feet thick, occurs in about the middle of the group, which has given origin to a bench or terrace around the slopes of the Table Land, and in addition caps a number of outlying "little mountains" and ridges. The outcrops of the Mountain Limestone are 8b on the Map and are uncolored.

#### 9. THE COAL MEASURES.

This is the last formation of the carboniferous division, and, moreover, the last—that is to say, the uppermost—of all the formations consisting of *hard* rocks. It is, as stated, the depository of all the beds of true stone coal in Tennessee, and for this reason, if for no other, of very great interest. The formation caps the Table Land and is co-extensive with it, and has therefore an area of 5,100 square miles. It is a series of conglomerates, shales and sandstones, containing a greater or less number of beds of coal, and is on an average (not including the north-eastern portion) from 500 to 600 feet thick. In the north-eastern portion, and within the counties of Morgan, Anderson, Scott, Campbell and Claiborne, there are high ridges, towering above the

general level of the Table Land, in which the coal measures have a thickness of more than 2,000 feet, and include not less than sixteen beds of coal. One of these, near the base of the mountain, is extensively mined, and is from four to seven feet thick, and even of greater thickness. Other beds, not yet explored, but showing outcrops of three and four feet, occur. In all the counties, wholly or in part, on the Table Land banks of good coal are found, most of which are of good workable thickness. For more detailed description of the coal beds, see chapter on coal.

The greater part of the flat surface of the Table Land is immediately underlaid with sandstone. The ridges which rise above the general level have shales cropping out on their slopes. The soils of these ridges, and of the coves and mountain valleys about them, are generally better than elsewhere. The Coal Measures are colored dark gray on the Map.

We reach now formations of a much later age than those described. They are almost wholly confined to West Tennessee, and include all the strata of sands, clays, marls, and siliceous beds of that part of the State. There is evidently an old shore line running from south to north through the State, coinciding with the Tennessee River through part of Hardin County, but generally lying a few miles west of that stream. Along this shore line the older rocks, the solid limestones, slates and siliceous rocks of Middle and East Tennessee are abruptly beveled off to an unknown depth, and, going west, are seen no more within the State. The entire area between this line and the Mississippi River is occupied by formations (cretaceous, tertiary and quaternary,) the materials of which have been deposited at periods posterior to the beveling of the rocks of the old shore. The reader may get a clearer idea, perhaps, by supposing all this region to have been, in ages past, occupied by a gulf of water, bounded on the east side by this old shore, whose rocks were washed by its waves. Subsequently the water receded, and accumulations of sand, clays, fine siliceous material, marls and shells took its place.

The formations we are to consider belong to the *Mesozoic* and *Cenozoic* divisions of geologists, and some of the recent alluvial beds to the *Age of Man*.

#### 10a. COFFEE SAND.

This and the two following formations, the *Rotten Limestone* and the

*Ripley beds*, are included, by geologists, under the name *Cretaceous*. The Coffee Sand is the lowest of the three, and outcrops from beneath them, just beyond the old shore, in Decatur and Hardin counties. Its area of outcrop—marked 10a on the Map and colored light green—is comparatively small, and most of this is covered by the superficial *Orange Sand* to be described. The Coffee Sand is a group of stratified sands, usually containing scales of mica. Interstratified more or less with these sands are thin, often paper-like, layers of dark clay, the clay layers occasionally predominating. Sometimes beds of laminated or slaty clay of considerable thickness—from one to twenty feet or more—are met with in the series. The group contains in abundance woody fragments and leaves, converted more or less into lignite. The thickness of the series is not known; the part exposed is probably not far from 200 feet. For eighteen or twenty miles in Hardin County the Tennessee River and the old shore line, and hence the limit between the old and new formations, coincide, and for this distance the river washes the Coffee Sand, presenting at intervals interesting bluffs, of which the principal ones are Coffee Bluff at Coffee Landing, that at Crump's Landing, and the one at Pitt-burgh Landing.

#### 10b. ROTTEN LIMESTONE.

Lapping over the Coffee Sand on the west is an interesting formation known as *Rotten Limestone*, or sometimes as *Green Sand*. Its mass consists generally of fine quartose sand mixed with clay, forming a clayey sand. With this is much calcareous matter. The mass contains also the *green grains* of a mineral known as *Glauconite*. The layers in which these grains are most abundant may be used as a fertilizer. The formation throughout contains fossil shells of many varieties, some of which are of very large size. Conspicuous among these are great fossil oyster shells. These at some localities have been gathered and burnt into lime. This formation is the northern extension of the Rotten Limestone of Mississippi and Alabama. In Tennessee its maximum thickness is in McNairy County, and is about 350 feet. When dry, the material of the formation has a greenish gray color; when wet, it is much darker. Its outcrop is represented on the Map by the same color as that of the last formation, and is marked 10b, though it must be recollected that Orange Sand covers much of this.

## 10c. RIPLEY.

So far as its material is concerned, this formation is much like the Coffee Sand. It is mostly made up of stratified sands, which are often laminated with thin clayey layers. Occasionally a bed of slaty clay is met with. In Hardeman County a bed of limestone, from two to six feet in thickness, and a bed of green sand containing shells occur in the series. The Ripley group may have a thickness of 400 or 500 feet. It outcrops provisionally within the area 10c of the map, not regarding the superficial Orange Sand. Its color is also light green.

## 11a. FLATWOODS GROUP.

Following the Cretaceous rocks, we have two formations which are included in the Tertiary division. The name *Flatwoods* was given to the first by the Mississippi geologists. In Tennessee the formation has perhaps a thickness of 200 or 300 feet, and does not differ materially from the Ripley and the Coffee Sand, excepting in containing proportionally much more laminated or slaty clay. In the Geological Report of Tennessee this is called the "Porter's Creek Group," so called because a heavy bed of the laminated clay 100 feet thick occurs on the creek of this name. Its belt is 11a and its color light blue.

## 11b. LA GRANGE GROUP.

This, the second formation referred to in the Tertiary division, outcrops, less the portion covered by the Orange Sand, over a large part of West Tennessee. Its belt, 11b on the Map and colored canary yellow, is forty miles wide, and extends in a northeasterly direction through the central portion of this part of the State. As seen in bluffs, railroad cuts, &c., it is generally a stratified mass of sands, more or less argillaceous, which, when weathered, are yellow, red and orange. Its sands are often like those of the other groups just described, and contain locally leaves and beds of lignite. The series presents also beds of white and variegated clays. The thickness is unknown, and may be as much as 600 feet.



## 12a. THE ORANGE SAND, OR DRIFT.

This is an important formation with reference to agricultural features. After the deposition of the materials of the formation just mentioned, the whole of West Tennessee, the Western Valley and the western portion of the Rim, appear to have been swept over by waters which deposited unstratified sand and gravel over the whole region. The materials then deposited constitute the *Orange Sand*. West of the valley of the Tennessee River the formation is mainly orange, red or variegated sands. It covers superficially, as has been stated, much of the outcrops of the formations from 10a to 11b inclusive. The Orange Sand is a wide-spread coating of variable thickness, thinning out at places and exposing the underlying formations, like drifts of snow driven by the wind. Its materials differ so little from those of the underlying Cretaceous and Tertiary formations that they are often not easily distinguishable, and they have about the same agricultural value. Owing to the superficial character of the *Orange Sand*, it has not been represented on the map in any way. The beds of gravel occurring at so many points in the Western Valley are all referable to the Orange Sand, and the same may be said of the gravel which is found on the highlands and which is associated with the iron deposits of the Western Iron Belt.

## 12b. BLUFF LOAM, OR LOESS.

Crowning the uplands of Shelby, Tipton, Lauderdale, Dyer and Obion is a stratum of fine siliceous loam, more or less calcareous, and usually of a light ashen, yellowish or buff color. This is the Bluff Loam. The formation contains land and fresh water shells, and frequently calcareous nodules. It has a thickness ranging from a few feet to one hundred. Memphis is built upon it. The Loam rests upon the Orange Sand, and is therefore of later age. Its area or belt is colored pink and is marked 12b on the Map. The eastern boundary of the belt must be taken as an approximation, as the eastern feather-edge of the formation has not been, as yet, traced out accurately. The Loam caps the bluffs facing the bottom of the Mississippi, the Orange Sand first and then the La Grange group cropping out below this on the slopes.

## 13. ALLUVIUM.

The alluvial bottoms of all the rivers in the State are properly included in this division. They are the most recent deposits, and consist of washings which the rains have carried off from the uplands. The most important alluvial area is that of the Mississippi Bottom, and this is the only one indicated on the Map. All of the rivers, however, present level, alluvial tracts, which, in general, are of unsurpassed fertility. The Mississippi Alluvium is colored sage green and is marked 13.

## CHAPTER IV.

## RELATION OF GEOLOGY TO THE FARM.\*

How would the farmer be benefitted by his understanding of geology? Can scientific and practical geology benefit the farmer? Could he produce more of the means of living by understanding geology?

The writer of this article will undertake to show that the farm can be much better managed by a knowledge of geology, and that no occupation of man depends so much upon a knowledge of that science for success as that of farming.

What is geology? It is the science which explains the origin and creation of the earth, in all of its parts, components, connections, relations, productions and reproductions. It explains the composition, structure and development of all rocks, soils, lands, mountains, ridges, valleys, plains, oceans, seas, lakes, rivers, springs, climates, light, heat, vapor, dew, rain, hail, frost, snow, ice, tides, oceanic currents, the seasons, currents of wind and their temperature. It explains the origin, creation and reproductions of the whole vegetable and animal kingdoms, their habits and natural laws.

A farm is a portion of the earth; it is a part of the subject of geology. It is cultivated ground—fields, pastures, meadows, orchards,

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\* This paper was prepared for the Bureau of Agriculture by the late Dr. F. H. Gordon just before his death, and is probably the last article which he ever prepared for the press. It will be read with mournful interest. But few men in the State of Tennessee have equalled Dr. Gordon in the facility with which he could translate the mysteries of science so as to be comprehensible to the ordinary reader. His gifted pen did much to awaken interest in agricultural pursuits, and to lead the farmers to think for themselves. His name is inseparably blended with the progress of agriculture. For nearly fifty years his suggestions and essays have exerted a perceptibly salutary influence upon the farming community. Many a sterile spot has been reclaimed, many a home made beautiful in its surroundings, many a barren woodland clothed in rich verdure, many an orchard made to teem with delightful fruits, many a dumb brute protected from the wintry blasts, housed and fed, many a family made happier in life and happier in death, through his teachings. His talent was not hid in a napkin, nor his light under a bushel; and it gives us sincere pleasure to place upon record the services rendered agriculture by this pure, christian gentleman, who, forgetting self in his desire to benefit mankind, toiled patiently, assiduously and persistently to advance the pursuit which lies at the very foundation of individual and national prosperity.

vineyards, nurseries, plant-beds, gardens, lawns, farm-yards, pounds, plantation roads, gates, fences, dwelling-houses, barns, stables, shelters, groves of timber trees, firewood, basket-willow, hedges, ditches, under-drains, plantation bridges, springs, ponds for fish, for stock water, for cranberries, rice, and for irrigation.

From the two definitions, any one may see what is the relation of geology to the farm. It is seen that a farm is but a small part of the materials of geology; hence, whoever understands well the geology of his own farm can produce a greater abundance of all the means of living than any one can do who does not understand it well.

A comprehensive definition to geology has been given; but modern geologists will sustain it. All the natural sciences are included in the wide field of geology; hence that science teaches the farmer so much that it will be impossible to do more, in this short essay, than to set forth its general teachings in the plainest manner, in order that the farmer may see how he would be benefitted by the study of it during his leisure hours. But before this is done, it will give satisfaction to some plain, honest farmers if we shall first answer a question which farmers are apt to ask: "If all good and profitable farming depends on a knowledge of geology, how is it that I get along well and make money by farming, when I know nothing about geology?" Many a farmer sincerely asks this question. The answer is easy. We say to that farmer, you do know something about geology; you know a great deal about it. Most of the knowledge which enables you to farm to advantage, is that much geology. Though you did not learn it directly from a book or agricultural journal, still you have learned it from your parents, your neighbors, and every one who showed you or told it to you. No matter where or how you got the knowledge, it is that much geology, which qualifies you to carry on your farm profitably. It would be difficult to find a man of common sense who knows nothing about geology. To make my position plainer—geology is nothing but the common sense of the farm, so far as agriculture extends. Hence, if any farmer has much practical good sense on his farm, he is to that extent a good geologist; and it makes no difference where he got his information—whether from conversation, agricultural papers, or from books. It is true, that if he had years ago resorted to books and agricultural papers, he would have learned what he now knows sooner and easier; and he would have learned more than he now knows, and therefore he would have been a more prosperous and better farmer than he now is.

Then suppose some such a farmer as is here described and answered, should still sneer at book farming, and make himself smart at the expense of some writer, who asks neither money nor praise for writing to benefit him and others. What then? He is only sneering because he does not know just a little more. If he knew a little more, he would see how foolish he makes himself when he sneers at and ridicules his best friends; for whoever will show him how he can preserve his land from washing, and make it richer and more productive, with the same amount of labor now employed, ought certainly to gain his friendship, if not his gratitude. And whoever will show him how and prompt him to bring every idle acre of his farm into profitable pasturage and meadows, ought to be respected.

When a geologist undertakes to instruct and benefit a farmer, he expects to do it by explaining the nature of all things with which the farmer has to deal; and when he looks to the firm he finds a vast multitude of things to be studied. The farmer must have fully explained to his understanding the soil and subsoil, the rocks he stumbles over, the mountains, ridges, valleys, plains, the farm crops, plants, shrubs and trees, all domestic animals, all insects, worms and small vermin that infest the farm, the atmosphere and its part in production of climate, storms, rain, snow, ice, the part that light and heat perform in production, and the best methods of obtaining their full benefit to the growing crops.

To make all these subjects, and many more, plain to the farmer, the geologist must begin at the creation of the earth and all things on it. Of course this cannot be fully and completely done in a short essay, therefore a general view only will be given.

When the world was created, it was a formless mass of air, water and earth all in a state of mixture. Then a separation was made so as to make three parcels, namely, earth, water and air. The solid earth was made nearly round, and then pressed up into mountains, ridges and valleys, and the water sank and flowed into the deep sinks and valleys, to form the oceans, seas and rivers. The earth was placed nearly ninety-six millions of miles from the sun, and made to move around it from west to east, and at the same time the earth to turn from west to east on its own axis or center of the whirling motion. This produces day and night, and the seasons of the year. Thus the air, heat and light were prepared to vitalize all vegetables and animals as fast as created. And the rocks of the mountains were reduced to powder or dust, out of which all plants, shrubs and trees were made.

Then all sorts and varieties of animals were created or made out of the vegetable kingdom. Lastly, man was made out of the vegetables and animals which had been made before. This is, in substance, the account of creation given by Moses. And the most important lessons which the farmer can learn may be taught him by a close investigation of *the preparations made as absolutely necessary to the creation and reproduction of every class of living beings.* First the rocks had to be reduced to dust for the production and support of plants and trees. The powdering of rocks was accomplished by several preparations. The hills and mountains consisted of sheets or layers of rocks. (There was at first no soil or dirt.) The pushing upward of the mountains out of the waters bent the layers of rocks across the backbone of ridges, and cracked them in countless places from top to bottom. The heat of the sun dried and cracked the rocks on the surface, and the heat of the sun and the atmosphere evaporated the water of the seas and let it down as rain, to run into all the cracks and seams, so that whenever the air was cold enough the water in the cracks became ice, which expanded in freezing and shivered the rocks to powder or dust. This dust was used to create and reproduced the whole vegetable kingdom then and ever afterwards. The same preparations were necessary to precede the creation of animals. And the vegetable kingdom itself was an all-important preparation; it was obliged to precede animals, because all animals are made directly out of vegetables. Hence the face of the earth was made hilly, and the hills were made with numerous vents to drain the rain-water downward and form springs for animals to drink, while the perfect drainage prepared the soil to produce every sort of vegetable for the support of all animals. Then, according to the Divine economy, without this system of drainage no vegetable could be produced and supported; and without vegetables, no animals could be produced and supported; and without vegetables and inferior animals, man could not be produced and supported. This important lesson of Divine geology ought to be well studied by every farmer. He cannot expect to produce farm crops, fruits and grasses unless he observes the Divine plan. He must keep his lands in a condition to drain well, or then he need not expect to prosper.

Again, we learn from geology that the sheets of rocks which compose the hills are not all made up of exactly the same simple substances; and we learn that the most soluble components of the rocks are fertilizers, such as potash, soda, phosphorus, lime, sulphur, chlorine, etc.; and that, unless the farm is kept in a condition to absorb,

retain and appropriate them as fast as dissolved, they will mostly be dissolved out and washed away, and the farm will be made poor and unproductive. But if the farmer will look at nature's contrivance to prevent the waste of the more soluble components of the rocks, he will find that all the contrivances to keep the face of the earth unlevel, and to keep open numerous vents to let rain-water down freely through the soil and the rocks, are nature's chief arrangements to preserve the fertility of the soil. If rain-water will sink and run away under ground as fast as it falls, it will not delay to wet the soil excessively so as to bake it, nor to dissolve much of the fertilizers, and therefore hasty rains will do but little damage. From this the farmer learns that he ought to co-operate with nature in keeping his lands porous, to preserve the manures on the surface, and to prevent the washing of his lands into gulleys, and the drying up of his springs; because, if the soil shall become water-tight, and cause the rain to run away on the surface, all springs, creeks and rivers will dry up; then no vapor will rise from streams, the soil and vegetables, to come down as dew and rain. The section will become thirsty and barren. It is probable that from this cause Palestine, once able to support five millions of inhabitants, is now so barren that half a million of people consume all that the country can produce.

Again, if the farmer understands the components of the rocks, he may subsoil and drain in such a mode as will guide the fertilizers from above the farm down upon all poor spots below and enrich them.

Climate has a controlling influence upon vegetation and the capability of any section for abundant production; and when we look to the causes which modify the climate of any locality, we find them to be mostly geological. Latitude has some influence upon climate, but other causes have much more. The height of mountains, and the proximity to or remoteness from large bodies of water, have a great influence. Extremes of heat and cold are prevented by the more uniform temperature of an ocean; hence, the further from an ocean or sea, the colder in winter and the hotter in summer; and the higher up above the level of the sea the colder, and the nearer the level of the sea the warmer. But the relative positions of the seas and continents will more or less modify the climate of any locality; and the currents of air and of the oceans have a considerable influence upon the climate of any place. And all these causes which regulate climate make up the measure of production in any section of country. Good geo-

logical maps will enable the farmer to look to any part of the earth and judge the climate with tolerable accuracy.

There are many uses of the rocks of the earth, besides their general use in making soil. Some of them make lime for building purposes and for fertilizing land, as well as building-rock for fences and houses. They contain nearly all the ores of metals, as gold, silver, mercury, tin, copper, zinc and iron. All these are of use to the farmer, and he is dependent upon geology for their discovery and development. The most abundant and most valuable metal, iron, is just at this time a subject of absorbing interest to the farmer. The coal mines of England are so nearly exhausted, that the scarcity of coal used in making iron has doubled the price of iron even in the United States, and enhanced at the same rate every article made of iron. Hence the geologists of the world are now busy in hunting out the localities where iron ore and coal can be worked in close proximity. Already iron works are springing up in Tennessee like magic. Walden's Ridge, on the east side of the Cumberland Mountains, for at least one hundred miles in length, contains the very best iron ore and unlimited veins of coal in close proximity. New iron works are now going up every week. In a few years Tennessee will make half the iron of the United States. There is every inducement to establish machine shops in the vicinity of the coal, to work the iron into all implements of agriculture and the trades. The whole eastern base of Walden's Ridge may soon become a large manufacturing city of millions of inhabitants. It may even rival Manchester in the future. The iron manufacture of Tennessee will be of great benefit to her farmers and all citizens. It will cheapen iron and every article made of iron, and furnish a market at home for a vast amount of farm products. It will set Tennesseans to manufacturing, on a large scale, many articles which can be made cheaper in the vicinity of coal. In providing coal, iron ore, forests of timber, and the best water-powers in the world, nature ordained that the Cumberland Mountain should become a great workshop; and geology has but recently begun to unfold those vast natural blessings. Tennessee farmers will reap the profits of feeding and clothing all the workmen employed in the iron works and machine shops of the mining region.

We have now specified enough relations of geology to the farm to convince every farmer, who desires to be convinced, that he is greatly dependent upon that science for success in his vocation. He has but to open his eyes and look around him to see the many objects with



which geology has blessed him. All of them are subjects of creation from the dust of the earth he tills, and reproductions according to the Divine preparations at the beginning of all earthly things. The light that shows him his way, the water he drinks, the electricity that warms him in the clouds, the hills and the valleys, the vegetable and animal kingdoms, which warm, feed and clothe him, are all the results of primary creation and of many subsequent changes, transformations and reproductions, according to the Divine geology. They are all blessings offered to the farmers of the earth, upon the condition that they accept them and learn how to use and enjoy them.

## CHAPTER V.

## SOILS.

The soils of every state constitute its principal agricultural wealth, and lie at the foundation of all durable prosperity. However rich a country may be in minerals, its independence cannot be maintained without a sufficiency of fertile soils to produce food enough to subsist its population. In times of peace, a state dependent upon its manufactures may enjoy a flourishing prosperity, and even grow opulent, by bartering a portion of its manufactured products for the necessaries of life, but in a condition of hostilities it quickly yields to the overpowering advantages of a nation capable of subsisting upon the products grown within its limits. Many instances are recorded, both in profane and sacred history, where the question of food decided great national contests; and the intelligent reader will not forget that well-known case, recorded in the Bible, where Tyre and Sidon were compelled to make an ignominious treaty with King Herod, "because their country was nourished by the king's country."

Political economists have long since ascertained that population increases directly as the quantity of food, other things being equal; and that of two countries, one of which has an abundance of cheap food and the other in which food is scarce and dear, the population of the former increases more rapidly than in the latter. Now, if in our condition population is wealth, and cheap food is the necessary antecedent to population, it follows that the highest ends of enlightened statesmanship should be to produce an abundance of the means of subsistence by the preservation of the fertility of the soil.

In the foregoing chapter on climatology it has been shown, by facts deduced from a long series of observations, that the climate of Tennessee is of that peculiar character and excellence which produces the

most happy effects upon the capacity of the laborer for work; being neither so cold as to benumb his energies and impair the regularity of his habits, nor so hot as to enervate his physical system. The great physical agencies which govern the creation of wealth are climate and soil—the first regulating the constancy, energy and directness of labor; the latter fixing, with reasonable certainty, the profits of labor. “There is no instance in history,” says Mr. Buckle in his masterly work on the civilization of England, “of any country being civilized by its own efforts, unless it has possessed one of these conditions [soil or climate] in a very favorable form. In Asia, civilization has always been confined to that vast tract where a rich and alluvial soil has secured to man that wealth without some share of which no intellectual progress can begin.” To the north of this alluvial belt is a “long line of barren country, which has invariably been peopled by rude and wandering tribes, which are kept in poverty by the ungenial nature of the soil, and who, as long as they have remained on it, have never emerged from their uncivilized state.”

Climate and soil, it would therefore appear, are the necessary conditions of wealth, and by reason of the leisure which wealth gives, of intelligence, moral culture and civilization.

Though the fertility of the soil, and the preservation of that fertility, are necessary to a high degree of social and intellectual culture, the aptitudes of the soil for the production of a variety of the most valuable products is a powerful agent in influencing the accumulation of wealth. A soil that will produce only one crop well, is not so valuable as a soil that will produce a dozen. Nor can a State which produces only one crop be as prosperous as one that produces a diversity. We propose to show that the State of Tennessee has not only a great diversity of climate and sub-climate, but a still greater diversity of soil, and is capable of growing in remunerative quantities all the most desirable farm products of the continent, sugar and rice only excepted.

It has been shown in the chapter on the geology of the State, that nearly every formation is represented in the State of Tennessee. We have the Lower and Upper Silurian, the Devonian, the Carboniferous, the Cretaceous, the Tertiary and Quaternary. These various formations, by disintegration, weathering and washing, furnish the organic matter of the soils and give fixedness to their character. Thus we have, in common parlance, the granitic soil, the limestone soil, the slate soil, the sandstone soil, the “made” soil—all, more or less, resulting

from changes which have been brought about by external agencies on the subjacent rocks, and from these rocks they derive their chief characteristics. In regard to the alluvial or "made soils," which are in part derived from many sources, some of them remote from their present localities, some modification of the general remark is required. The action of the water in transporting, assorting, drifting and commingling the various ingredients which compose the alluvial soils, make them in some degree independent of the underlying rocks.

The soils of the State may be classified as follows:

1. GRANITIC. *Unaka Mountain soils; rather sandy, micaceous and mellow. Exclusively belonging to East Tennessee.*
2. SEMI-GRANITIC. *Destitute of mica; otherwise very much like the preceding. Exclusively East Tennessee.*
3. SANDSTONE SOIL. *Generally sandy and poor.*
4. SILICEOUS OR FLINTY. *Fine, sandy soil of the "Poor Barrens" of the Highland Rim; generally much leached, with the original limestone matter dissolved out.*
5. SANDY SOILS. *Underlying rock not consolidated; often fertile; important. Exclusively West Tennessee.*
6. CALCAREO-SILICEOUS. *Very fertile; contains concretionary calcareous nodules; important. Confined to West Tennessee.*
7. CALCAREOUS SOILS. *The most important class of soils in the State; found in all divisions of the State; derived from limestone rocks, or rocks containing lime; strong, durable, and suited to all crops.*
8. GREEN SAND. *A calcareo-argillaceous mass underlying it, half consolidated into rock, often called rotten limestone, which is loaded with shells of many varieties, among which large oyster shells are specially prominent.*
9. SLATY SOILS. *Of varying fertility; stiffer than the generality of soils.*
10. ALLUVIUM. *Known as river bottoms; black with humus; often called "made lands."*

**THE GRANITIC AND SEMI-GRANITIC.** These are generally thin and poor, and are confined exclusively to the Unakas. As for the productive capacity of these soils for field crops, they have been but little tested, though for the growing of wild grasses they are exceedingly valuable to stock herders. Many of the Balds have spots of great fertility, the soil being black and prairie-like. The slopes are often covered with a dense growth of fine timber. Walnut, wild cherry, poplar, beech and oak abound. Though locally very rich, these lands can never be brought into successful cultivation on account of the ruggedness of the country. Some spots yield buckwheat unsurpassed in the luxuriance of its growth.

The climate, though pleasant in summer, is exceedingly rigorous in winter, and upon the summits of the mountains is found the flora of Canada. Wild, rugged, uninhabited, these mountains stand sublime in their unchangeableness—mighty landmarks, darkening with their shadows the smiling valleys that lie at their base.

**THE SANDSTONE SOILS** are derived from a rock almost totally deficient in fertilizing matter or plant food, being chiefly silica. Hence their sterility. This class of soils may be divided into five kinds, more or less distinct. These are the Chilhowee Sandstone, Knox Sandstone, Clinch Mountain Sandstone, White Oak Mountain and Dyestone rocks, and Cumberland Mountain Sandstone.

1. *The Chilhowee Sandstone Soil* is confined to the mountain ridges, and is very limited in extent. Some few areas are found that will repay the labors of the husbandman in the cultivation of potatoes, buckwheat and garden vegetables. The Chilhowee Mountains are sparsely settled, and but a small proportion of the soil has ever been cultivated, but it is much used as a common pasture ground, blue grass growing luxuriantly upon some of the ridges near the Virginia lines in the counties of Johnson and Carter. The locality of this soil is represented on the Map in long green strips, and marked 2*b*.

2. *The Knox Sandstone Soil* is unimportant, being confined to long, narrow, sharp ridges, which are often called Piney or Comby ridges. This soil is confined to the Valley of East Tennessee, and is very little cultivated. It produces timber in limited quantities but not much grass, and is not so valuable for pasture grounds as the preceding.

3. *The Clinch Mountain Sandstone Soil* occurs mostly on the southeast side of Clinch Mountain, Powell's Mountain, Lone Mountain, some of the ridges of the Bays Mountain group, &c. It is thin, sandy

and poor, sparsely timbered, and has immediately underlying it large sheets of sandstone. It has a pale yellowish color, and when the depth of the soil is sufficient, will yield Irish potatoes and garden vegetables. It may be mentioned that the north-west sides of these mountains have a very fertile calcareous soil, highly productive, the fields in many cases reaching the crests of the mountains. It is curious to observe the exuberance of vegetable growth on the one side and the poverty on the other. Stately trees with leafy tops, covered with vines and creepers, making an impenetrable thicket, characterize the one side in its wild state, while the other, covered with an impenetrable shield of sandstone, has here and there a few scanty shrubs and starveling trees, typifying the indescribable sterility and scantiness of the soil. It is represented on the Map by 5a.

4. *The White Oak Mountain and Dyestone Soil* occurs on the south-east side of White Oak Mountain in James and Bradley counties, and on the slopes of the smaller Dyestone ridges. These ridges are so called from the occurrence of red stratified iron ore. The rocks underlying this variety of sandstone soils are more varied in chemical composition and give more vitality and fertility to the soil, which are manifested in the better growth of timber, though but small areas of this variety have been brought into cultivation, owing to the ruggedness of the country in which it prevails. It may be added that the aggregate extent of this soil is very limited, and could only be represented by mere lines on the Map. The White Oak Mountain and the ridges mentioned are interesting mainly on account of the abundance of iron ore. This is represented on the Map by 5b.

5. *The Cumberland Mountain Soil* is the most important of this group, inasmuch as it extends over an area of about 5,000 square miles, covering nearly the whole surface on the top of the Cumberland Table Land. This soil is sandy and thin, the sand being coarse and angular. Nevertheless, at the foot of some of the knobs and ridges that rise above the general level of the Table Land there are areas of moderate fertility. The valleys, too, upon the top of the plateau and the north hill sides are much above the average in fertility. This region is totally destitute of lime, extremely porous, and difficult to improve. Manure soon sinks to a depth which renders it unavailable as plant food.

There are two leading classes of soils on the Table Land, the most valuable of which has a yellowish red subsoil, with a thin coating of

humus on the surface. This character of land can be improved and rendered highly productive, but continual vigilance and care are required to prevent the escape of the elements of fertility. This may be effected by seeding to clover, which should be treated to frequent and liberal top dressings of plaster of Paris. The soil is extremely tender, and constant care is required to prevent washing.

The second class of these soils has a light yellow, whitish and sometimes bluish subsoil, with little or no humus. It is extremely porous, leaky and, when wet, is often inclined to be miry. In its native state it produces nothing but shrubby trees and a scanty growth of hardy weeds and coarse grass. Much of the surface is covered with lichens and sometimes with mosses. Manure applied to these lands soon disappears, leaving scarcely a trace after the first or second season. It is a serious question to determine the best uses of which these lands are capable. For grain farming they are valueless, and scarcely better for fruits and cultivated grasses. We can recommend nothing better than that they be converted into extensive sheep walks. The native grasses and herbs, with such of the hardy cultivated kinds as might be induced to grow upon them, would afford pasturage sufficient during the summer for sheep and goats, and perhaps for cattle.

Besides these two leading classes of soils pertaining to the Table-Land, there is another, more limited in extent, but possessing peculiar characteristics which entitle it to especial consideration. This class comprehends the glades and wet lands along the smaller streams. The soil, when wet, is of a dark blue color, sometimes nearly black, but when dried it is ash color. Blue clay is generally found in connection with it as a substratum. These soils are often entirely destitute of timber, and covered with coarse, rank grass, and spotted with beds of fern, the tussocks of which form a close mat over the surface. The absence of timber is owing to the superabundance of water, with which the ground is saturated throughout the greater part of the year. These lands present another problem, but we are more hopeful of them than of the class of uplands last described. It is true that many efforts to reclaim them have failed, but this is owing to a failure to understand their peculiar character. It is not enough to drain off the water. They contain large quantities of half decomposed vegetable matter, which imparts to them a high degree of acidity, and this must be corrected by a liberal use of alkali, and for this purpose either wood ashes or lime may be used. When thus treated, they are nearly equal to alluvial soils in fertility, and are especially valuable for meadows.

The soils of the Table Land are indicated on the Map accompanying this Report by figure 9. For more minute and particular information, the reader is referred to the descriptions of the counties of the Table Land, particularly that of Cumberland County, which may be regarded as a type of the whole division.

**SILICEOUS OR FLINTY SOILS.** Strictly these would embrace all the soils of the Highland Rim except the alluvium on the rivers, but as a considerable portion of the Rimlands is strongly impregnated with lime, we prefer to class the latter kind with the calcareous, and confine the siliceous to that portion which has been leached of calcareous matter. This soil, found in greatest abundance in the counties of Lawrence, Wayne, Lewis, in less quantities in Stewart, Montgomery, DeKalb, Cannon, Coffee, Moore, Hickman, Humphreys, Dickson and Franklin, is thin, poor and hungry. It has an original poverty of constitution. It generally rests upon a bluish or pale yellowish subsoil, so porous as to render the effects of manure unobservable after one or two years. Chestnut, sweet gum, black jack, and water oak, with an undergrowth of greenbriers, huckleberry and barberry, are the characteristic growth. It also produces, in open woods, a coarse, rank grass, which, when young and tender, is palatable to "stock." Thousands of cattle and sheep are subsisted upon these highland pastures, and this "barren land" is chiefly valuable for that purpose in an agricultural point of view. Notwithstanding the sterility of this soil, it has been found well adapted to the growth of almost all the varieties of fruit trees. Orchards that have been standing for over half a century, are still bounteous in their yield of fruit. The finest specimens of the apple tree in the State are found upon such lands in the counties of Lawrence and Wayne. The trees are rarely attacked by disease or insects; and peach trees, planted forty years ago, are still vigorous in their growth and prolific in their yield. The borer and euculio are unknown, and the porosity of the soil enables the roots of fruit trees to take a wide range in reach of nourishment. These "barren lands" are usually very level and thinly wooded, and present to the eye a beautiful surface. Many settlements have from time to time been made upon this character of soil, but are quickly abandoned, leaving sightless, "broomsedge" fields and a few fruit trees as the only trace of their former occupancy. It would be unjust to those seeking homes in our State to conceal the fact that this character of soil is unfit for general farming purposes, and whoever relies upon it for the growing of the ordinary crops must remain steeped in poverty and destitu-



tion. When the country shall have become more densely populated and great cities shall be accessible, these "barrens" will become valuable as a fruit region, and will have the capacity of supplying millions of barrels of apples and bushels of peaches at cheap rates. They also may be valuable as summer homes, for their high elevation gives them invigorating breezes, and the water is as clear as light and as pure as that distilled by the clouds.

We are anxious not to be misunderstood. By the "barrens" we mean the poor, leachy soils, not those with red, tenaceous clayey subsoils, for these may be improved; nor those which have a rolling surface and an underlying cherty mass; but only that character of soil whose subsoil is of the kind described above, and which is totally deficient in calcareous matter. The location of these "barrens" is indicated on the Map by *Sa'*, though it must be observed that much of this area so marked is calcareous and embraces many spots of great fertility and durability of soil.

To recapitulate:

1. *The Barren Soil.* Light colored, with a porous, yellowish subsoil; fine sandy, leachy.
2. *The Productive Soils of the "Barrens."* Chocolate in color, red clay subsoil, with intermingling cherty masses, generally very fertile, which will be treated of under the head of Calcareous Soils.

**SANDY SOILS.** Under this head are included the varieties of melow upland and highland soils which occur in West Tennessee. They are based, not on solid rock, like the sandstone soils mentioned, but upon unconsolidated strata of matter mainly sandy. The soils resulting are mainly of the same character. They are called sandy or arenaceous, because this mineral feature greatly predominates, and are generally red or yellow from the presence of a notable quantity of ferric oxide and silicate. It does not follow that, because a soil is "sandy," it is therefore poor. The clay and calcareous matter that some contain give them a degree of body and vitality which make them for many crops highly valuable lands. The way they lie, too, is an important consideration. If high, plateau-like, or gently rolling and well drained, such lands are often highly esteemed by the farmer; when, if steep or very hilly, they are not prized. In the latter case the soils have the same components, but, under tillage, are easily washed and made comparatively worthless.

The varieties may be classified in accordance with the geological formations, as follows:

1. *The Coffee Sand Soil.*
2. *The Ripley Group Soil.*
3. *The Flatwoods Group Soil.*
4. *The Lagrange Group Soil.*
5. *The Orange Sand Soil.*

This classification is more a matter of convenience than anything else, for the varieties do not differ materially. They approximate a general type—a sandy soil, with more or less clay and calcareous matter, yellowish or reddish in color from ferric compounds, mellow, minutely pulverized, easily worked and easily washed, and derived from underlying, unconsolidated strata. The most important is that of the *Orange Sand*, which is not represented on the Map, for the reason that it is a superficial drift formation and would too much conceal the outcrops of the other groups. As a formation, it is more fully described in the chapter on the Geological Formations of the State.

The formations that give names to the variety of soils above are (with the exception of the *Orange Sand*) represented on the Map by different colored belts running longitudinally across the State, and are designated respectively 10*a*, 10*e*, 11*a*, and 11*b*. Of these the belt 11*b* is much the widest.

These belts of outcrops occupy, as is seen, a large area of West Tennessee; but it is to be especially noted that, spread out like a blanket, over very much of this area out of the valleys of the streams, are the beds of the *Orange Sand*. These beds lie above the formations mentioned, but are overlapped by the belt 12*b*, the soil of which is therefore not modified by it, as hereafter noticed.

*The Coffee, Ripley, Flatwoods and Lagrange Formations* are here and there bare, the *Orange Sand* being absent. In such regions their beds originate the soil, but being lithologically much like the *Orange Sand* the soils of all, as stated, do not differ materially in their constitution.

The area occupied by the belts 10*e* and 11*a*, (*Ripley and Flatwoods*) though embracing much fine farming lands, some of it high table land, is very often elevated, rough and broken by high ridges and deep defiles, and includes the *Tennessee Ridge* (west), the summit of the

watershed, dividing the waters of the Tennessee from those of the Mississippi. Near New Middleton, in Hardeman County, these belts contain a thin stratum of limestone, enclosing shells and fossil remains of crabs, and also a layer of green sand with shells. These strata outcrop at a few points, the former supplying material for making lime, and the latter a fertilizer.

The belt 11a (*Flatwoods*) contains, in a number of the counties which it traverses, heavy layers of a laminated clay, which, when wet, is dark colored, but light gray when dry. The outcrop of this clay, when not covered by the Orange Sand, makes a stiff soil, quite in contrast with the typical sandy one.

The belt 11b (*Lagrange*) sometimes presents beds of clay, but they are local. It occasionally shows a bed of lignite. It is for the most part covered with the Orange Sand.

In the Western Valley of the Tennessee any one of the formations, including also the older rock formations, may be covered by the Orange Sand. Here it often presents itself as coarse water-worn gravel, which here and there includes a great nest of iron ore, making a "bank." Considerable areas are met with too gravelly for tillage.

**CALCAREO-SILICEOUS.** This contains but one variety of soil, that of the Bluff Loam or Loess. The area or the belt it occupies is designated by 12b on the Map. This soil comes from a formation which caps or overlies all other formations in the belt of highlands running from Hickman, Kentucky, to Memphis. The formation is made up of a fine calcareo-siliceous earth, often presenting an ashen aspect as to color and consistence, but sometimes of a reddish cast, occasionally black and sometimes mulatto. It contains more calcareous matter than the other unconsolidated formations of West Tennessee, with the single exception of the Green Sand or Rotten Limestone. It is not unusual to meet imbedded in it concretions of carbonate of lime. At some points they may be gathered by the bushel. The soil is similar in character to the formation—calcareous, siliceous, or fine grained, ashen, and sometimes slightly reddish and black earth. Its lands are among the most fertile in the State. The soil owes its good qualities, not to its chemical composition alone, but also to its finely pulverulent mechanical condition. Tobacco, cotton, wheat, oats, clover and the grasses grow luxuriantly upon it, while the native growth, especially in Obion and Dyer, is of marvellous exuberance.

**CALCAREOUS SOILS.** Calcareous soils are those in which the carbonate of lime is the characteristic or predominant constituent. These are the limestone soils proper, and rest at a greater or less depth upon a solid stratum of limestone. They are modified by the prevalence or absence of arenaceous material, or by the quality or quantity of argillaceous matter.

There are six distinct varieties of these soils in the State, clearly marked and defined, though all having more or less resemblance.

1. *The Knox Dolomite* is the first of this group, and comprises some of the finest farming lands in the State. It is characterized by a red clay subsoil, filled with masses of chert peculiar in having rhombohedral cavities. The rock which underlies this soil is composed of carbonate of lime and magnesia. The chert is mostly confined to the south-east side of the ridges, the north-west being comparatively free from it. The Knox Dolomite and the Knox Shale, taken together, make up a larger portion of good arable land than all the other formations in East Tennessee put together. In the southern part of Sevier County and in Blount are some beautiful coves of this soil, where grass, grain and fruit flourish in vigor. In Jefferson County, between the Holston and Bays Mountain and extending from near New Market to Russellville, is an elevated plateau composed of this soil. Most of Claiborne County has this soil, also Hancock. It is the soil of New Market Valley—a valley charming in its loveliness, and highly productive of the cereals and grasses. The Knox Dolomite soil has the valuable quality of durability, and when rotated with clover will continue fertile through generations. The soil is designated on the Map by 2c.

2. *The Trenton or Lebanon Soil* rests on a blue fossil limestone, and covers nearly one-half of the Central Basin. It is also the soil of many of the long valleys in East Tennessee and of the red knobs about Knoxville. This soil is more friable and more fertile, but probably less durable, than the Knox Dolomite. It is also less sandy and stiffer than that of the Nashville Limestone. This soil has sometimes black chert in it, and the sand, from its disintegration, gives a sufficient mellowness to the soil, and the red oxide of iron acts as a chemical agent in giving it fertility. In productive capacity it is equal to any in the State; grows to great perfection all the cereals. Wheat grown upon this soil is exceedingly flinty and heavy, some of it weighing seventy pounds to the bushel. Not so productive of blue grass

or barley as the Nashville Limestone; it is probably better suited to the growth of cotton. It forms the fine cotton belt which encircles Murfreesboro, extends to Bedford and embraces the greater portion of Giles, Maury and Williamson. It is designated on the Map by the figure 3, and, it will be seen, covers some of the fairest and most desirable portions of the State.

3. *The Nashville Limestone Soil* differs from the preceding in having a greater quantity of siliceous material and not so much clay. It is mellow, porous, highly productive, adapted to blue grass, corn, cotton, oats, wheat, barley and vegetables of every kind. It is specially suited to the production of fine large melons, which are unequalled for sweetness, juiciness and delicate flavor. The watermelons of the Nashville market are a source of admiration to all visitors, and they form quite an item in the agricultural products of Davidson County. This soil is more easily worked and washes more readily than any of the calcareous soils. It covers nearly one-half of the Central Basin, and forms many of the beautiful valleys of East Tennessee. It is designated on the Map by the figure 4, and for all purposes is second in importance to no soil in the State. The subsoil is of a more yellowish tint than the subsoil of the Trenton or Lebanon.

The qualities of the two varieties of soil last mentioned are of the highest order, and, considering their great versatility, durability and fertility, it is no exaggeration to say that they have not their superior in any land. It is the character of this soil which has made Middle Tennessee famous, and that has invested the country around Lexington, Kentucky, with a charm which has attracted from Europe some of the most renowned stock-breeders of the world.

4. *The Niagara Soil* is confined almost exclusively to the Western Valley of the Tennessee and the Valley of Buffalo River. It rests upon a gray and red limestone, is moderately productive, but not so well adapted to cotton or wheat as those last described. It grows Indian corn well and some of the grasses, but it is not so strong nor has it such depth as the Lebanon or Nashville. It has frequent glady places, which will subsist only scanty herbage between the fissures of the rocks. This soil must not be confounded with the alluvial bottoms of the Tennessee and Duck rivers. It is designated on the Map by 5d.

5. *The Soil of the Lower Helderberg* does not differ materially from some of the other calcareous soils. It has a dark gray and chocolate

color; is usually mellow. It is better than the Niagara, resembling more the Trenton and Nashville in its capacity for production. Its largest area is in Benton, Henry, Decatur and Hardin counties. On the Map it is represented by the figure 6.

6. *The Lower Carboniferous* may be sub-divided. The first occupies a considerable portion of the Highland Rim, and is characterized everywhere by a large fossil coral. This soil is composed of silica, alumina and carbonate of lime, which make marly soils. It also has oxide of iron, organic matter and the like. It forms the best tobacco lands in the State, and is as good for wheat as any portion of the Central Basin. Grapes grow to great perfection on this soil; corn, oats, hay, potatoes also yield largely. It has usually a chocolate color after being brought into cultivation. Stiffer than the other calcareous soils, it is not so liable to wash where the land is moderately broken. It has underlying it a cherty bed that supplies a natural drainage. It is strong, durable and reliable, never failing to produce fair crops when well cultivated, whether the season be wet or dry. In wet weather the cherty bed beneath carries off the superfluous water, and in dry weather the thick bed of tenacious clay below the chert supplies humidity to the growing plant. The surface of the land where this soil is found is usually broken. Hopper-shaped sink-holes and wide circular pond-like depressions are everywhere found. The skill of the farmer is taxed to prevent the rims of these depressions from becoming impoverished by washings into the bottoms. Deep plowing and constant rotations with clover, a plant to which this soil is peculiarly adapted, are found in practice to be the only means of preserving the fertility of the elevated places. Notwithstanding these disadvantages it is found that the farmers who cultivate this soil are among the most prosperous in the State, and this is doubtless due to the certainty with which the crops grow. In the Central Basin the soil is more fertile and the arable land usually more level, but as the underlying limestone comes nearer the surface, crops are more quickly affected by drouth, so that, although the soil is richer, it is not more productive. There is another peculiarity about this soil under consideration that deserves mention. Blue grass sown upon fresh lands grows with amazing luxuriance, but when tramped by the feet of cattle it quickly dies out. The earth compacts too closely, there being too little sand in its composition and too much clay. On the other hand, the Nashville soil is benefitted by tramping, the siliceous matter keeping it suf-

ficiently porous, and even too much so for blue grass, unless solidified by grazing. Nevertheless, there are many old fields on this Lower Carboniferous Formation that make respectable blue grass pastures, but they are in such spots as have the limestone rock near the surface, and where the intervening subsoil is so cherty as to give it a comparative porosity.

The largest orchards in the State are planted upon this soil, and yet it is by no means the best land for the growth of fruit. The extreme tenacity of the subsoil checks the roots in their downward course and induces a premature decay.

This sub-division is marked *8a''* on the Map, and constitutes a large area of the best farming lands on the Highland Rim, and some in East Tennessee.

The second sub-division, marked *8b*, is found on the slopes of the Cumberland Table Land. It is less cherty, but highly productive. Nor is it so red, but resembles more in color the alluvial bottoms. It is more fertile, less clayey and more sandy than the first sub-division. But a small quantity has been brought into cultivation. It is mostly covered with a dense growth of fine timber—walnut, poplar, ash and oak. It is found in greatest abundance in Overton, White, Warren and Fentress.

**GREEN SAND SOIL.** This soil is a kind of siliceous loam, resting upon an interesting formation in West Tennessee, which is, in the main, sand and clay intermixed, having as characteristic ingredients a considerable amount of carbonate of lime and numerous green grains (*glauconite*) resembling in consistence particles of gunpowder, which give the mass a light greenish color. It must be mentioned that the formation from which this soil is derived is loaded with shells, so much so that they furnish material for burning lime. This greatly influences the character of the soil, supplying it with fertile ingredients and making it friable and productive. It is well adapted to the growth of cotton and corn, and some portions to the growth of wheat. The land where this soil prevails is by far the most rugged portion of West Tennessee, and many glady spots occur, especially upon the Tennessee Ridge and its various spurs.

The green sand that gives name and character to this soil has been a subject of much speculation by scientific men. Chemical analyses have been made, and the elements of fertility, such as *phosphoric acid*, *potash*, *sulphuric acid* in combination with lime, as in *gypsum*, *sulphuric*

*silica, oxide of iron and carbonate of lime*, have been found in greater or less quantities. Some experiments have been made with it as a fertilizer, with satisfactory results. Should it prove what scientists think, the green sand in Tennessee will be an inexhaustible bed of manure from which thousands of worn out acres may be reclaimed and made productive. The extent of this deposit is eight miles wide and fifty miles long, with a maximum thickness of 350 feet, thinning out towards the northern and eastern margins.

**SHALY SOIL.** Shales are common in many parts of the State. *The Black Shale* underlies the lands of the Rim, sometimes, however, cropping out; other shales are found in great abundance associated with the coal strata in the Cumberland Table Land; but as a top formation shale is rare. In a few of the narrow valleys of East Tennessee the *Black Shale* forms the basis of the soil. This soil is cold, clayey, unimportant and unproductive, except for the grasses. It is represented on the Map by the figure 7.

**ALLUVIAL SOIL.** This soil, in the aggregate, occupies a larger area than any other in the State. For to the 900 square miles embraced by the great Mississippi bottoms there must be added the lowlands of the Tennessee and the Cumberland Rivers and that of all their tributaries. The whole State is furrowed by rivers, creeks, rills, each of which has lying upon its margin more or less alluvial soil. Some of the highland counties, as Perry, are alternate ridges and valleys. The alluvial soils differ greatly in character, aptitudes and productive capacity, depending in great degree upon the formations of the surrounding highlands and upon the frequency or infrequency of the overflows. Where the water-courses flow through or over limestone formations the sediment which they deposit is highly calcareous. When the streams gather their waters from gravelly hills or sandstone ridges the soil is more deficient in carbonate of lime and usually not so productive. The character of the alluvial soil is generally determined by the region through which the stream flows. On many of the streams are terraces, elevated high above the stream-beds and not subject to overflow, which have all the characteristic features of the low alluvial soils. There are places of this kind on the Cumberland, and especially on Red River, a tributary of the Cumberland, which are composed of sand, gravel and loam, such as might be deposited by the river if dammed up. These fluvial deposits are exceedingly rich in plant



food, and make our most generous soils. Their perfect drainage and freedom from overflows make them very valuable and desirable. For the growth of wheat they are especially adapted. We have seen as much as forty bushels of this cereal raised upon an acre of such elevated alluvial soil.

The streams on the Highland Rim have their lowlands highly charged with flinty material. The soil is free and comparatively light, being formed, for the most part, of the silt deposited from the waters, intermingled with chert and fragments of shivered limestone. Upon this character of soil are grown in great abundance peanuts, corn and potatoes. It never compacts, but remains loose and friable throughout the growing season. Though not so productive of timothy as the more clayey bottoms, they are more highly esteemed for all crops that require cultivation.

The alluvium of the Mississippi forms by far the largest area of this soil, and differs in some degree from that on the other rivers and streams of the State. The Mississippi River flows upon the top of a ridge, the margins of the stream being higher than the country a short distance back. Immediately upon the banks and running back for half a mile or more the soil is fine, sandy, yet sufficiently argillaceous, impregnated with vegetable matter, mellow and rich. Back of this, low, marshy strips occur where the lands have not been brought into cultivation to any extent. Beyond these marshes the dry alluvium again appears, and extends out in places for many miles. This is the most productive region in the State, but being low and flat the situation is liable to malarious influences, and is therefore not considered desirable for homes. The soil is black, and has an undetermined depth and totally inexhaustible.

There are almost an infinite variety and modification of these classes, making warm and cold, light and heavy, low, loamy, marly, hungry, leachy, limy, sweet, sour, sandy, clayey, marshy, compact, tenacious, fine, coarse, gravelly, rocky, "crawfishy;" but all may be embraced in the classification given above. The productiveness of these soils does not depend altogether upon the constituent elements—such as lime, carbon, magnesia, potash, oxide of iron, and various other salts and compounds—but also upon the climatic influences, the exposures, the subsoils, the drainage, the pulverization, &c. Drainage is especially important. Standing water is destructive of all our field crops. Yet

too much porosity, so as to permit the fertilizers to filter through to a depth beyond the reach of the rootlets of plants, is almost as objectionable as too much water. The best condition of a soil for production is be thoroughly pulverized and to have a subsoil sufficiently tenacious to hold fertilizers and moisture, and yet well drained of its surplus water. The humus, or decomposed vegetable matter, gives fatness to the soil, and the process by which this woody matter is converted into humus gives carbonic acid, the very life-blood of plants.

## CHAPTER VI.

## TIMBER.

THE value of timber each year as an element of wealth is becoming proportionately greater. The destruction of the forests throughout the country is becoming a source of disquietude to the far-seeing statesman, and premiums are offered in many of the States to encourage tree-planting. Fortunately for the State of Tennessee, there is yet an ample supply, and with proper care and economical consumption there is but little danger that the people will ever suffer greatly for lack of this indispensable article of civilized life.

The Agricultural Department at Washington, estimating the number of square miles in the State at 45,600, gives 15,572,789 acres as the amount in timber. But as the area of the State is only 42,000 square miles, or 26,880,000 acres, there must be deducted from the above 2,304,000 acres, leaving of timbered or wooded land 13,268,789 acres, or not quite fifty per cent. of the whole. The States having the same proportion of timber are Florida, Arkansas and West Virginia; the States having a larger percentage are North Carolina, South Carolina and Georgia. All the remaining States have a less percentage of their lands in timber.

Nearly every variety of timber found in the United States grows in the State of Tennessee. This is due, in a great measure, to the difference of elevation which may be found in the State, which in effect gives a great diversity of climate. The alluvial bottoms of the Mississippi River are 220 feet above the level of the sea, while the highest peaks of the Unakas rise in grand sublimity more than 6,000 feet. It is due in part also to the existence of a great variety of soil. The magnificence of the forests in some portions of West Tennessee is unsurpassed in the United States. The rich soil, stimulated into an

amazing activity by hot suns and a prevailing humidity, is covered with a vegetation of incredible profusion. The poplar, the sassafras and the oak, revelling in the exuberant fertility of the earth, attain a size second only to the giant redwoods of California.

We propose to give in this chapter some idea of the extent, variety and character of our timber, as well as to point out the localities in which the different varieties may be found.

#### ASH. (*Fraxinus*.)

Of this genus two species are to be met with—White Ash (*F. Americana*) and Blue Ash (*F. Uridis*). Excepting the Oak, there is no tree more useful in the arts than the White Ash. The wood is light, strong, supple and elastic. It is highly esteemed by wheel-wrights, carriage-makers, ship-builders and the manufacturers of agricultural implements. It makes the most beautiful floors of all our timber, and when once thoroughly seasoned is not subject to shrinkage and swelling by the alternations of dry and wet weather. It was formerly very plentiful in every part of the State, but is now growing scarce except in places remote from facilities for transportation. It finds its most congenial soil in the coves and north sides of mountains and in the rich lands of the Central Basin and West Tennessee. The largest trees to be met with are probably in Bedford County. This timber is still very abundant in that county.

The Ash lumber always commands a ready sale at high prices. So great is the value of the Ash and so rapid is its growth that the attention of our farmers should be directed to its reproduction. It bears transplanting well. Along fence rows in the Central Basin and in the Valley of East Tennessee, when the land is fertile and moist, it will grow with great rapidity. A recent writer estimates that a grove of Ash trees, that is well protected and cultivated, will yield in ten years a larger return for the investment made than a crop of corn or potatoes. The growing scarcity and the increased demand for Ash lumber will perhaps justify the estimate.

To this might be added the statement of Mr. Budd, a reliable tree-grower of Iowa. He says a grove of ten acres, thinned to six feet apart, containing 12,000 trees, at twelve years of age, were eight inches in diameter and thirty-five feet high. The previous thinning paid all the

expenses of cultivating and planting. Ten feet of the bodies of these trees were worth, for making bent stuff, handles to agricultural implements, &c., forty cents each, and the remainder of the top ten cents, making a total of \$6,000 as the profits of ten acres in twelve years, or a yearly profit of fifty dollars per acre.

As some pains are being taken to protect the young Walnuts that are springing up in myriad numbers in the open woodlands of the Central Basin, it is to be hoped that the White Ash, equally as useful, may not be forgotten or neglected. Its propagation, on account of the rapidity of its growth and the great value of its timber, would be no uncertain investment, especially upon rich soils.

#### GREEN OR BLUE ASH. (*F. Viridis*.)

This Ash is not near so common, and is only met with along the water-courses. It is a middle-sized tree, with smooth leaves, green or bluish on both sides, and greenish young branchlets. The color of its leaves and branchlets gives it its common name. An old tradition gives the green bough of this tree the power of paralyzing any snake, and especially the rattle-snake. The timber is excellent, but hardly equal to the white.

Occasionally specimens of the Water Ash (*F. platycarpa*) and the Red Ash (*F. pubescens*) may be met with, but they are not of so frequent occurrence as to be enumerated.

#### BEECH. (*Fagus Ferruginca*.)

The Beech is a common growth throughout the State upon the moist soils lying upon the streams. The most extended groves are found in Macon, Trousdale, Smith, Sumner, Cannon, Bedford and many other counties of the Basin. Of all our forest growths the Beech is most comely, with its wide-spreading, compact, tufted foliage. It makes an impenetrable shade, and the roots ramify the soil and cover its surface with their multiplied entanglements. When seasoned, the wood is extremely hard and solid. It is used for plane-stocks, shoe-lasts and the handles of tools. But little of it is converted into lumber, and it is chiefly valuable as fuel.

BIRCH. (*Betula Nigra.*)

This species of the Birch is found upon the streams in East Tennessee, and especially on Clinch River. Rafts have been shipped out of that stream to Knoxville and Chattanooga and sold at good prices. It is but little appreciated as a lumber tree.

BUCKEYE. (*Aesculus Flava.*)

This tree grows upon the rich soils in many parts of the State, and most especially in the mountainous and knobby districts, where it grows to the height of sixty or seventy feet, and three feet in diameter. It also grows upon the river-courses. The wood is light, soft and porous, not inclined to split or crack in drying. It is valuable for making troughs, bread-trays, wooden bowls and shuttles.

RED CEDAR. (*Juniperus Virginiana.*)

This is considered among the most valuable of all the woods. Formerly it was very abundant in the Central Basin, growing for the most part in belts or strips upon the glady limestone. The soil and climate of this region seem peculiarly favorable to its growth and to the perfection of its wood. Upon the first settlement of the State, Cedar forests were as abundant in the Central Basin as those of Oak and Poplar. The demands, however, of the agriculturists, combined with the export demand, have nearly exhausted the supply in Davidson, Williamson, Sumner and Rutherford. The best forests are now found in Marshall, Wilson, Bedford and Maury, covering in the aggregate 300 square miles. (See Bedford and Marshall Counties.) Occasional trees of a valuable size are still seen upon the banks of a majority of the streams in Middle Tennessee.

The consumption of this timber has largely increased during the past few years. More than 700,000 feet are annually shipped to St. Louis to be used for fencing purposes, and large numbers of telegraph poles go out from Nashville by every railroad. Bucket factories work up annually of Tennessee Cedar 5,000,000 feet. This growing consumption, while the reproduction is trifling, is rapidly exterminating the forests. An order for 5,000 cords has been recently received in

Wilson county from the city of Pittsburg, to be used in laying Nicholson pavements. The price paid for it is \$9 per cord.

The wood of the Red Cedar is compact, fine grained, light and durable. The heart of the tree has a reddish color which is well known. The sap is white. The wood is highly odorous, and chests made of it are proof against the moth. It is capable of a high polish—beautiful in its contrast of white and red, and is more highly esteemed than all other woods for the manufacture of hollow wooden-ware. Many of the farms in the Central Basin are fenced with it. A farm with a cedar enclosure is considered, other things being equal, of almost as great value as if enclosed with stone. A cedar fence will last for generations. All log houses in the cedar districts are built of this timber. A roof made of cedar singles has been known to last eighty years. Set in the ground it will stand exposed to all the changes of season and climate for thirty years.

The price paid for cedar plank in the Nashville market is, retail, \$40 per thousand feet, wholesale \$30 to \$35; for cedar posts from \$18 to \$30. The trade in this lumber has employed a large number of men for the last fifty years, but the growing scarcity of the timber is rapidly reducing it.

Nowhere in the United States are there found such splendid trees of this timber. In the counties of Marshall and Bedford solid cedar logs have been cut that would square twenty-four inches for a distance of thirty feet. The younger Michaux in his SYLVA OF NORTH AMERICA, says that it would be difficult to find stocks in the cedar brakes of Florida thirteen inches in diameter.

#### CHESTNUT. (*Castanea Vesca.*)

Chestnut is a valuable timber on account of its durability, and is abundant in the State. Shingles, or rails made of it will last until they are washed away by rains. Put in the ground, it is not so durable as the Red Cedar or Locust, but for enclosures it is almost as valuable. The rails have been known to last over half a century. The wood resembles the Red Oak in color, being a shade lighter. It has a beautifully laminated appearance and when polished and varnished makes very handsome furniture. Large forests of this timber are found on the ridges of East Tennessee, on the sandstone soils of the Cumberland Table Land, and in portions of the Highland Rim, especially in the counties of Lawrence, Wayne, Hickman and Perry.

WILD CHERRY. (*Prunus Serotina*.)

This is one of the most valuable and graceful trees of the American forest. It loves a rich, well drained soil, and grows in every division of the State. It often attains a height of seventy or eighty feet. The wood is a light red, compact, fine grained, and takes on a polish as fine as Mahogany or Rose Wood. With age and proper treatment it will compare in polish and beauty with any of the woods. It is rarely used for any purpose but cabinet work. No extensive groves are found anywhere. The trees are usually scattered thinly through the forests on rich soils.

COTTON WOOD. (*Populus Heterophylla*.)

Cotton Wood is confined almost exclusively to West Tennessee, and more particularly to that portion of West Tennessee that constitutes the alluvial bottoms of the Mississippi. It grows to an immense size, towering high in the air and darkening the landscape with its thick foliage. Majestic in its appearance, it forms a fitting fringe for the grandest river on the continent. The wood is white, soft and easy to cut and split. Its chief value is for fuel, being used in great quantities by the steamboats that ply the Mississippi. A wood-chopper can cut and cord double as much of this wood, in a given time, as of oak.

CYPRESS. (*Taxodium Distichum*.)

In the swamps lying on the Mississippi and Tennessee Rivers the Cypress finds its most congenial home, and attains its highest development. It exists upon these rivers in considerable abundance. Owing to its peculiar nature it rarely grows in company with other trees, but stands in isolated forests, rearing its long white trunk high into the upper air, while its roots permeate the deep black soil, which is often covered with water of an inky blackness. There are few places more dismal than a cypress swamp. Covered with stagnant water in which lie innumerable trunks of fallen trees, black and decaying; studded with cypress knees, excrescences that shoot up cone-like from the roots to the height of one or two feet; dark with an overhanging foliage these swamps seem the habitation and breeding places for all the slimy, poisonous reptiles that defile the land.



A great deal of cypress timber is made into shingles, and staves for sugar hogsheads and molasses barrels. The wood splits easily, too much so indeed, to make good shingles. Set in the ground it will resist decay for a great while, which makes it valuable timber for fencing posts. The wood has a neat appearance when made into hollow wooden-ware, closely resembling in color the White Ash, with a slight reddish tint. The Cypress is considered a valuable variety of our timber.

DOGWOOD. (*Cornus Florida.*)

Though never growing to any considerable size, it is found upon rich soils in every part of the State and upon some spots in the "barrens" where the soil is considered thin. The wood is hard, fine-grained, heavy, beautifully white, and susceptible of a brilliant polish. It supplies a very needful want in the domestic arts. Shuttles for weaving, gluts for mauling, horse-hames, cogs for mill-wheels, are best when made of Dogwood.

The Dogwood gives a highly ornamental appearance to our forests, its large white flowers being a sure harbinger of spring. These are succeeded by bunches of vivid, glossy red seed. The appearance of its bloom is the time adopted by many farmers for the commencement of corn-planting.

ELM. (*Ulmus.*)

There are three species of Elm found in Tennessee, viz: White Elm (*U. Americana*), Slippery Elm (*U. Fulva*) and Wahoo, Witch or Cork (*U. Alata*). The first named is quite famous in some parts of the United States as a shade-tree, notably so in New Haven, Connecticut. It is widely diffused in considerable abundance throughout the State, and is by far the largest and most stately of the Elms, attaining in favorable localities as much as 100 feet in height, with five feet diameter. It is marked by the tendency of the lower branches to sweep the earth. It is but little used as a timber, nor is it esteemed for fuel.

The next named species, the Slippery Elm, averages from forty to sixty feet in height, with a diameter from one to two feet. It is quite as widely spread though not so abundant as the White. Its wood is

coarser, stronger and more durable under exposure, yet not enough so to render it very valuable for any considerable use. The chief characteristic of the tree lies in the fact that the inner bark, especially of the branches, contains much mucilaginous matter, which is extensively used as an emollient.

The last named species, the Wahoo, Witch or Cork Elm, is smaller than either of the others, and may be very easily distinguished by its smaller leaves and the peculiar corky excrecences which cover the stems. Its wood is tougher and heavier than either of the other species, and is more used for the hubs of wheels. None of the Elms are valued, however, for timber or fuel, though all are sometimes used in the absence of better woods.

#### FIRS. (*Abies*.)

Of the Firs there are two species found growing in the State—the Balsam Fir (*Abies Fraseri*) and Black Fir or Spruce (*Abies Nigra*). Some of the highest mountain peaks are covered with the Balsam Firs, and they are seldom met with at a lower elevation than 4,000 feet. The dark, sombre, dusky foliage of this tree has given the name to the Black Mountains of North Carolina, and makes the characteristic feature of many of the highest peaks of the Unakas. Being inaccessible, it is rarely made into lumber, though the trunks often rise 100 feet in height. It is distinguished by a balsam which gathers in blisterlike intumescences in its bark, and gives the name to the tree. The Black Fir is also met with in the same localities.

#### GUM. (*Nyssa*.)

Two very different species of trees are commonly called Gum; both are quite abundant in Tennessee. The Black Gum (*Nyssa Aquatica*) is usually found upon rich, moist soils, and grows to a considerable size where the soil is favorable to its growth. It is a valuable timber for hubs, and is much used for that purpose on account of the difficulty with which it splits. Indeed, so interwoven are its fibres, passing like plaited strings from one side to the other, that the most persistent effort can scarcely separate them. It makes good plank for rough buildings, but does not dress or polish smoothly.

The Sweet Gum (*Liquidamber Styraciflua*) finds its most congenial

home in wet, marshy places. It is found in every part of the State in such situations. Large quantities of it are manufactured into plank, which is used for coarse work. It is cheaper than poplar, and decays much more rapidly. It is tough and compact, and is said to be susceptible of a bright polish. It is sometimes used in cabinet work, and makes a passable article of furniture, though not greatly admired. This tree exudes a gummy substance highly prized by children as a chewing wax, hence its name. The supply is ample.

### HICKORY. (*Carya*.)

The great abundance of this timber and its diversity of uses in the arts make it one of much interest. There are in Tennessee six species of hickories, divided naturally into three divisions, viz: 1. The Shell- or Sealy-bark (*Carya Alba*), in which the old bark of the tree splits and shells off at both ends, remaining attached only in the middle; the nuts are but little pointed or ridged, thin-shelled, containing the sweetest of kernels; the hull is thin, and splits entirely into four pieces, which fall apart. 2. Thick Shell-bark (*C. Sulcata*). This is more common in the mountains, and differs from the former in having its leaflets in *three* pairs instead of *two*, a thicker hull to the nuts, and ridges and points on the sides and ends of the nuts. In the second division the bark does not scale or shell off, and the hulls do not split off from the nuts, though the kernels are quite eatable. The species in this division are Common Hickory (*C. Tomentosa*), Pignut Hickory (*C. Glabra*), and Small-nut Hickory (*C. Microcarpa*). The third division has but one species in Tennessee, and is marked by the thin shell and hull and bitter kernel of the nut.

The Common Hickory (*Carya Tomentosa*) grows well upon all soils of middling quality in the State. It is known by the great disproportion between the tree, when young, and the root, the latter sometimes being much larger in circumference than the tree, assuming a flat or grub-like form. This tree is found in abundance in what are called the "hickory barrens" on the Highland Rim. When small it is used for barrel and hoghead hoops and for box-casings. It is also used by bricklayers as wylthes to tie up their scaffoldings. It is exceedingly tough and strong but easily split. The bark is often used by grape growers for tying up the vine, a purpose to which it is admirably suited, as it peels off with ease in the spring, and will remain supple and elastic when kept under water. It is also used for bottoming chairs.

It rarely attains a greater diameter than eighteen inches. When of this size it is worked up into axles for wagons, spokes and felloes for carriages, and into axe-handles. The wood is tough and sometimes stringy, very elastic, hard and of great weight. Mauls or beetles are made of it for driving the wedges in the splitting of rails. When seasoned it makes the best carpenter's mallet and the most durable handles for chisels. Owing to its tendency to sag it is unfit for house-logs or sills; besides, it speedily decays when exposed to moisture, and is peculiarly liable to attack by worms. Great quantities of the timber are wrought up into chairs, and for other purposes requiring strength and elasticity.

The Scaly-bark Hickory (*Carya Alba*) grows to a much larger size and splits more readily.

The Pignut Hickory (*Carya Glabra*), like the last, seeks a fertile soil upon river banks and upon rich hillsides. These last mentioned are employed for the same purposes as the first.

The wood of the hickory makes the finest fuel for domestic purposes that can be found. It creates an intense heat and burns with rapidity. The last, perhaps, is its only objectionable feature as a fuel, but this is corrected by mixing it with black jack or post oak. Hickory wood is preferred in the tobacco region for curing tobacco. It is also preferred for curing bacon, giving it a light brownish color strikingly in contrast with the dinginess of that cured by other woods. The ashes of the hickory are the richest in potash of all our woods. They will make more soap and of a better quality. There is no tree more widely spread or used for more domestic purposes than the hickory. In the old coaling grounds millions of hoop-poles grow, which, with adequate railroad facilities, could be made of great value.

#### LINN, OR LINDEN, OR BASSWOOD. (*Tilia Americana*.)

The Linn is fond of a fertile soil, and is found growing with the Sugar Maple and Walnut. It is abundant in the Blue Grass region of the Central Basin and in some localities in East Tennessee. As a timber tree it is chiefly valuable for making firkin staves. It is soft, white and tender, easy to rive, and possesses less durability than any of our timbers. When used for fences, where it is exposed to the weather a perceptible decay begins immediately. Troublesome to the farmer on account of the great number of sprouts which it sends up

from the stump, it is regarded with no favor, though the tree often attains the dimensions of four feet in diameter. The bark is sometimes used for making horse-collars.

#### BLACK OR YELLOW LOCUST. (*Robinia Pseudacacia*.)

This tree, considered a pest by a large number of farmers, is really one of the most valuable species of our timber. For elasticity, durability, pliability, strength, lightness and toughness, there are but few woods, if any, equal to it. It grows well upon almost any soil. It flourishes upon the slopes of the Highlands and Cumberland Mountains, and also upon the sides of the Unakas. It is found upon the north sides of Clinch and Powell's Mountains, and will flourish upon the glady places of the Central Basin where no other tree will survive. It is valuable for hubs and posts and railway ties. For posts it is said to excel red cedar. It has been known to last for a century in the ground. Many of the old fields, scarified with grinning gullies, could be made profitable to the owners and transferred from deformity to beauty by planting the locust. It grows with rapidity, and will make in ten years good posts or railroad ties. This tree rarely attains a greater size than one foot in diameter and a height of thirty or forty feet.

#### HONEY LOCUST. (*Gleditsia Triucanthos*.)

The Honey Locust is abundant upon all the rich soils of the State. It is found in company with the walnut, elm, scaly-bark hickory, hornbeam, ash, &c. The chief value of this tree is for posts, it being very durable when set in the ground. It is most commonly regarded as a nuisance on account of its long thorns.

#### MAPLE. (*Acer*.)

There are three species of maple found in our State, viz: the Sugar Maple (*Acer Saccharinum*), the Red Flowering or Swamp Maple (*Acer Rubrum*), and White Maple (*A. Dasyarpum*).

The first, or Sugar Maple, abounds in the coves of the mountains and on the rich bottoms of streams. It formerly covered a large portion of the Central Basin, and was the chief reliance of the early set-

blers for sugar. The wood of the Sugar Maple has a remarkable beauty. The Birds-eye Maple, a variety of the Sugar Maple, has an exquisite appearance. The fibres of this maple are often contorted into little knots, resembling the eye of a bird, hence its name. It likewise has fibrous undulations that give the wood a wave-like and handsome appearance. When highly polished the wood has a silky lustre, and the effect which light and shade produce on the landscape is brought out by the curly undulations of the wood, giving it a pleasing and varied appearance. This timber is very abundant in every part of the State, and could be made a source of great profit by being sawed into veneering slabs and sold for the finishing of passenger cars and the making of furniture.

The Red Flowering Maple grows in wet soils and on the marshy margins of streams. The wood is hard and close-grained. The fibres in some of the trees assume a sinuous course, giving a surface of changeable light and shade. It also has a silky lustre when polished, and is valuable for cabinet work. The most beautiful varieties sell higher than mahogany. It is quite abundant in every division of the State in localities suited to its growth.

The White or Silver Maple with us is a smaller and rarer tree, differing from the Red Maple in the color of its leaves and flowers. The wood is very white and fine-grained, but quite soft, and in no way so valuable as that of the red.

#### RED MULBERRY. (*Morus Rubra.*)

The rich soils in every part of the State are productive of this tree. It is highly esteemed as fencing posts, being almost as durable as the locust. The fruit is nearly as large as the blackberry, which it greatly resembles.

#### OAK. (*Quercus.*)

There are more than one hundred species of the Oak to be found in the United States, and of these Tennessee has twelve or more. They grow in every county in more or less abundance, and altogether constitute the great body of our timber. The most valuable species is the White Oak (*Quercus Alba*). This tree attains an enormous size in the Valley of the Tennessee, and in the first and second tier of river counties of West Tennessee. It is also found in considerable quan-

tities in many parts of East Tennessee, the best being on the ridges in the western part of that division of the State; or in the tier of counties resting against the Cumberland Table Land, and also on the slopes of the Unaka Mountains. The ridges and valleys lying on Duck and Buffalo rivers are covered with stately White Oaks. Indeed, this tree is pretty generally scattered through all the wooded regions of the Highland Rim. The timber is strong, durable, compact, elastic, and of better quality than that made of the same tree further north. It is extensively used in making all the wood work of wagons, except the axles. Manufacturers of agricultural implements find it indispensable, especially for making plow handles and beams. It is said to be the only timber grown east of the Mississippi, the staves from which make vessels suitable for wine or spirituous liquors; and this not altogether because of the tightness of the casks, but because the wood imparts no disagreeable flavor to the spirits. The making of white oak staves for the European markets has grown to be quite an important industry. The number annually shipped from the lower Tennessee River, and made in Hardin, Wayne, Perry, Humphreys and Stewart is ascertained to be 1,635,000. About half of this quantity is shipped out of the Cumberland. The heavy pipe staves are 60 inches long, 5 inches wide and 1½ thick; light pipe 56 inches long and same width and thickness; claret staves 40 inches in length. The following are the prices paid by foreign dealers in the New Orleans market:

Heavy Pipe,	. . . . .	\$140@225	per thousand.
Light Pipe,	. . . . .	80@110	“ “
Claret Staves,	. . . . .	80@100	“ “

The prices paid for cutting and riving are, for

Heavy Pipe,	. . . . .	\$36	per thousand.
Light Pipe,	. . . . .	25@35	“ “
Claret Staves,	. . . . .	25	“ “

In addition to staves, much White Oak lumber is shipped out of the same river to Paducah and Memphis; also to Mound City for boat building.

The young trees of the White Oak are extensively used in making baskets for domestic uses and in bottoming chairs. They are rived into thin splits, which are scraped with a knife until the surface is smooth and highly polished. Hoops for tobacco hogsheads are made from trees of eight to twelve inches in diameter. Smaller than this,

the necessary width cannot be secured, as the immature or sap portion of the wood, with a very small quantity of the heart, is the only part valuable for hoops. When larger than twelve inches in diameter the wood is too frangible or "brash."

— Away from the immediate banks of navigable streams, or beyond the reach of railroads, this timber has its chief value as fence rails. A good fence of White Oak, with the rails four inches square, will last thirty years, and its great weight will enable it to resist the winds, if well staked. The usual price paid for standing trees accessible to market is one dollar a foot across the stump.

White Oak lumber sells at the mills for \$18 to \$20 per thousand feet, according to demand and accessibility. For the manufacture of feed-troughs it has no equal. Seasoning into iron hardness, it cannot be eaten up by mules or horses as the poplar and other soft woods. Neither can it be penetrated by rats, and corn or wheat bins made of it are secure against the ravages of these animals. For floors it has but one superior, the white ash. For the erection of mill-dams its great weight and toughness make it indispensable. So many are its uses and so great is the inherent value of this timber, that it may justly be styled the king of the woods, as iron is the king of the metals.

The Red Oak (*Quercus Rubra*) grows generally in every portion of the State. When of sufficient size it makes fine boards or slabs for roofing. Staves for tobacco hogsheads and flour barrels are chiefly made of Red Oak. Though neither so tough nor so durable as the white oak, its rigidity and comparative freedom from warping give it a greater value for sills and house logs. A large majority of the log houses in the State are built of this timber. It is more widely spread than the white oak, and a large proportion of the charcoal consumed by our furnaces is manufactured from this timber.

#### POST OAK. (*Quercus Obtusiloba*.)

Wherever the soil is dry, gravelly and thin, this tree grows. It is not so elastic as the white oak, but is more durable. It makes the best railroad ties, being solid, tough, close grained and hard to split; the latter quality giving it its chief excellence for railroad ties. It is found in every part of the State.



CHESTNUT OAK. (*Quercus Castanea.*)

This tree delights in high, poor, barren and rocky soils, and may be found upon such in every division of the State, but especially upon the leached soils of the Highland Rim. It is chiefly valuable for its bark this being used in the tanneries, and much of it is shipped to other states. There are trees growing on the Highland Rim, and on the southern sides of many of the ridges in East Tennessee, that will yield a cord of bark, which, if ground up, would sell in the St. Louis market for \$18. No tree of the forest is so rich in tannin. The leather made by the use of the bark is the most solid and durable manufactured, and sells for a higher price. Thousands of acres covered with the Chestnut Oak may be bought for one dollar per acre. The wood is said to be hard and well suited for flooring.

BLACK OAK. (*Quercus Tinctoria.*)

Michaux was of the opinion that the Black Oak does not grow in Tennessee. In this, however, he was mistaken. It is found in considerable quantities on the Highland Rim, especially those portions that have a rich loamy soil, as in Montgomery county and parts of Stewart and Robertson. This tree is considered the most valuable found in the forest for making boards. It rives easily, and the boards made from it are not inclined, when nailed upon a roof, to curl up. Much of this timber is also made into hogshead staves, thousands of which are annually shipped to the St. Louis market. Many of the flour barrels used in the State are made of this timber. Its durability is greater than any of the oaks, except the white oak and post oak. It is a very valuable species, and forests of it sell very high.

SCARLET OAK. (*Quercus Coccinea.*)

This species is found in abundance in East Tennessee growing in moist places. It is also found in the small swampy spots in Middle and West Tennessee, though not in sufficient abundance to make it of particular interest or profit. The timber is about equal in value to the red oak, and is used for the same purposes.

BLACK JACK OAK. (*Quercus Nigra.*)

As a timber tree this species is very unimportant, though it covers a considerable portion of the "Barrens." It grows for the most part upon a red clay, ferruginous, cherty soil, usually poor and thin, but sometimes very fertile. The black jack lands in the northern parts of Stewart and Montgomery are among the most productive in the State. The lands in that region differ from the black jack "barrens," in this: that they have an undergrowth of gum, dogwood and hazel, and also an extensive growth of scrub hickory, interspersed with the Black Jacks. No tree so well resists the annual conflagrations that sweep through the barren plains as the Black Jack. Its tough, thick, rough bark is proof against the fires, and to this cause may be attributed its multiplication over the "Barrens." Made into rails, it decays in three years. It is valueless, except for fuel and the abundant yield of potash which the ashes make. During the late war much of it was converted into ashes for the manufacture of saltpetre.

It will serve no good purpose to enumerate separately and in detail the other species of oaks found in the State. It will be sufficient to say that they do not exist in quantities sufficient to make them of special worth in an industrial point of view. The swamp white oak, the overcup, the yellow oak, the small chestnut oak or chinquapin, the laurel oak, the spanish oak, the willow oak, the bear oak, and possibly one or two other species, are found in small quantities. A specimen of nearly every tree mentioned may be found in the Valley of East Tennessee, as the rich high ridges of that region give almost every condition of soil and climate.

PINES. (*Pinus.*)

This is one of the most abundant and one of the most valuable of our forest growth. There are two species of Pines sufficiently abundant to be named among the timber trees. These are the Yellow Pine (*P. Melis*), the most abundant, and the White Pine (*P. Strobus*).

The Yellow Pine grows in considerable quantities in the vicinity of Knoxville, and, indeed, in many of the parallel ridges in the Valley of East Tennessee. It is also found in extensive forests on the Cumberland Table Land, and forms considerable belts in Hardin and Lawrence

counties. Patches are found on the south hill sides of Wayne, and in less quantities in several of the counties of the Highland Rim and West Tennessee. It is known most generally as short-leaved Pine. It abounds on poor soils, those usually of sandstone, but often on red clay with gravel. It takes possession of abandoned old fields, and will grow with rapidity where the soil is too sterile to produce other vegetation. On this account it is specially valuable.

In the regions where it abounds it forms the principal timber for domestic purposes. For clapboards, floors, sills, joists, rafters and roofing it is almost universally used. Fine grained, resinous, durable and strong, it has but few superiors as a timber tree. Though yielding tar and turpentine it is but little used for this purpose, hardly enough of these articles being made to supply the local demands.

The White Pine is not so abundant as the preceding. It is diffused in more or less quantities over the slopes of the Unaka Mountains, and is found locally on the Cumberland Table Land. It grows to a larger size than the yellow pine, and makes a quality of lumber highly prized on account of its lightness and comparative freedom from resinous exudations. For the manufacture of goods-boxes, mantles, door-shutters, window-sash, and especially for ceiling, it is much used. The supply of this timber is limited, and much of it inaccessible to market.

#### POPLAR. (*Lyriodendron Tulipifera*.)

There are several varieties of this tree, known locally as Blue, White and Yellow Poplar, the latter of which is by far the most valuable as a timber tree. This grows upon rich soils almost everywhere. The finest specimens we have seen in the State are in Obion and Dyer counties, in West Tennessee, and in Maury and Macon, in Middle Tennessee. Of all the trees of our forest this attains the greatest dimensions. Trees twenty to twenty-five feet in girth and from sixty to seventy feet to the first limb are often met with. More than 10,000 feet of good lumber are cut from some of them. The wealth of poplar timber is very great in almost every part of the State. Millions of feet are shipped annually by river and rail, and it is more used in the construction of houses than any other wood. The studding and clapboards, sills and joists, rafters and shingles in a large proportion of frame buildings are made of this timber. A roof made of Yellow Poplar shingles is very durable. It will last for thirty years. Plank and paling fences constructed of it will stand twenty years with good

cedar or locust posts. The wood is soft, light, and is worked with ease. It admits of a good polish, and is used in the manufacture of common articles of furniture. Its greatest defect is its liability to shrink and swell by the alternations of dry and wet weather. It is never attacked by the borer. Fence rails have been known to last for more than fifty years exposed to all the changes of weather and season.

Poplar lumber sells in the Nashville and Knoxville market at \$15 to \$20 per thousand feet. A great quantity is sold in the Memphis market at the same rates. It may be bought at saw-mills through the country at \$10 to \$15 per thousand, and it is often delivered at points three or four miles distant from the mills at these prices. East Tennessee affords the cheapest poplar lumber. The great number of saw-mills in that division of the State lying remote from railroads and the ruggedness of the country roads over which, in wagons, the lumber has to be transported to market, make it very cheap. Fifteen million feet of poplar logs are annually floated down the Cumberland River in rafts to Nashville.

#### SASSAFRAS. (*Sassafras Officinale.*)

As a shrub the Sassafras is found in every portion of the State, and more particularly in the Valley of East Tennessee, and upon the Highland Rim. It is a great pest to the farmer, sometimes covering a field with its sprouts almost as thickly and continuously as if sown. These shrubs upon thin soils never reach the dimensions of a tree, and rarely ever attain a size sufficient for fence stakes. The roots of the Sassafras have an aromatic flavor, and are used by many persons for making tea. Formerly the tea made of Sassafras roots was very generally used at certain seasons of the year. It is pleasant to the taste, and has a sweet aromatic odor. The pith, which is valuable for making mucilage, is obtained by splitting the sprout and scraping it out with an awl-shaped instrument. When dry, Sassafras pith is worth from three to four dollars per pound. The leaves are used in making gumbo, the young twigs and bark in making beer.

It is as a timber tree, however, that we wish to consider the Sassafras. In West Tennessee it takes its place among the lordliest of the forest. A section of one cut near Union City, in Obion county, and exhibited at the industrial exhibition in Nashville, measured sixty inches in diameter, exclusive of the bark, which was one and a half inches thick.

The wood is soft, brittle, rigid and close grained, and is used for house studding, and to some extent for the manufacture of furniture.

SYCAMORE. (*Platanus Occidentalis.*)

This is elsewhere known as the Plane, or the Buttonwood. It is found growing on the margins of streams in almost every portion of the State. The wood is used in cabinet shops, and makes a beautiful article of furniture. It bears a good polish, being fine grained. Sometimes the grain is wavy and strikingly beautiful. Only as a firewood is it regarded with any favor by the farmer, as it will not split, and speedily decays when exposed to the weather. It grows with rapidity, and like the linn, is troublesome on account of the sprouts that it sends up from the stump.

TUPELLO. (*Nyssa Aquatica.*)

The Tupello abounds in swampy places in West Tennessee. It is a soft wood and difficult to split, the fibres being interwoven like a plaited cord. This property makes it valuable for wheel-hubs. The surface of a dressed plank shows rippling marks like those used by map-makers in designating the shores of an ocean, but intertwined. This wood is also used for making bowls and trays.

WALNUT. (*Juglans.*)

The two species are commonly designated as Black and White Walnut.

The Black Walnut (*Juglans Nigra*) is pretty generally diffused over all the rich soils of the State. Its growth is an unerring indication of fertility. It abounds in the Great Central Basin of Middle Tennessee; it grows on the better parts of the Highlands; it flourishes on the north sides of ridges and in the valleys of East Tennessee, and attains a marvelous size upon the *calcareo-siliceous* soils of West Tennessee. There is probably no state east of the Mississippi River which has a greater quantity of this valuable timber. On the Cumberland Table Land, a few miles from Wartburg, in the eastern part of Morgan county, is a grove of walnut timber that cannot be surpassed on the continent. In this locality trees six feet in diameter rise in princely grandeur to the height of more than one hundred feet, and strike the

traveler with astonishment at their magnitude. Thickly set upon the soil, in company with massive white oaks, their trunks rise to the height of fifty feet or more without a limb. Remote from market, this valuable timber is scarcely used except for fence rails. The Cincinnati Southern Railroad will probably bring all of this excellent timber into market and make it a source of profit to the owners.

Stumps and crotches of the walnut when worked up into veneering slabs were once very valuable on account of the beautiful curlings of the grain, though not so much in demand at present. Common walnut lumber, seasoned, is worth from \$25 to \$40 per thousand, and every year shows a marked advance in the price. It is no overestimate to say that the walnut lumber that could be made on the line of the Cincinnati Southern Railroad would pay a large portion of the debt of the State of Tennessee. The exquisite and rich brown color of the wood will always make it sought after by the cabinet maker. It is extensively used in making door-shutters and frames, window-blinds and sash, railing, newel-posts, counters, and other finishing work about dwelling-houses and places of business. For gunstocks, picture frames and the ornamental work it is largely used. It is a favorite wood for the manufacture of coffins, and is well adapted to certain uses in naval architecture. Tennessee has great reason to rejoice in the abundance and excellence of its walnut timber.

The bark of the Black Walnut is much used as a domestic dye, imparting to woolen goods a color much resembling that of the wood itself. "Brown jeans," from the first settlement of the State, has constituted the chief winter clothing for the men and boys of country homes.

#### BUTTERNUT OR WHITE WALNUT. (*Juglans Cinerea.*)

This tree grows upon the margin of streams, and is sometimes found on rich northern slopes. It is diffused over almost as great an extent of territory as the black walnut. Resembling the latter when young in its foliage, it assumes a form clearly distinguishable at maturity. The wood is much lighter in color than the black walnut, and has a reddish tinge. It is durable but not strong, and is sometimes used in ornamental work for giving variety and contrast. The doors of elegant houses in Nashville are often made of it. It is sometimes shipped to New York for similar purposes.

The trees we have mentioned constitute the bulk of our timber, but there are many other kinds which have a special interest. Among them the Yellow Wood, the Cucumber tree, the Laurel, the Holly, the Hornbeam, the Box Elder, the Chinquapin tree, the Crab Apple, the Hackberry, the Willow and the Persimmon deserve mention. Though not valuable as timber, many of these last enumerated are highly ornamental, especially the Box Elder and Crab Apple. The blossoms of the latter are the sweetest and most fragrant found in our forests, and the graceful form of the Box Elder, with its wide-spreading top and pea-green foliage, makes it a favorite for yards and lawns.

It may not be improper in this place to observe that, though the State of Tennessee has as yet an abundant supply of timber, it is every year becoming more apparent that some legislation is demanded for its preservation and reproduction. In the neighborhood of our furnaces, especially, the consumption of timber is enormous, and many of our finest iron fields will soon be deprived of half their value unless some legislative protection is given to the young timber. The annual conflagrations that sweep like a devouring fury through the old coaling lands, destroying the young sprouts and rendering barren a large scope of country, should be checked. But for these fires the timber would soon reproduce itself in sufficient quantities to supply all the demands of the charcoal furnaces. Old fields are lying idle and unfenced in every portion of the State that could be reclaimed by being planted in trees. They are now unsightly and hideous pictures in the landscape, worthless to the owners and to the State. Were those places broken up and sown with acorns or hickory nuts, or planted with locust trees, the effect would, in every particular, be salutary. Not only would the land be reclaimed, but the timber would in two score years be valuable, the beauty of the country would be heightened, a spot for the retention of moisture would be assured, and the owner would in time reap directly a rich reward for his labors.

The Legislature should exempt from taxation for a term of years all these old fields that are planted in trees, and one hundred dollars worth of property should also be exempted for every mile of shade or fruit trees planted along the highways. A law to this effect has been in operation in some of the states of the Union with the best results. By adopting this line of policy the taxable property in the State would be increased in the next ten or twelve years many millions of dollars. The wealth of a state depends primarily upon its soil and its timber, and it is the solemn duty of the lawmakers to look beyond the pres-

ent, and to enact such laws and to dictate such a policy as will, in the end, conduce to the wealth, greatness and glory of the State; and in no way can this be more effectually done than by taking steps for the reclamation of the soil and the preservation of the timber. Had this been done twenty years ago, Tennessee would not be dotted all over with repulsive and haggard old fields, that constitute the shame and mark the shiftlessness of her farmers. A new departure is called for in this particular, and he who shall be instrumental in restoring the lost fertility of those worn places and making them things of beauty and profit, may well be numbered among the benefactors of the State.

The press in the various parts of the State should take up this subject, discuss it in detail, encourage the enactment of such a law, and press the matter before the people until pride, taste, interest, ambition and an enlightened public sentiment shall all unite in building up these waste places. Enough of such spots there are, if reclaimed, to build a railroad through every county in the State.

More is involved in this question than mere money. The very existence of the human race is jeopardized by this neglect. Happiness, contentment, progress, refinement and the civilization of humanity depend, in a measure, upon the preservation of our forests, which so greatly affect climate, and the preservation of our soils, which so greatly affect production and population.



## CHAPTER VII.

## FARM PRODUCTS.

ONE of the most munificent gifts ever bestowed by a monarch upon his adherents was that of Charles II, to eight of his obsequious and rapacious statesmen. This gift was no less than 144,500 square miles of the present territory of the United States and Mexico, and comprised all that belt included between 29° and 36° 30' north latitude, and extending from the Atlantic to the Pacific Ocean. Considered in reference to its capabilities of supplying those vegetable products most coveted by civilized nations, this belt may be regarded as the fairest domain of christendom. It includes nearly all the cotton, sugar and rice, and much of the tobacco-growing lands of the continent. All of North and South Carolina, Georgia, Tennessee, Alabama, Mississippi, Louisiana, Arkansas, New Mexico, Arizona, a large part of Missouri and Florida, nearly all of Texas, and a considerable portion of California and Mexico lie within the boundaries of the original grant. But the visions of a magnificent empire in which the proprietors indulged were rudely dispelled by the genius of liberty and self-government which thrived upon the soil of the western continent. Despite the grand model of a constitution drafted by Locke, and which was to "endure forever," less than three quarters of a century convinced the grantees that the gift, so imposing in appearance, was in reality of but small value under their form of government, and with the exception of Lord Carteret\* they surrendered, in 1729, their titles to the crown upon receiving 2,500 pounds each, with a small sum for quitrents.

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\* It may be interesting to the general reader to learn that the descendant of Lord Carteret, who had become the Earl of Granville before the revolutionary war, brought suit a short time before the war of 1812, in the Circuit Court of the United States for the District of North Carolina, for the recovery of his possessions. The case, as we learn from the Hon. W. H. BATTLE, formerly one of the Judges of the Supreme Court of North Carolina, was tried before C. J. MARSHALL and Judge POTTER, who was then the District Judge, and resulted in a verdict and judgment against the plaintiff, whereupon he appealed to the Supreme Court of the United States. Before this case could be heard in that court the war of 1812 came on, which put a stop to it, and it was never revived.

WILLIAM GASTON, (afterwards Judge GASTON) then a young man, appeared in the suit for the plaintiff, and Messrs. CAMERON (afterwards Judge CAMERON), BAKER (afterwards Judge BAKER), and Woods appeared for the defendants. The question was whether Lord GRANVILLE's rights, which had been confiscated by the State of North Carolina during the Revolutionary War, had been restored by the treaty of peace between the United States and Great Britain. The case was never reported. Thus passed away the last vestige of the most munificent gift of which history makes mention.

Of all this vast territory no portion can grow such a great variety of products as that included within the present limits of Tennessee. Nor is this to be wondered at. The many varieties of soil and the difference of elevation give to Tennessee a very wide range in its agricultural products. Assuming that an elevation of 333 feet is equivalent, so far as temperature is concerned, to one degree of latitude, it will be seen that the highest domes of the Unakas, in the east, differ from the low lands of the Mississippi by nearly fifteen degrees of latitude—the one having a semi-tropical climate, the other that of Canada. We have seen, also, that the soils do not differ less than the climate. Upon them can be grown the sweet potato of the south, and the Irish potato of the north—both in remunerative quantities, and of excellent quality. Peaches, that attain their luscious sweetness in a sunny climate, find in the State a congenial home, where they are brought to their highest perfection. Apples, upon the elevated lands, bear as profusely and ripen as deliciously as in the great apple-growing region of Ohio. Grapes of many varieties bear in unsurpassed luxuriance upon the sunny slopes and rich hills in every part of the State. Vineyards of all sizes, from one acre to forty acres, are being planted in every division of the State, and the certainty with which they bear and ripen assures for Tennessee, in the near future, a high pre-eminence as a grape-growing State. (The reader is referred to the chapter on grape culture for details.) Plums and apricots, pears, nectarines and cherries flourish and yield in profusion. Even the fig, in sheltered places, may be brought to maturity in the open air. Nor must that much-used but greatly abused fruit, the blackberry, and its congeners, the raspberry and dewberry, be passed by without mention. Everywhere throughout the State the bushes are indigenous. In the woods and in the fields, on poor soils and on rich, covering the mountain tops and flourishing in the alluvial bottoms, the blackberry bush supplies a rich, healthy and delicious fruit, and in quantities sufficient to supply ten times the present population. So numerous and so excellent are the berries that pickers are sent out from Cincinnati, and from other towns north, to gather and ship the fruit. The raspberry and the dewberry grow wild and yield abundantly. The cranberry grows wild in the elevated swampy places of Johnson county, and but for want of facilities for transportation, could be made a source of great profit. These berries, covering in the aggregate an area of 10,000 square acres, are equal in all respects to the best to be found in the north.

## INDIAN CORN.

Tennessee ranks sixth as a corn-growing state. In 1840 it stood first. Its average annual production of this great cereal is not far from 50,000,000 bushels. The great Central Basin of Middle Tennessee, the rich valleys of East, and the lowlands of West Tennessee raise enormous crops of this grain, and the quality is greatly superior to that grown in higher or lower latitudes. The grain matures earlier than in the north, and dries thoroughly, fitting it to make a superior quality of meal, and it is noted for its freedom from rot. The average yield per acre for the State is about 23 bushels; but this average is low, due to the pernicious habit in some parts of the State of planting the same land year after year in this exhaustive crop without manure. Among the best farmers, those who practice rotation and clovering, the average yield is not far from 40 bushels. The rent paid for some of the bottom lands on the upper Tennessee is twenty and sometimes thirty bushels of corn per acre, and the yield often reaches seventy-five, and in some rare instances, one hundred bushels per acre.

The varieties of corn grown in the State are almost innumerable. The gourd-seed, a large cob variety, is generally preferred for river and creek lands; the yellow for thin, rolling uplands. The variety known as the Willis corn, hard, white, flinty, and not subject to rot, is very valuable for thin soils. The stalk is not large, and the ear and cob small, the latter rarely more than one inch in diameter, though the yield proves very satisfactory. It is especially valuable from the fact that it matures two weeks earlier than the larger kinds. A cross between the gourd-seed and Willis, known as the large Willis, partakes of the excellent qualities of each variety—the flintiness and freedom from rot of the one, and the large size of the other.

Both varieties of the Willis corn make excellent meal, white, sweet, and of fine keeping qualities, not so liable to become musty and sour during the hot weather of summer as that made from the larger and softer varieties.

The weight of Willis corn is about 58 pounds to the bushel; gourd-seed, 56. Bulk for bulk the former will shell out one-seventh more than the latter, though more wagon loads of the latter may be gathered from a given quantity of land; but not more bushels of shelled corn.

The Cooley corn, about which so much was written a year or two ago, did not succeed very well in our climate. The seed was distributed by the Agricultural Department at Washington, but the yield proved altogether unsatisfactory. Indeed, in this respect it did not equal any of the common varieties, nor did it mature any earlier than the Willis corn.

#### WHEAT.

The usual quantity of wheat raised varies from 5,000,000 to 10,000,000 bushels, with an average yield per acre of from seven to nine bushels. About 1,000,000 acres are sown annually. The best wheat-growing portions of the State are to be found in the upper counties of the Valley of East Tennessee, the counties lying on the north side of the Highland Rim, the northern counties of West Tennessee, and the rolling lands of the Central Basin. The average in these regions is not far from fifteen bushels. Though the average yield of wheat is far from being what a thorough preparation of the land and early seeding could make it, yet the excellence of the berry compensates in some degree for the scantiness in the yield. The flour made of Tennessee wheat commands in every market a superior price. A recent writer in the *Southern Review* estimates that at least one-half of the flour exported to Brazil and other intertropical countries is manufactured from wheat grown south of the Ohio and the Susquehanna. There is a peculiarity in the flour which enables it to resist damp, and it will remain fresh and sweet when flour made from northern grown wheat will become sour, lumpy and worthless. It also has the capacity of absorbing more water, and retaining it in the baking process, giving a greater number of pounds of bread for a given number of pounds of flour. All the nutritive elements are developed profusely in the wheat of Tennessee, and maturing a month earlier than the wheat crop of New York, it commands a ready market at good prices.

The Boughton wheat is probably more extensively sown than any other variety. It has a smooth head and a large white berry, very plump, but subject to smut, which has to be guarded against by soaking the seed-wheat in a solution of blue-stone or sulphate of copper. The red May wheat was for many years a favorite with the farmers of the State, but the yield continued to decrease until it was rarely ever sown. It has a round, plump, red grain, and makes a fine yield of most excellent flour. At one time on portions of the Highland Rim this variety yielded, on good soils, forty bushels per acre.

Succeeding that was the blue stem, which, when the seasons suited, made a very generous return, but as it often failed, the farmers ceased to sow it.

The Mediterranean, though not yielding so abundantly as other varieties, is a very sure crop. It is grown in limited quantities in almost every county in the State, though the quality of the berry is greatly inferior to that of many other varieties.

There are several kinds of amber wheat sown, which have taken local names. It is not so liable to smut as the white wheat, but it does not sell so high, and rarely yields so well.

#### OATS.

Tennessee annually produces about 5,000,000 bushels of oats. The best authorities put the yield at 16 bushels per acre, but the primitive methods employed in separating the straw from the grain leave a large portion of the latter adhering to the straw. Twenty-five bushels per acre can be grown upon any soils in any portion of the State that have not been impoverished by bad tillage. Even upon the thin, barren, flat lands that are found upon the highlands in Lewis, Lawrence, Coffee, and other counties, oats grow with a prodigal luxuriance, as also upon the sand-stone soils of the Cumberland Table Land. Upon the richer valley and bottom lands fifty bushels per acre is not considered an exorbitant yield, and seventy-five have been made. Greene, Hawkins, Knox, Sullivan, Roane, Washington and Blount, in East Tennessee; Davidson, Wilson, Montgomery and Sumner, in Middle, and Obion, Dyer and Gibson in West Tennessee, furnish the best soils for oats.

In the sale of this product there is a considerable loss to the farmers of the State, on account of the weight of the standard bushel. The statute of weights and measures needs revision and readjustment so as to correspond with those of contiguous and other states. The standard weight in Tennessee for a bushel of oats is thirty-three pounds, while most of the states have adopted thirty-two pounds as the standard. By reason of this discrepancy of the standard bushel, the farmers, in the sale of their oats lose one bushel in thirty-three, or three per cent. The Quartermaster's Department of the United States has adopted thirty-two pounds to the bushel, and there is no good reason why Tennessee should adhere to the old standard, and thereby cause a loss to the producers of the State.

## TOBACCO.

Tennessee stands third as a tobacco-growing state, Kentucky being first and Virginia second. The annual product of this great staple varies from 20,000,000 to 25,000,000 pounds, or from 13,000 to 22,000 hogsheads. The average yield per acre is between 700 and 800 pounds, though as much as 1,200 and 1,500, and even 1,800 can be grown upon the best soils in good seasons. It acquires a peculiar richness grown in some of the soils of Kentucky and Tennessee. Tough, thick, gummy and leathery in its character, it has the capacity of absorbing water, which makes it peculiarly adapted to the manufacture of strips for the English market. The tobacco known as the "Clarksville tobacco," and which grows on the rich red soils of Stewart, Montgomery, Robertson, Cheatham, Dickson, and in the counties of Kentucky lying contiguous to the three counties first named, will absorb about 33 per cent of water when dry. It is prepared for the English market by pulling out the main stem and packing it in hogsheads as dry as possible. These "strips" are watered after reaching the English market, and inasmuch as the duty on tobacco is about 72 cents, gold, per pound, it is seen that every pound of water absorbed by the strips will be 72 cents, gold, in the pocket of the importer, and he is thus enabled to sell per pound at the same price that he buys, and make thirty-three per cent on his investment, less the charges. It is this peculiar property of the Clarksville tobacco that gives it such a high rank among the English dealers. Much of the tobacco grown in this district is shipped to Africa, the natives of that country preferring it.

The upper parts of Sumner, Trousdale and Smith, all of Macon, Clay and Jackson, and parts of Overton, Putnam Wilson and DeKalb raise an article of tobacco not well suited for the manufacturer. It would make good strips on account of its absorptive capacity. This tobacco is large, leafy, coarser than the Clarksville tobacco, and is deficient in the active principle of tobacco. It is principally consumed in the French and Spanish markets, a small quantity going to Italy and Germany.

Obion, Dyer, Henry, Weakley and Benton counties, in West Tennessee, raise a very fine manufacturing leaf. It is, indeed, the finest article for that purpose grown west of the Alleghany mountains. It is rich, silky, mild, of a light color, some of it rivalling the brilliant

colors of the fading hickory leaf. It is especially valued for bright and mottled wrappers. All of this tobacco is consumed in the United States, none being exported on account of its high price and scarcity. This tobacco is not so well adapted for stemming purposes, and even if it were, the price is too high to make its use in this manner profitable.

Coffee, Warren, Moore, Lewis, Lawrence, Wayne, Hickman, Humphreys and Dickson raise small quantities of light, mild tobacco.

Nearly every county in East Tennessee grows tobacco enough for home consumption. A great drawback to its cultivation there, is the prohibition put upon its sale by the government. Small farmers cannot afford to pay the license. The farmers throughout that region regard it as a great hardship that they are not able to sell this product except to licensed dealers. Very few raise enough for a hogshead, and the prohibition of selling without license puts them at the mercy of a few licensed dealers.

The quality of East Tennessee tobacco differs widely from that grown in Middle or West. It is smaller and lighter and not so rich in the alkaloid nicotine. The stronger tobaccos of Middle and West Tennessee contain as high as six per cent. of nicotine, while that grown in East Tennessee does not contain above three per cent. It, however, is preferred by many on this account for smoking and chewing, being milder, pleasanter and more agreeable.

It may be mentioned that, before the war, there were sixteen stemmeries in successful operation in the city of Clarksville. The object in stemming is to evade the tax and increase the value per pound. We have already stated that the duty on American tobacco in England is three shillings, or about seventy-two cents per pound. In Austria, France, Italy and Spain the tobacco commerce is monopolized by government, under direction of a Regie. In Germany the duty on American leaf is four thalers per 100 pounds. In Belgium the impost is reckoned after deducting fifteen per cent. for tare. The duty is thirteen francs, twenty centimes ( $\$2.40$  gold) per 100 Kilogrammes (100 American pounds equal  $45\frac{1}{2}$  kilos). In Holland the duty is twenty-eight cents, gold, per 100 kilos (28 American pounds being equal to 12.7 kilos). In Russia the duty on leaf tobacco is four roubles forty kopeks per pud; on smoking tobacco, twenty-six roubles forty kopeks per pud; and on cigars, two roubles twenty kopeks per pound. The "pud" is equal to about thirty-six American pounds. In Turkey the duty is fifty cents. gold per  $11\frac{1}{2}$  American ounces.

The excessive taxation to which this article is subjected bears with great and increasing weight upon the producer. Substitutes are used, and the consumption greatly diminished. Tobacco has become almost an article of prime necessity, and experience has demonstrated that a habitual smoker or chewer would as soon dispense with meat upon his table as tobacco after his meals.

Tobacco is now subject to a tax of twenty cents per pound by the government—about two and a half times the price received by the producer. The following table gives a comparative statement of the revenue from the several sources of manufactured tobacco during the fiscal years ending June 30, 1872, and June 30, 1873:

SOURCES OF REVENUE.	Fiscal Year 1872.	Fiscal Year 1873.
Cigars and cheroots of all descriptions, domestic or imported .....	\$ 7,566,156 86	\$ 8,940,364 81
Manufacturers of cigars, special tax.....	119,294 44	153,195 57
Snuffs of all descriptions, domestic or imported .....	497,092 49	1,082,106 77
Tobacco of all descriptions.....	24,073,683 10	22,314,074 27
Stamps for tobacco or snuff intended for export .....	53,576 25	5,582 70
Dealers in leaf tobacco .....	116,917 53	110,089 60
Retail dealers in leaf tobacco.....	.....	8,020 54
Dealers in manufactured tobacco.....	934,341 20	1,663,053 30
Manufacturers of tobacco.....	11,971 25	11,944 00
Peddlers of tobacco.....	.....	50,694 96
Sales of Cigars, leaf and manufactured tobacco, and excess of \$5,000 of the penal sums of bonds of manufacturers of tobacco.....	363,137 40	44,572 59
<b>TOTAL.....</b>	<b>\$33,736,170 52</b>	<b>\$34,382,699 23</b>

We have dwelt thus long upon tobacco because it is the only great product of the State that is subject to a burdensome tax, and every effort of our people should be made to reduce or lighten the load upon their industry.

#### COTTON.

This is one of the great staple products of Tennessee. In 1850 the number of bales raised in the State was 212,000; in 1860, 296,464;



in 1870, 181,842. The number of acres devoted to this staple in the State was for 1870, 526,180; 1871, 489,352; 1872, 552,403; 1873, 613,267.

The following table will show the number of bales handled in the State for the year ending September 1, 1873, though much of this cotton came from Mississippi, Arkansas, Alabama and Georgia:

	1872-3.	1871-2.
Shipments from Memphis.....	413,136	381,424
“ “ Nashville.....	63,021	55,334
“ “ other places in Tennessee and Kentucky	137,593	112,155
Stock in Memphis and Nashville at end of year.....	6,253	1,885
	<b>620,003</b>	<b>550,798</b>
Shipped from Memphis to New Orleans.....	96,784	58,416
Shipped from Memphis, &c., to Norfolk, &c.....	132,835	124,410
Shipped from Nashville south.....	9,675	24,166
Shipped direct to manufacturers.....	141,500	122,065
Stock in Memphis and Nashville beginning of year.....	1,885	2,726
	<b>382,679</b>	<b>331,783</b>
Total shipments to New York, Boston, Philadelphia, &c.	<b>237,324</b>	219,015
Add shipments to manufacturers, as above .....	<b>141,600</b>	122,065
	<b>378,924</b>	<b>341,080</b>

The best cotton in the State is grown on the lands in the southern half of West Tennessee. The staple is long and heavy, and the average yield on the best lands per acre is from 1,000 to 1,200 pounds of seed-cotton. The farmers in this portion of the State give to this staple almost their entire attention. The uplands yield a very desirable article, much sought after by the spinners of New England and Great Britain on account of its cleanness. At the London Exposition in 1851, the cotton raised by Col. John Pope, of the county of Shelby, received the medal as the best cotton known to the world.

Cotton is grown in the whole of the Central Basin south of Nashville. Lincoln, Rutherford, Giles, Davidson and Maury are the principal cotton-growing counties in Middle Tennessee, these five counties producing annually about 40,000 bales. The quality of the staple

grown in Middle Tennessee is inferior, being generally short and light, though this varies greatly with the season. The crop of 1873 is a very superior article, and resembles the best "uplands" of Mississippi.

The best counties for cotton growing in West Tennessee, arranged according to their productiveness, are Shelby, Fayette, Haywood, Tipton, Gibson, Madison, Lauderdale, Carroll and Dyer. The cotton area has been extending north during the past two or three years into Lake, Obion and Weakley. The average annual production for West Tennessee is not far from 160,000 bales.

There is one very fatal error practiced by the cotton planters of the State, and that is, the omission to put back on the soil the surplus cotton seed. One of the most practical and successful cotton planters in the State estimates the value of cotton seeds to be worth from twenty-five to thirty dollars per ton as a fertilizer. Dr. Robert Peter has made an elaborate analysis of the ashes of both the cotton fibre and cotton seed, in which the relative exhaustion of the soils in the production of each may be readily compared. This analysis was made for the Second Geological Report of Arkansas, and is as follows:

	<i>In 100 Parts.</i>	
	Cotton Fibre.	Cotton Seed.
Potash.....	0.388	0.620
Soda .....	0.028	0.310
Lime .....	0.138	0.159
Magnesia .....	0.185	0.698
Phosphoric acid.....	0.125	1.600
Sulphuric acid.....	0.096	0.092
Chlorine .....	0.024	0.060
Sand and silica.....	0.457	0.120
Carbonic acid and loss .....	0.254	0.111
	<hr/>	<hr/>
	1.697	1.697

From this the reader will readily perceive how valuable the cotton seed is for the reproduction of the cotton fibre. There are nine fixed constituents in the ash. The fibre and seed appropriate from the soil in largest quantities the following substances: phosphoric acid, potash, soda, magnesia and lime. The seed contains more than twelve times as much phosphoric acid, fourteen times as much soda, and nearly twice as much potash as the cotton fibre.

The seeds are now sold to oil manufacturers at from six to seven dollars per ton, or allowed to rot in great masses about the gin-houses,

contaminating the atmosphere and inducing sickness by their poisonous exhalations, when they might be made to swell the profits of the planter with scarcely a perceptible increase of the expenses of the plantation. The seed-cake, after the oil is extracted, is almost as valuable for fertilizing land as the unpressed seed, and it would prove profitable for the cotton planters of a neighborhood to form a co-operative establishment for the purpose of extracting the oil, and then return the seed-cake or refuse to the soil in place of buying costly fertilizers.

The yield of cotton could be greatly increased and the land preserved if some such method were adopted. The profits of cotton planting depend much more upon the amount grown upon an acre than upon the number of acres cultivated. An increase in the yield of double the present quantity would quadruple the profits and improve the soil. The attempt to cultivate too much land without regard to its productive capacity has impoverished many a cotton plantation, and there is no truth so much needed to be inculcated among this class, as the one that if any element is constantly withdrawn from the soil, the product of which it is a constituent must eventually cease to grow. An Alabama planter, in speaking of this constant drain of cotton upon the soil, says that it has destroyed more "than earthquakes or volcanic eruptions." Some of the hills around Murfreesboro and large bodies of land in West Tennessee are furrowed with innumerable gullies, which produced cotton until their exhaustion was complete. They were then turned out, and are now painful evidences of the former want of care and attention to the soil by the growers of cotton. All the fires which have occurred in the State, all the storms of wind and hail, all the devastations produced by these and freshets are small in comparison to the destruction of the wealth of the State by bad tillage. It is fearful to contemplate this waste, and if persisted in, must leave a land almost as desolate and as unfruitful as the desert of Sahara.

Mr. John L. Strong, of Dickson, Alabama, gives to the Memphis Appeal of a recent date the following as the approximate cost of the production of cotton. If this calculation is correct, it will be seen that there is a dead loss of over three cents per pound on all the cotton grown—a conclusion which the pinched condition of the planters throughout the south would seem to justify. The general estimate of cost is, for river bottoms  $12\frac{1}{2}$  cents per pound, and for uplands 15 cents—an average for both localities being  $13\frac{3}{4}$  cents.

Wages of hand 12 months, at \$12.50 per month, . . . . .	\$150 00
Board of hand 12 months, at \$5 per month, . . . . .	60 00
Half feed of mule, . . . . .	37 50
Interest on 36 acres of land at \$5 61-100 per acre, at 10 per cent., . . . . .	20 19
Interest on half cost of mule, \$75, at 10 per cent., . . . . .	7 50
Half wear of same, 10 per cent., . . . . .	7 50
Expense of manager or overseer, . . . . .	20 00
Salt, . . . . .	1 00
Iron and blacksmith work, . . . . .	3 50
Annual expense of tools and gear, . . . . .	3 00
Ginning and baling, actual cost, . . . . .	12 00
Bagging and rope, . . . . .	6 00
	\$328 19

Product, . . . . . 1883½ pounds.  
 Cost, . . . . . 17 32-100 cents per pound.

Average size of farms in the ten cotton states, 220 8-10 acres.

Proportion of improved to unimproved lands, 3 to 3.5 acres.

Average number of acres in cotton cultivated per hand, 10; per mule, 20.

Proportion of land on each farm, per hand, 36 acres.

Average value of land in farms in ten cotton States, \$5.61.

Average yield per acre from 1867 to 1872 in ten cotton states, 188½ pounds.

Average per hand, from 1867 to 1872, in ten cotton states, 1883½ pounds.

This cost can only be reduced by cultivating better land and increasing the yield, employing less labor and thus increasing its efficiency, restoring the exhausted elements to the soil and thus keeping up its fertility, producing home supplies and thus saving transportation, cultivating less land and cultivating it better, and, above all, in the practice of a rigid supervision by the owner in all the operations of the plantation, and thus save waste, wear and tear, and losses in tools, stock and time.

#### HAY.

About 90,000 acres of land in Tennessee are used for the raising of hay, which yield about 110,000 tons, or about one and a quarter tons

per acre. This crop is valued at nearly \$2,000,000, and is one of the most useful crops grown in the State, and one which is peculiarly adapted to the numerous bottoms that skirt the many streams throughout the State. Referring to the different counties, it will be seen that no state is more abundantly supplied with water-courses, and the hay crop of the State might be made to rival that of the great states of New York and Ohio, if farmers would seed the rich alluvial bottoms to timothy and herds-grass. Nor is the hay-growing portion of the State confined to the lowlands bordering the streams. On the northern slopes of the ridges of East Tennessee, and on the rolling lands of the Central Basin, timothy grows with a surprising luxuriance; and upon the flat lands of the Highland Rim, and in the sandy lands of West Tennessee, herds-grass finds a fitting soil, and grows to a height almost incredible. Knox, Greene, Sullivan and Washington, in East Tennessee, are among the best hay-growing counties in the State. Greene is the banner county, and Davidson stands second. Considerable hay is grown in Carter and Johnson, 2,000 feet above the sea. Were the rich bottoms of the Mississippi reclaimed and put to hay, Tennessee might supply the entire southern states with that article.

While the average yield of hay for the State is small, instances are given where meadows favorably located have yielded, for a period of ten years in succession, from two to three tons per acre. The deadliest enemy to the raising of hay is the "broomsedge," which enters upon a career of conquest from the time the grass is sown. In the autumn, after the first mowing, a few scanty tufts of this enemy may be seen scattered here and there over the meadow like the skirmishers of a grand army, and unless they are extirpated root and branch, the grand army of broomsedge will enter the field, and in a year or two more will claim it as its own. A weed, popularly called white top, also infests the meadows, and injures the character of the hay. This is not so destructive as the "broomsedge," and oftentimes a vigorous growth of grass will expel it. In the blue-grass regions, meadows are short-lived, the blue-grass encroaching year by year until the yield of hay ceases to be remunerative. Hungarian grass and German millet are grown largely for hay, and upon rich bottom soils yield a far larger amount than timothy. Hay is also made from red clover. (For further details about hay and grasses, see chapter on grasses.) It may be added that hay rarely sells below \$20 per ton.

## BARLEY.

While the number of acres devoted to barley in the State does not exceed 5,000, it is yet one of the most profitable crops grown by our farmers. The average yield per acre is about 18 bushels. About one-third of all that is grown in the State is raised in Davidson county. It flourishes well in the high valleys and coves in Johnson and Carter counties, and would grow well in all the rich valley lands of East Tennessee. The black lands of the Central Basin yield very large crops. Upon such lands 25 to 35 bushels per acre is quite a common yield. Stock-raisers prefer it to any other grain for the feeding of young colts.

Barley is used principally for beer-making purposes, and with the influx of a foreign population, the quantity raised would be greatly increased. Weight for weight, the grain will bring as high a price as wheat, and where soil and climate are suited for its production, it would be more remunerative. It is estimated that three bushels of barley can be raised at the same cost as two bushels of wheat.

## RYE.

This is not considered a productive crop in Tennessee. Farmers rarely ever sow it, except for winter or early spring grazing; a use to which it is admirably adapted by reason of its hardy nature and rapid growth. Sown in September, on fertile, well prepared land, it tillers and forms a complete mat before the cold days of December. Sheep, cattle and horses eat it with avidity, and the usual custom is to graze it until the clover fields or highway pastures will supply ample grazing. It is used also by some farmers as a fertilizer, and as it will grow with vigor where corn, oats and wheat will fail, it supplies a great want upon the thin and washed soils of the State. The amount of land devoted to rye is about 25,000 acres in the State, which gives a yield of about 220,000 bushels, or about nine bushels per acre. This yield is doubtless largely diminished in consequence of the excessive grazing to which it is subjected. The largest rye-growing counties are Marshall, Lincoln, Rutherford, Bedford and Davidson, in Middle Tennessee, and Johnson and Carter, in East Tennessee. West Tennessee raises but little rye, but its soil and climate would ensure an abundant yield.

## BUCKWHEAT

Is not a favorite crop with the farmers of Tennessee. About 60,000 bushels is the average crop of the State, principally grown in Johnson, Carter and Washington counties, in East Tennessee, and Perry, in Middle. It is not a remunerative crop, yielding only seven bushels per acre.

## SWEET POTATOES.

From the early settlement up to the present time, sweet potatoes have held a high position as an article of food. They grow well on all thoroughly drained soils of the State, and where the land is friable and moderately fertile. Bottom lands are not usually the best for the growth of this vegetable; the tendency of such places is to produce an enormous growth of vines at the expense of the tubers; nor does cold, clayey land suit them. The flavor is greatly improved in a soil with a small admixture of sand or fine gravel. When grown upon very rich soils they are apt to be sappy and insipid. Visitors from the north at the exhibition of the Nashville Agricultural and Mechanical Association expressed more surprise at the size and excellence of the sweet potatoes than of any other vegetable. They may be grown on suitable soils at the rate of 100 bushels per acre. The annual yield is 1,200,000 bushels. They are grown in every division of the State. The counties raising the greatest quantities are Shelby, Obion and Gibson, in West Tennessee; Davidson, Wilson and Montgomery, in Middle; and Knox, Bradley and Anderson, in East Tennessee. Davidson raises by far the greatest number, when counties are compared; but West Tennessee when we compare divisions. The elevated land of the Unakas are not suited to their growth, the climate being too northern in its character.

## IRISH POTATO.

This, the most valuable of all the vegetables, is not grown in sufficient quantities in the State to supply the home demand. Prolific in yield when planted upon suitable soils and well worked, there is no good reason why Tennessee should not supply this vegetable to all the states south. Upon land moderately fresh and well manured, the

yield can be brought up to 400 bushels per acre. Yet the statistics of this crop show an average yield of only 77 bushels, and the number of bushels raised 1,122,000. This shows that there is not one bushel to each inhabitant. The Irish potato grows well in every division of the State, and especially is it brought to great perfection on the elevated portions of the State. Even the Cumberland Table Land, though yielding but sparsely of the leading crops, produces the Irish potato in profusion. The tubers grown upon the sandy soil of this division are well flavored, rich and mealy. No more profitable crop, and no one for which there is a readier demand, can engage the attention of Tennessee farmers. The potato bugs sometimes destroy the late potatoes, but rarely ever injure those planted in February or March. As yet the genuine Colorado bug is unknown in this State.

#### PEANUTS.

The great peanut-growing region of the State embraces the counties of Perry, Hickman and Humphreys, and portions of Dickson and Lewis—all upon the west side of the Highland Rim. The cultivation of this nut was first introduced into this section by Jesse George, of Hickman county. The seeds came from North Carolina, and were given to him by some relatives who were passing through the county on their way West. These he planted, and finding the county so well adapted to their growth, he ventured to raise peanuts for market. Obtaining a good price for these, he was stimulated to a larger planting. His neighbors caught the infection, and Humphreys soon became famous for the richness and superiority of its peanuts. The entire production of peanuts in the region mentioned above reached, in the year 1872, 680,000 bushels. Of these Hickman made 200,000, Humphreys 250,000, Perry 200,000, and Dickson 30,000. The excessive production for that year reduced the price so low that the crop was diminished to 110,000 bushels for the year 1873, of which Hickman produced 40,000, Humphreys 40,000, Perry 27,000, and Dickson 3,000. The prices paid in the Nashville and Cincinnati markets vary from 60 cents to \$2.25 per bushel, according to production and demand. The average yield is about 40 bushels per acre. Land suitable for peanuts has advanced 100 per cent. since their first introduction as a crop in the region named. The best soils for peanuts are those which are well drained, and have a large quantity of intermingling gravel. Rich, generally flinty, bottoms lying between ridges, are favorite spots.



## OTHER CROPS.

In addition to the foregoing crops, there are grown in particular localities hemp, broom-corn, flax, sorghum and rice. All the garden vegetables are raised in abundance. Peas, beans, onions, lettuce, cabbage, turnips, radishes, salsify, celery, cucumbers, butter-beans, tomatoes, squash, melons, carrots, beets, okra, egg-plant, asparagus, and many others are found in almost every garden.

The following counties of Tennessee make up the roll of those which, according to the census of 1870, lead in quantities of field, stock, and dairy productions, each showing a maximum, or else a "second-best," of some particular product. The names of the counties, the products in which they respectively excelled, and the various quantities or amounts of the latter are tabulated below. The counties holding the second rank are also given:

Giles, first in corn, . . . . .	2,054,163	bushels.
Maury, second in corn, . . . . .	1,449,935	"
Wilson, first in wheat, . . . . .	241,715	"
Greene, second in wheat, . . . . .	238,716	"
Knox, first in oats, . . . . .	259,047	"
Sumner, second in oats, . . . . .	233,837	"
Marshall, first in rye, . . . . .	18,526	"
Lincoln, second in rye, . . . . .	13,989	"
Davidson, first in barley, . . . . .	24,858	"
Wilson, second in barley, . . . . .	11,355	"
Perry, first in buckwheat, . . . . .	70,296	"
Johnson, second in buckwheat, . . . . .	2,244	"
Williamson, first in rice, . . . . .	1,191	pounds.
Henderson, second in rice, . . . . .	518	"
Shelby, first in cotton, . . . . .	32,434	bales.
Fayette, second in cotton, . . . . .	20,131	"
Montgomery, first in tobacco, . . . . .	4,856,378	pounds.
Weakley, second in tobacco, . . . . .	2,599,590	"
Lincoln, first in wool . . . . .	48,113	"
Greene, second in wool, . . . . .	39,511	"
Davidson, first in Irish potatoes, . . . . .	66,233	bushels.
Sumner, second in Irish potatoes, . . . . .	35,253	"
Davidson, first in sweet potatoes, . . . . .	62,854	"
Gibson, second in sweet potatoes, . . . . .	60,275	"

Humphreys, first in peas and beans, . . . . .	62,766	bushels.
Hickman, second in peas and beans, . . . . .	43,150	"
Greene, first in hay, . . . . .	7,124	tons.
Davidson, second in hay, . . . . .	6,883	"
Wilson, first in butter, . . . . .	399,249	pounds.
Lincoln second in butter, . . . . .	318,703	"
Davidson, first in cheese, . . . . .	67,120	"
Shelby, second in cheese, . . . . .	15,840	"
Davidson, first in milk sold, . . . . .	226,308	gallons.
Maury, second in milk sold, . . . . .	62,254	"
Greene, first in flax, . . . . .	9,251	pounds.
Sullivan, second in flax, . . . . .	7,785	"
Maury, first in hops, . . . . .	250	"
Cocke, second in hops, . . . . .	64	"
Hancock, first in hemp, . . . . .	290	tons.
Johnson, second in hemp, . . . . .	207	"
Sullivan, first in flaxseed, . . . . .	694	bushels.
Greene, second in flaxseed, . . . . .	643	"
Overton, first in silk cocoons, . . . . .	55	pounds.
Jefferson, second in silk cocoons, . . . . .	50	"
Warren, first in grass seed, . . . . .	1,289	bushels.
Wilson, second in grass seed, . . . . .	932	"
Hawkins, first in clover seed, . . . . .	1,210	"
Wilson, second in clover seed, . . . . .	1,117	"
Sullivan, first in maple sugar, . . . . .	12,360	"
Greene, second in maple sugar, . . . . .	12,271	"
Wilson, first in sorghum molasses, . . . . .	47,794	gallons.
Smith, second in sorghum molasses, . . . . .	40,344	"
Lincoln, first in honey, . . . . .	44,838	"
Giles, second in honey, . . . . .	40,515	"
Davidson, first in orchard products, . . . . .	43,915	dollars.
Obion,* second in orchard products, . . . . .	35,087	"
Maury, first in animals for slaughter, . . . . .	641,214	"
Lincoln,† second in animals for slaughter, . . . . .	622,714	"
Lincoln, first in total live stock, . . . . .	2,155,474	"
Maury, second in total live stock, . . . . .	2,015,355	"
Wilson, first in horses, . . . . .	9,682	number.
Lincoln, second in horses, . . . . .	7,968	"
Maury, first in mules and asses, . . . . .	5,346	"

\* Warren is closely after Obion, its orchard products being valued at \$35,031.

† Wilson is third in rank and near Lincoln, the value being \$610,972.

Shelby,* second in mules and asses, . . . . .	4,676	number.
Lincoln, first in sheep, . . . . .	27,075	"
Bedford, second in sheep, . . . . .	25,204	"
Maury, first in hogs, . . . . .	53,124	"
Wilson, second in hogs, . . . . .	48,708	"
Union,† first in wine, . . . . .	3,260	gallons.
Putnam, second in wine, . . . . .	920	"

To these might be added the peanut culture for 1872:

Humphreys, . . . . .	250,000	bushels.
Perry and Hickman, each . . . . .	200,000	"

It is to be hoped the next census will itemize this crop.

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\* Wilson third; its mules and asses numbered 4,150.

† Montgomery made about 5,000 gallons in 1872, and Giles about 3,000 gallons.

## CHAPTER VIII.

## THE GRASSES OF TENNESSEE.

The object of this chapter is to enumerate and explain all the most valuable grasses which the soil and climate of Tennessee will produce, so far as they have been tried.

Several wild or indigenous grasses grow spontaneously in the State, and these will be first considered. We shall not pretend to give the origin and history of any grass.

## BARREN, OR PRAIRIE GRASS.

This grass covered all the prairie lands when the country was first settled by the white people. It is perennial. It springs up about the first of April, grows to the height of two feet, and affords good pasture for cattle, horses, sheep and mules from the tenth of April to the first of August. Then it becomes hard, woody, and too tough, so that stock refuse to eat it. Wherever the forest is not so 'dense as to exclude the light and heat of the sun, on the streams and table lands of the Cumberland Mountains, and on the sandy, flinty and silicious "flat woods" of the whole State, this grass still holds possession where the domestic animals which roam at large are not numerous enough to keep it down. It is a blessing to the inhabitants of all lands which are deficient in lime.

## NIMBLE WILL.

An indigenous and perennial grass. On the limestone lands where the forest has been thinned out, the Nimble Will grows up to the height of about fifteen inches, and forms a dense mat. It is a rich, nutritious

grass. It produces seed abundantly, which makes it a rich feed for cattle, horses, mules and sheep. Much of the beef and mutton sold in the Nashville and Memphis markets is fattened on Nimble Will. In limestone lands, when the forest trees are thin enough, and where blue-grass has not already got possession, the Nimble Will affords good pasture for five or six months in the year.

### WHITE CLOVER

Is a spontaneous growth nearly all over the State. It is luxuriant in limestone soils. It is perennial. It springs up almost the first of April, spreads rapidly by runners on the surface. It also propagates itself by numerous seeds. White Clover makes an abundant pasture for hogs, sheep and cattle. It salivates horses and mules so badly that it is not valued as pasture for them. Yet, when White Clover is mixed with timothy and blue-grass, some good farmers believe it improves the pasture.

White Clover is a valuable forerunner of blue-grass. If White Clover shall be sowed with blue-grass, in woodland lots, it takes possession sooner than the blue-grass, and prepares the ground for the grass to take possession in place of it. This clover is a hardy plant, and will withstand drouth and constant grazing.

### CRAB GRASS

Is an annual, and comes from the seed every spring about the 20th of April, in cultivated fields. It is a troublesome pest, and costs much labor to keep it from overrunning the growing crop. In the corn-field, especially in wet seasons, it is apt to produce a dense growth among the standing corn, after the plowing has ceased. Then it is impossible to put in wheat in good order during the following fall. But in the small grain fields, it springs up soon after harvest, and makes a luxuriant fall pasture for all domestic animals, excepting hogs. It is nutritious, and fattens them well.

Where the farm is kept under a rotation of crops, and tilled only once in four or five years, the Crab Grass is soon exterminated, and ceases to be noticed, because better grasses have rooted it out and taken its place.

## MEADOW OAT GRASS

Is a perennial. It is cultivated both for pasture and meadow. In good soil it grows near three feet high, and yields about a ton of hay to the acre. It has but little nourishment in it, and makes inferior hay and pasture. Farm stock will not eat this grass, nor the hay made of it, if they can get any other grass or any other hay. It is of so little value that no farmer ought to sow it, because many other grasses will reward him better for his labor.

## HERDS-GRASS, OR RED TOP,

Is a hardy perennial. It is devoted to pasture and meadow. For making meadow in swampy land, it is regarded as superior to any other grass. It produces a deep, tough sod of roots, that make a firm surfacer, even in muddy places, and will yield a ton and a half of hay per acre, of good quality. The hay is not quite equal to that made of orchard grass, timothy, or clover; but in swamps, the crop of Herds-grass hay is worth more than a crop that could be made of any other grass in the swamps. In fact, it will yield good crops where other grasses would fail altogether. In well drained uplands, it yields fair crops of hay; but not equal to clover and timothy. As a pasture grass it prospers in almost any soil. The greatest yield will ever be in the richest soil. In black limestone lands it prospers well, but ought never be sowed to the exclusion of clover, or orchard-grass, timothy, or blue-grass. The red top will choke those more valuable grasses, and diminish their yield, and will not itself supply the deficiency which it causes. It prospers in rich limestone land, but it is not good policy to sow it on such lands, because other grasses are worth much more. Hence, in limestone lands, which are not swampy, this grass ought not to be depended on, either for meadow or pasture. But on sandy land, and any land that is deficient in limestone, Herds-grass will probably do better, both for pasture and meadow, than any other grass. It will not yield much hay, unless it be well manured; but liberal manuring will make it yield large crops of good hay. On all the table lands and "flatwoods" of the Cumberland Mountains, on the silicious soils, and on the orange sands of West Tennessee, Herds-grass ought to be the standard, both for pasture and meadow, because it is more prosperous in such soils than other grasses.

## HUNGARIAN GRASS,

Missouri millet, Egyptian millet, and German millet, are all annual grasses. In good land they make large crops of hay. If sowed early in the season, before the drouth sets in, they will all prove highly remunerative. These grasses all grow best in limestone soils; but will prosper on any soil that is rich enough. All these grasses produce an abundance of seed, which are nutritious; but they are disposed to shatter out and waste badly. To prevent this waste, the grass ought to be harvested before the seeds mature.

When all the qualities of these annual grasses are considered, they prove to be very valuable, because an abundance of good hay may be made of them in any part of the State. They will make hay, whether sowed early or late; but the early sowing is most certain to make a good crop. There is probably more hay made of these grasses, in this State, than of orchard-grass, blue-grass, timothy, or clover. These grasses are well adapted to the condition of renters. Moving, as they do, from farm to farm, every year or two, they have no chance to make meadow of timothy, clover, and orchard-grass. But these annual grasses mature in so short a time, that any renter can afford to make hay of them.

## ORCHARD-GRASS

Is a perennial. It makes hay and pasture of the best quality. All sorts of domestic animals eat it greedily, and thrive upon it. But it is difficult to get this grass well sodded, and then to keep it in full possession of the ground. Not less than two bushels to the acre will insure a dense stand; and then, in a year or two, the bunches seem to rise up out of the ground and become smaller, leaving vacant spots between them. This disposition may be compensated for, by sowing timothy or clover with the orchard-grass; for they will occupy all the vacant spots, and fill out the crop of hay to a full yield. And a mixture of the grasses does not damage the quality of the hay, but makes it better.

Orchard-Grass grows best on limestone lands, but will make good meadows on any rich land.

## RED CLOVER.

A biennial plant. There are two varieties of it in this State. One is very coarse and large, called "sapling clover." The other usually grows in good land, to the average height of about three feet. The large variety does not suit the rich limestone soils, because it is almost certain to fall flat down, and "scald out" at the roots, so as to destroy the stand. But on land that is sufficient in lime, the large clover does well, and ought to be more generally sown. Clover is the great fertilizer of land. Any land may be made productive, if it will grow good crops of clover. It sends its top roots down to the depth of four or five feet, and then drains, subsoils, and enriches to that depth. The common Red Clover is the most valuable of all the grasses. It would be tedious and difficult to enumerate and illustrate all the advantages of Red Clover. There is no farm crop grown which equals it. It is the great fertilizer and dependence to prevent our lands from wearing out. It grows best on rich limestone lands, but may be made to prosper on any land which is not extremely sandy. Wherever there is not lime enough in the soil, land plaster, sowed upon the growing clover, will cause it to grow, and to yield large crops. It is, therefore, adapted to all soils which are not extremely sandy. There is but little land in Tennessee which will not produce clover; and all that will produce it, can be made rich by it.

Red Clover makes excellent hay; but the custom now is, to make hay of clover and timothy, mixed. The farmer adopts a system of rotation of crops, including four or five years in the rotation. After a corn crop, wheat is sowed, and clover and timothy are sowed among the young wheat. After the wheat harvest, the field remains in clover and timothy for two or three years, and is mowed to make hay. Experience proves that this mixed hay cures well, makes excellent provender, and may be kept in the stacks, perfectly sound. It is believed to be more nutritious than either grass, by itself. This system of rotation enables every farmer to enrich his lands with clover, and make an abundance of hay of the best quality.

One great advantage of clover in the rotation is, that it will never run out, after a crop has once gone to seed and is plowed in. The seed in the ground will remain for many years, and then vegetate and grow, whenever brought to the surface with the plow.



The rotation system with clover, to enrich the land and make hay, wonderfully helps the farmer to rid his fields of all noxious weeds and grasses.

#### TIMOTHY.

A valuable perennial grass. For hay-making it is the best grass we have; and it improves all pastures where it is mixed with other grasses. It is almost an indispensable forerunner of blue grass. Sowed with blue-grass, it takes possession of the ground at once, and holds the possession till the blue-grass can grow up and take its place. Timothy does best in limestone land, in which the crop will often amount to two tons of hay per acre, which commands the highest price in the market. The impression once prevailed that Timothy would not make good meadow on uplands or sloping lands. Modern experience fully proves that Timothy makes the largest crops on the hillsides of the black limestone land. It often grows fully four feet high, and sometimes five, on the limestone hills; but the average crops of hay are greater on well drained bottom lands. Farmers have learned to use the mowing machine on the hillsides with nearly the same facility as on the flats.

If much of the hay is fed to cattle on the meadow which produced it, the tramping and manuring will increase the yield of future crops, and prolong the exuberance of the meadow.

#### BLUE-GRASS.

Perennial, and grows best on rich limestone lands. This is the grass which is so famous in the blue-grass region of Kentucky. It is the grass which has produced a large part of the wealth, and made thousands of large estates in Kentucky, Ohio, Indiana, and Missouri; and has caused many Tennesseans to become wealthy. It is the grass which will ultimately cover all the limestone hills of Tennessee. Much of the lands of Eastern and Middle Tennessee will produce as fine Blue-Grass as can be made anywhere. And several of the river counties of West Tennessee will produce good Blue-Grass. The chemical constituents of our rocks yield the very best soil for this and other grasses. In the existing state of our knowledge, there could not be

made an approximate estimate of the value of Blue-Grass to this State. Our hills and ridges appear to be in all respects in the best natural condition for Blue-Grass pastures. This fine grass may be made to cover every acre of limestone land which is not tilled. No spot need be left idle to wash away, or to produce noxious weeds and pests of the farm. No timber trees need be destroyed or wasted, because this grass will prosper where tall forest trees grow plentifully. And when every acre shall be made to yield a profit, the people will be uncommonly prosperous.

Having enumerated all the valuable grasses that grow in the State of Tennessee, it may be well to suggest the names of some that might be introduced by our farmers with profit, and first among these may be mentioned

#### LUCERNE, OR ALFALFA.

This is a leguminous plant and perennial. It thrives well upon almost any loose soil, and furnishes a crop as abundant as red clover. It is not short-lived like clover, but will produce luxuriant crops for eight or ten years. On the other hand, more care is necessary to secure a stand. It suffers in compact, clayey soils, or in any soils that have a hard pan underlying them. On the best portions of the Cumberland Table Land, and in West Tennessee—except in that portion which has a hard subsoil—it would flourish vigorously. The soil must be thoroughly pulverized and prepared by clean tillage. It would be better to sow in drills and cultivate the first year, as it is extremely feeble and tender at first. It will not endure as severe a climate as red clover. It delights in great heat and sunlight. Compared with red clover, it has some advantages. It will bear cutting much oftener; it is perennial, and its yield of green food continues much longer in the season. Equally with red clover, it improves the soil upon which it grows; deriving a large proportion of its nutrition from the atmosphere, while it shades the land, and sends down its roots into the subsoil many feet. It is said that a soil which will bear only a medium crop of wheat, may be made highly productive of this staple cereal, by being in Lucerne for a few years.

Lucerne should be sown in the spring, like clover, but as it tillers less, a larger quantity of seed should be sown to the acre.

An intelligent writer, in speaking of this plant, says: "When properly managed, the number of cattle which can be kept in good condition on an acre of Lucerne during the whole season exceeds belief. It is no sooner mown than it pushes out fresh shoots, and wonderful as the growth of clover is, in a field that has been recently mown, that of Lucerne is far more rapid. Lucerne will last for many years, shooting its roots—tough and fibrous almost as those of licorice—downward for nourishment, till they are almost out of the reach of drouth. In the driest and most sultry weather, when every blade of grass droops for want of moisture, Lucerne holds up its stem, fresh and green as in the genial spring."

That the climate of the State of Tennessee will suit it, there is not a question of doubt. It grows in Illinois with remarkable luxuriance, attaining the height of three and four feet. A mellow, deep subsoil, however, is indispensable to its successful cultivation.

#### ITALIAN RYE GRASS.

Upon the rich, moist bottoms that are found upon our streams, and especially upon such bottoms as may be irrigated, this grass would prove a desirable acquisition to our list of cultivated grasses. The native habitat of this grass is the low plains of Lombardy, where it grows with unrivalled luxuriance. All stock love it; it is greedily eaten by cattle, and yields fifty per cent. of hay. According to the statement of Mr. Lawson, who introduced its culture into Great Britain, its growth is so rank that if it be sown with clover or lucerne, it will quickly choke them. This grass was received with great favor in England and Scotland. The sale of seed by the Messrs. Lawson increased from 160 bushels in 1831, to 25,000 bushels in 1850, notwithstanding the fact that they sold for about two dollars per bushel. Mr. Henry Colman, in his work on European Agriculture, says that Mr. Dickenson, who had a farm near London, in 1844, mowed his Rye Grass ten times. Mr. Dickenson took the trouble to ascertain the produce of the fifth crop of grass of the season, and found that a square yard, green, weighed five and three-quarter pounds. This, when thoroughly dried by being in the open air twelve days, afterwards in a room three days heated to fifty-nine degrees, then three days in a kitchen at seventy degrees, and finally roasted two hours before the fire, weighed

two pounds six ounces. This was at the rate of thirteen tons, eighteen hundred and thirty pounds, per acre of green grass; when thoroughly dried and heated, five tons and three quarters nearly.

Though best adapted for irrigated lands, this grass is said to withstand severe droughts better than any of our valuable grasses. Mr. Gould, in speaking of it, says he saw it growing upon the farm of Lewis G. Morris, of New York, and though the year was characterized by a very severe drought, and all the neighboring meadows and pastures were brown and sear, yet this field of Italian Rye Grass was green and beautiful, presenting a lovely picture to the eye, a perfect oasis amid the parched grass lands by which it was surrounded. Mr. Morris says that when fed to his cattle they gave an eager preference to it over any of the grasses on his farm.

Mr. Gould thinks the valuable qualities of this grass may be summed up as follows:

Its habit of coming early to maturity.

Its rapid reproduction after cutting.

Its wonderful adaptation to all domestic animals, which is shown by the extreme partiality they manifest for it, either alone or when mixed with other grasses; whether when used as green food for soiling, as hay, or as pasturage, in which latter state its stems are never allowed to ripen and wither like other grasses.

Its beneficial influence on the dairy, not only augmenting the flow of milk, but improving the flavor of the cheese and butter.

Its uncommon hardiness and capacity to withstand the vicissitudes of both wetness and dryness.

The only drawback to it, is the fact that it is not perennial; but it is said that if fresh seeds are scattered over the meadow every second year, and the ground scarified with a harrow, and then rolled, there will be a succession of crops.

In an economical point of view, there is no crop of greater interest to the farmer than that of grass. The annual value of the grass crop in the United States has been estimated to be equal to \$500,000,000.

Should the farmers double the area of their meadows and pasture lands, or, what would be still better, "make two blades of grass grow where only one grew before," the entire national debt could be paid

off in four years with the surplus, besides the indirect advantage of having the soils greatly augmented in fertility.

In no state is there such a great disparity between the natural capacity of the soils for the growing of hay, and the actual production, as in the State of Tennessee. The large amount of meadow lands to be found in every portion of the State, amounting in the aggregate to at least 1,500 square miles, should insure a yield of hay equal to that of New York; yet we find by comparison that the latter state in 1869 raised 5,614,205 tons of hay, and Tennessee 116,582 tons, or about one-fiftieth as much; and this, too, when ready markets and high prices have been the constant rule for this product in Tennessee.

As it is, it may well be doubted whether any other product of our soils pays such a large per centage as our grasses. It is impossible to make an estimate of their true value. One method, however, may be adopted. We may suppose that all these grasses were at once removed from our State, so that the citizens would be compelled to do without them. What would be the consequence? A little reflection will satisfy any one that the privation would be fatal to our prosperity. The whole population would be reduced to abject poverty before they could provide substitutes for them. The more one thinks about the privation, the greater it appears to be. On the other hand, the greater the damage that would result from a deprivation of all our grasses, the greater must we regard the value of their general culture. And the human mind can approach no nearer to the true value of our grasses, than it could to the amount of damage that would result from a deprivation of them all. Without the grasses, Tennessee could hardly support half a million of citizens. But the general culture of all our grasses will support five millions of citizens bountifully. Without these grasses, all the fertilizers, all composts, and all barn-yard manures would not prevent our soil from wearing out and becoming barren. But with them, we may enrich all our lands, and make most of them highly productive.

It is due to the memory of the late Dr. F. H. Gordon, to say that a portion of this chapter was furnished by him, just before his death, to the Bureau of Agriculture. Of all subjects connected with our agricultural interests, that of grass engaged his attention the most. It was his fixed opinion that the increased culture of grass meant increase in wealth, in intelligence, in refinement, and in population.

## CHAPTER IX.

## LIVE STOCK.

Tennessee, taking the ninth rank in the sisterhood of states in the number of her population, aggregating 1,258,520, according to the last census, takes also the ninth position in point of the value of her live stock, aggregating in value \$55,084,075. With only 6,843,278 acres improved land, there is about one-fourth of the area of the entire State, making about five acres to each inhabitant, actually available and employed. According to the latest and most reliable data, there are for each one hundred acres so employed, only 3.6 horses, 3.5 milch cows and 5.8 all other cattle, 12 sheep, and 26 swine. Considering the vast area unemployed and unreclaimed, embracing as it does much of the best lands of the State for the production of the cereals and cultivated grasses, together with our climate and admirably watered valleys, so well adapted to stock-growing, that notwithstanding the aggregate value of our live stock making a large item in the wealth of our State, the percentage appears very low when compared with the real capacity of our territory for the development of this great interest. Even under the unadvanced system of agriculture, Tennessee takes the seventh rank in the average production of Indian corn and wheat, and the fifth in that of grasses, demonstrating our great capacity to make meat for the markets of the world. We think it must appear to the most casual observer, upon a review of such facts, that a proper development of our live stock interest, especially if aided by the fostering hand of our law-makers, will do more to furnish a market for our farm products, and reclaim our worn out lands, bringing into subjection our wild territories, and thus beautifying and enriching our State, than any other branch of agriculture pursued by the husbandmen of Tennessee.

Possessing such great natural advantages in climate and soil, also being one of the best watered among the states, and occupying a central position, our State is already attracting great attention among those devoted to the breeding interests, and must soon become one of the great central depots from which stock for the improvement of their respective varieties will be exported to all parts of our continent.

### HORSES.

With 118,141 farms in Tennessee, and that, too, with an increase of thirty per cent. in the last ten years, there is at the present time only one horse to about every five inhabitants, aggregating 273,200, whereas in the most prosperous agricultural states, the proportion is as about one horse to every three persons. The quality of the horses of our State, however, is of a much higher standard than is to be found in most states in the Union. This fact is doubtless due to two causes. First and chiefly to the fact, that for the past three-quarters of a century this branch of stock husbandry has received the attention of many of the most enlightened minds of our State, whose time, means, and zeal have been devoted to the production of the highest type of the equine race.

This becomes at once apparent from the fact that no less than thirty-five imported stallions, many very expensive ones, were either imported and owned in Tennessee, or their services employed for the benefit of their species, as follows: Crawler, Soucrout, Citizen, Rodney, Eagle, Dragon, Royalist, Boaster, Bagdad, Bluster, Leviathan, Philip, Margrave, Luzborough, Autoerat, Mordecai, Shamrock, Skylark, St. Giles, Fop, Lapdog, Merman, Rowton, Priam, Belshazzar, Ambassador, Ainderly, Teneriffe, Sovereign, Emu, Glencoe, Scythian, Sacklowie, and Glengary. Add to this the great number of highly-bred, imported mares, such as Chance mare, Fortuna, Blacklock mare, Refugee, Kill Devil mare, Phantonia, Vaga, Venetia, Likeness, Black Bess, Florestine, Rebecca, Jenny Mills, Myrtle, Mango, Nanny Kilham, Sweetbriar, Colonel's Daughter, Stump's mare, Nun's Daughter, Equity, Vamp, Anna Maria, Tomboy mare, Primrose, Pledge, Panola, and the produce of the mares from the English stallions, commingling their blood with the numerous native stallions, rivalling in excellency and purity of breeding their imported cousins. As early as 1790, many good

horses were brought into Sullivan county, in East Tennessee. Col. John Scott, Col. William Blevins, the Messrs. Snapp, Tiptons, Greens, Rutledges, etc., seemed to have taken the lead in these early importations. Among the horses brought to that county about that time, we may mention Stately, Milton, Genus, Flag of Truce, Don Quixote, Peter Quicksilver, and Diomedé, all of which left traces of their blood. Many of these horses were brought afterwards to Middle Tennessee, through the influence of General Jackson, who, first settling in East Tennessee, afterwards removed to Davidson county, and was one of the leaders of the turf.

Our earlier breeders certainly possessed the materials, when directed by skill, out of which they were able to fashion the grandest horses upon the continent. As evidence of this, Tennessee horses have been sought for by almost every state in the Union, for the improvement of the equine race, and have contributed very largely in founding and establishing the reputation of every state now boasting of possessing this most noble and most useful servant to mankind. Although a few central counties have in times past devoted the greatest amount of time and money to the breeding of horses in their highest type, such as Sumner, Davidson, Giles, Maury and others, at present there are many counties that vie with these in the number and value of their stock. As a matter of reference, taking 5,000 as a basis, the counties owning over this number are Wilson, Lincoln, Maury, Giles, Sumner, Rutherford, Davidson, Bedford, Williamson and Marshall; while many others are nearly equal in point of numbers to the above. In all of these counties more or less of good blood has been distributed from the older breeding counties, thus materially increasing the durability, and consequently the general utility, of the horse stock of the State. This fact became patent during the late war, especially. Tennessee, being a central field of hostilities between the contending armies, contributed probably to a larger extent than any other state in supplying the armies with useful cavalry horses, of such excellent quality as to render them distinguished among all the rough riders over bloody fields throughout both armies. Notwithstanding this great drain upon the horse stock, the State is fast recuperating in numbers, and the knowledge acquired from past experience induces our citizens to introduce none but the best, for the purposes for which they are bred, with which to improve our already valuable race of horses. Latterly, the enormous amount of capital represented in the roadster, has induced numbers of our best citizens and breeders to introduce representatives of



this valuable strain of horses at great cost. These when bred upon our strains of blood coursing in the veins of a large majority of our stock, cannot fail to found a race that will be the representative of an enormous revenue to our State, and give character to Tennessee breeders inferior to that of no other state in the Union, both in point of number and value of her stock.

#### CATTLE.

Next in importance, if second, to that of any other, in the livestock interest, is the value and importance of our cattle. Distributed, as they are, throughout every county of the State, and being one of the necessary appendages to every thriving farm household, the fostering of this branch of stock husbandry would seem to be inseparably connected with a general prosperity of our people. This interest having suffered probably to a larger extent than any other breeding interest by the war, shows, after ten years time for recuperation, still a decrease of nearly thirty per cent. from 1860 to the present time, estimating from the most reliable data, numbering now, in the aggregate, nearly 700,000 head; also, showing only one milch cow to about every five persons, and of other cattle about one to every three persons—a very small per centage, when it is considered that there are only 9.3 cattle for every one hundred acres in cultivation; less than one-fourth what it might be, and that a very large proportion of the unclaimed lands of the State are well adapted, and abundantly adequate to the support of large herds of cattle, for at least nine months of the year, with but comparatively little cost and care. With this branch of stock-husbandry, comparatively speaking, undeveloped and little fostered, it forms no inconsiderable item in the wealth and revenues of our State. After furnishing our people a large amount of the meat for home consumption, the aggregate amount furnished to the public markets, amounts to 15,856,880 pounds. The increasing importance of the meat question, together with the large revenue derived from the dairy products, already amounting to 415,786 gallons of milk, 142,200 pounds cheese, 9,571,069 pounds butter sold, has attracted thinking men and capitalists to the great importance of the improvement of our cattle, since the war, more than ever before. The dairy interest, comparatively in its infancy, and little understood, and, so to speak, overlooked as an industry until recently, yielding over two

and a half millions dollars, annually, to our wealth, is one that should, and justly too, attract the attention of our farmers to the immense income and wealth that it might be made to yield to our State, being less, at present, than one-fourth that of some other states of no more population and less area than Tennessee, and far fewer natural advantages; showing that it might be increased four-fold, returning annually, and at less cost than almost any other enterprise, at least ten millions of dollars, by converting our waste and wornout lands into verdant pastures, and thus increasing the value of the legacy to be left our children, by leaving them the soil in its virgin purity, instead of the worn and gullied hillsides, crowned with thorns, and studded with stones. Since the war, more than ever before, has an impetus been added to this industry. Notwithstanding some few of the improved breeds of cattle were introduced as early as 1834-5, by importations from England and elsewhere, nothing that could be called anything like a general interest has been manifested by our people in introducing the improved breeds, or a desire for the general distribution of the more economic and valuable variety of cattle, until within the last decade. We feel especially rejoiced to note the great interest recently manifested, and rapid strides made by many enterprising citizens, in this attractive branch of husbandry within the last few years. Large investments are being made with a view to pecuniary profit, and the result has been that many specimens of rare merit of the bovine species are the occupants of Tennessee soil. Those who are at all familiar with our agricultural exhibitions, and who are well informed as to the great degree of excellency produced by skill and care, attest the fact that our State boasts many specimens of great merit, annually brought into competition, thus producing a laudable rivalry, that is rapidly adding thousands to the wealth and prosperity of our State. We think that we cannot recommend too forcibly to the fostering care of our farmers the importance of this great interest by a general introduction of the blood of the improved varieties of cattle into the herds of the State. This being already done in many of the older countries, to a large extent, has produced its fruit by adding thousands to the value of their cattle for grazing and dairy purposes.

Davidson, Sumner, Bedford, Rutherford, Giles, Maury, Tipton, Shelby, Knox, and others, already number their fine herds, while others are gradually introducing them, and we think the day cannot be far distant when Tennessee, with the natural advantages of soil and climate, must take high rank as a breeding State, furnishing a large pro-

portion of the animals for the propagation of their species, now demanded by the great west; also taking high rank among the states in the value of her products of beef and the dairy, thus adding millions to her coffers, and prosperity and happiness to her people.

On this subject, and as showing the breeds best suited for each division of the State, we subjoin an article prepared by Prof. Nicholson, of Knoxville, Professor of Agriculture in the East Tennessee University, and one of the Commissioners of the Bureau.

It has been remarked, says Professor Nicholson, that variety is the characteristic of both the geology and agriculture of Tennessee, and the same feature characterizes the cattle of the State. The variety in the geology and agriculture results from natural causes, but the variety in the cattle is the result of certain accidents of origin. Tennessee was mainly settled by emigrants from North Carolina and Virginia, but from time to time considerable numbers came into the State from Pennsylvania, and other northern and eastern states. These emigrants very generally brought with them their best cattle, and from these first importations the native stock of cattle sprung mainly. From time to time, in almost every section of the State, enterprising and well-to-do farmers have sent abroad either to Kentucky, Virginia, or even to England, for improved cattle. These have been mainly of the Short-horn, and only to a limited extent of the Ayrshire and Devons. The traces of these improved importations are very manifest in many localities, though many years have elapsed since the importations were made.

Notwithstanding these improved additions to the blood of the cattle of the State, the types of the native cattle remain. In many localities there have been no importations, and the only changes that have taken place are due to natural causes. Out of this state of things arises the variety of which we speak.

Starting in the eastern portion of the State, we find the inhabitants thinly scattered, occupying small farms, hemmed in by the mountain ranges, and very nearly isolated from the rest of the world. They are mostly descended directly from North Carolina emigrants, and have had comparatively little intercourse with the outside world. Content with the supply which they can easily make on their little farms, by the aid of the boundless "range" of the mountains, they feel no need for, and are prompted by no desire to change their stock of cattle. Here, then, we should naturally expect to find the nearest approach to

the original "stock" of the North Carolina emigrant, and the expectation is fully realized, for through the eastern tier of counties of the State, the "native" cattle present a closer uniformity in color, size, and shape, than in any district of the like size that we know of. The noteworthy features in these cattle, are their uniformly small size as compared with Short-horns; their angular outlines; the almost entire absence of any solid color, besides black; and the large proportion of black. These cattle are extremely hardy, as they needs must be to live, and are very active and sure-footed. As a general thing, they give very rich milk, though the quantity is small. Frequent instances are to be met with, however, among them of deep as well as rich milkers. Though hardy, these cattle do not fatten kindly, beyond the stage of "grass fat," a kind of fat that will not bear transporting.

If we seek to account for the noteworthy features of these cattle, we shall find that their pedigrees run back, in very many cases, to stocks of cattle brought into North Carolina from Scotland by the Scotch emigrants. Thus connecting together the history of the people and their cattle, we are enabled to account for the close resemblance between several types of the native cattle of the mountains of East Tennessee, and certain well-known breeds of Scotland and England. Often have we seen in the mountains of East Tennessee as perfect types of the little Black Kerrie and the Ayrshire as could be found in the forest-bred herds of Scotland.

Coming westward into the East Tennessee Valley, we find a change in the cattle marked by an increase in size, the less frequent occurrence of either, all black or black and white, the more frequent occurrence of solid red and white, and a general improvement in the shape and fattening form. The increase in size is generally gained at the expense of hardiness. There is also a lack of uniformity in any considerable number of the Valley cattle. These cattle, however, will fatten in the stall more readily, and being of larger frame, are much more valuable for beef.

Passing westward into Middle Tennessee, we find at once a greater number of cattle and a still greater diversity in character. The cattle are generally larger and more beefy. The little black cow so often met with in East Tennessee, is seldom seen here. The traces of Short-horn, Devon, and other good blood, are more marked. The native cattle of Middle Tennessee of to-day show a diversity of origin much greater than those of East Tennessee, and yet there is an evident tendency towards uniformity in many counties, owing mainly to the in-

creased infusion of Short-horn blood, and the general improvement in feeding and sheltering.

In West Tennessee, stock-growing has not until quite recently received much attention from the wealthier farmers, and the number of cattle is comparatively small. In general, the natives resemble closely those of Middle Tennessee, from which they are directly descended. Of late years, there is a marked improvement in the care of stock, and a corresponding improvement in the cattle, both native and graded.

#### IMPROVED BREEDS.

What crops a farmer shall grow, and what stock he shall breed, are questions to be determined ultimately by the market demand; yet there is a natural order of crop development noticeable in the history of the agriculture of every new state. The first settlers and their immediate descendants in Tennessee grew only corn and potatoes, and raised hogs and a few cattle. Scarcity of labor, remoteness from market, primitive habits and simple wants combined to confine their efforts within a narrow circle. Hence it is that we find the chief crop of the early settlers and their immediate descendants was corn. This was their main reliance for bread.

In 1840, Tennessee was the largest corn-producing state in the Union. But corn is bulky and difficult of transportation, and in the absence of railroads, the Tennessee farmers had to ship their corn by the Tennessee, Cumberland and Mississippi rivers. The next step was to feed this corn at home, and the hog being the main reliance for home meat, hog growing came to be the leading business of the Tennessee farmer, and in 1850, Tennessee took first rank as a hog-growing state. In the meantime, the demand for corn and bacon was being met by the western and north-western states, and a new demand had risen in the cotton states for mules. In response to this demand, Tennessee became, by 1860, the largest mule-growing state in the Union. Here we have three changes, as it were; first it is corn, then hogs, and then mules; but these were not changes, in fact, for in 1850, there was a greater amount of corn grown than in 1840; and in 1860, a larger number of hogs than in 1850. The whole was the result of the growth and development of the agriculture of the State.

The devastations of the war not only checked all growth, but up-

rooted to a large extent the system of agriculture on which all previous development had been based. Since 1865, the agriculture of the State has been slowly settling down and adjusting itself to the new condition of things, and new growth and development are only just setting in. In 1860, there was a manifest tendency towards the growth of beef cattle in the State, and had not the war intervened, it is not improbable that Tennessee would have contested for the supremacy in cattle growing in the census report of 1870. Fortunately, however, the war did not destroy the causes which were then directing the attention of the farmers of Tennessee to cattle breeding. These still existed, and, when the war closed, began to operate in full force. Especially is this true of Middle and West Tennessee. Evidence of this state of things was furnished, not only in the increased activity in the cattle trade, but in the fact that in the exhibition rings of the various fairs, improved cattle attracted far more attention than ever before. Owing to differences of condition, and certain economic causes, East Tennessee has been slower to feel this cattle movement, but it is now spreading very rapidly through the Valley, and in time will undoubtedly extend into the securest mountain fastness.

What losses came of the war, it boots not now to reckon, but wisdom itself teaches us to try if we may not find something of good to come of it, for beyond question

"There is some sort of good in all things evil,  
Would men observingly distil it out."

The war swept away the cattle of the State to such an extent as to compel the introduction of others to supply the immediate wants of the inhabitants—operating, in this respect, just as a fire often does, to improve the appearance of a town, by making room for a better class of houses. Having to buy, many farmers went to Kentucky, and elsewhere, in search of the best blood of the improved breeds, thus laying the foundation for herds of pure breeds, as well as furnishing the means of grading up the native cattle to a very high state of improvement—two effects of very nearly equal value to the agriculture of the State. If it were practicable, it would not be desirable, to substitute the pure-bred Short-horn at once, unless at the same time the rich pasture, comfortable quarters, and abundance of feed, essential to the right management of this noble breed, could be brought along with them, and substituted for the rather scanty pasture, scarce shelter, and limited food, upon which the natives manage to live.

Again, while it is scarcely to be expected that the farmers of Tennessee will, within any short period, establish a breed of beef cattle superior to what the Short-horns are, under the most favorable circumstances, it is not unreasonable to anticipate that, by judicious and persistent selection and crossing, a breed may be established which will be better adapted to the conditions of the farmers of the State. Whether such a breed will ever arise, remains to be seen; but it is a fixed fact that for the majority of Tennessee farmers, the pure blood of the improved breeds can only be introduced gradually, by the use of pure bred males. But this fact does not in the least militate against the introduction of the pure breeds, by such farmers as are so fortunate as to be prepared for it. They will always find their reward in ready sales, at remunerative prices. For, besides the constant demand for good bulls by the farmers who only seek to grade up their cattle, the number of breeders of pure breeds will naturally increase year by year with the improvement of agriculture.

#### WHAT BREEDS TO INTRODUCE.

Each farmer must be his own judge as to the kind of cattle that he will keep; but circumstances will necessarily govern the choice of all, to some extent. The principal of these circumstances are, location and character of the farm, capital and market. A farmer living on the uplands of East Tennessee, however much he may admire, and desire to possess the lordly Short-horns, could not act wisely to invest in them unless he knows some better way of growing meadow and pasture grass than his neighbors know, and has besides, better sheds for winter care of them. Nor would he be acting much more wisely to attempt to cross the Short-horn on his small native cows. The difference between the two is too great for a happy cross.

There is, however, an improved breed of cattle, just suited to the uplands of East Tennessee—that is the Devon. This, the oldest of English breeds, and, by some, held to be the best, too, is uniformly of a rich, deep red color, medium size, very hardy, extremely active, kind feeders, generous milkers, making excellent beef, and the best work-oxen of all cattle. The Devons would cross readily and well on the native, and add immensely to their value, while detracting nothing from their hardiness.

If, however, the natives which a farmer owns are extra good milk-

ers, and he is well situated to make and sell either butter or cheese, it might pay him to get an Ayrshire or Jersey bull to cross on them. This certainly, if he lives near a town or railroad depot.

In the Valley, and especially along the river bottoms, wherever heavy crops of hay and deep pastures may be grown, the Short-horns may be introduced with profit; but even in the best valleys, it is a matter of doubt if the Devon will not give the most satisfaction. Along the line of the East Tennessee and Virginia Railroad, the sale of butter and cheese forms now a considerable part of the farmer's profit, and this trade will certainly increase very much with the increase of population. Hence, the dairy breeds will be in demand in this section. For this purpose the Jersey and Ayrshire are pre-eminent, the former for butter and the latter for cheese. Already several small herds of Jerseys have been started by enterprising farmers, and a short experience gives the most encouraging promise of their success in all parts of the Valley. They cross very successfully with the natives, always adding a rich flavor and golden color to the milk. As a town cow the Jersey, or the Jersey grade, is without a rival.

For East Tennessee, therefore, the Devon is the best breed of cattle for the general farmer, while the Jersey and Ayrshire will suit the dairy best.

In Middle Tennessee there are two sections described on the Map accompanying this volume as the Highland Rim and the Central Basin. Throughout the former section the pasturage and meadow growth are comparatively light, and as a consequence the heavy-feeding Short-horns cannot be possibly grown by the farmer, generally. Here, again, the virtues of the Devon come happily into play, and what has been said of East Tennessee uplands may be repeated of the Highland Rim, with the exception, probably, of the northern and eastern portions where better soils prevail. In the Basin the soil is different. Here the pastures and meadows are, or may be made, rich and luxuriant enough to carry the heaviest of cattle with profit. This, then, is the natural home of the Short-horns in Tennessee. Here, too, the natives are best adapted to crossing with them, and the farm practices are best suited to their easy introduction.

In West Tennessee, also, there is a considerable section in which Short-horns seem to thrive well. In the greater part, however, the Devon would most likely be the best, all things considered.



## WHAT HAS BEEN DONE.

For forty years past there have been a few enterprising and intelligent farmers, scattered throughout the different parts of the State, who have sought to improve the stock of cattle in the country by introducing improved breeds. The first of these importations were drawn from Virginia, Maryland, and Kentucky, and consisted of what was variously known as the Patton, Teeswater, or English cattle. Precisely what breed of cattle this was, or whether the same stock went by different names, is not known with certainty. It is probable, however, that there was more or less of the same blood in all, and that this blood was Short-horn, though it was more or less tainted by a mixture with native. At any rate, these early importations were very good cattle, and left a good impression on their descendants. They were generally large, roomy cows of a deep red color, frequently flecked with white streaks, and almost invariably deep milkers, fattening kindly, and altogether combining many of the most desirable qualities of farm cattle.

Subsequently, the importers have directed their attention to the Short-horns, and from time to time some of the best animals to be found in the United States have been brought to the State, while other gentlemen, not counted with these, have gone to England and brought back some of the choicest animals of the best herds. From 1838 to 1843 seems to have been a period of remarkable activity in all agricultural matters in Tennessee, and during this period the *Agriculturist*, published at Nashville, contained numerous advertisements and notes of imported and otherwise noted Short-horn Durhams to be found in the State. Shortly after this the financial pressure which swept over the country seems to have paralyzed all enterprise among the stock men, and we find no account of any further importations, until some dozen years after. In the meantime the stock already imported and their increase spread through the various neighborhoods, tending very much to the elevation and improvement of the grade of cattle.

About 1855 the spirit of improvement began to revive. Fairs were established, and farmers began to look to the improvement of their stock. By 1860 this spirit had spread to every part of the State, and almost every county had a Fair Association. During this period many additions were made to the Short-horns of the State from some of the best herds in the United States. During this time several importa-

tions of Ayrshire and Devon cattle were also made into the State from Scotland and from New York. The breaking out of the war put a stop to all agricultural progress, and at its close left everything prostrated.

Since the war, the spirit of improvement has begun to revive, and is fast awakening the farmers of the State to a higher appreciation than ever was before had, of the superiority of good stock over bad, or indifferent. Many very valuable Short-horns have been brought into Middle and West Tennessee from Kentucky, and the Limestone Basin is fast becoming noted for its good cattle. In East Tennessee, through the inspiration and instrumentality of a few public-spirited citizens, in various sections of the Valley, several very promising herds of Jerseys have been started, and the cattle fever is fast spreading among the farmers. At various times before the war small importations of Short-horns were made into East Tennessee, but from some cause or other, they never seem to have spread or taken root in public estimation. Since the war, also a few importations have been made, which promise to succeed. One or two of the many emigrants from New York, Pennsylvania, and other northern states, have brought with them excellent specimens of Devons, which are growing into favor with much rapidity, as well they may.

#### CONCLUDING REMARKS.

It may not be out of place to close this brief and imperfect sketch of the Cattle of Tennessee, with a few remarks of a general character, in the nature of suggestions to cattle breeders.

Cattle breeding, whether of pure breeds or grades, is one among the highest of the arts of agriculture. It requires a greater degree of judgment, foresight, skill and patient perseverance than the management of any farm crop. At the same time it is for him who loves stock, the most pleasant, and may be made the most profitable branch of farming. But the successful cattle breeder must of necessity know how to cultivate his farm, otherwise he will often find his stock of cattle-food running short, and his farm and cattle going down hill.

Every cattle breeder should seek to keep up a steady growth and improvement in not only individual animals, but in the average quality of his cattle. To do this, he must fix upon some perfect standard of excellence and work always towards it.

Excellent as are the best specimens of the improved breeds of cattle, in none has perfection yet been reached. The way is still clear for improvement on the best. The greatest and nearest field of labor and of profit, however, lies in the grading up of the natives. This is the work for the many, while the establishing of new breeds, or the improvement of the old, is the work of the few who have the genius, backed by the capital, to devote to it.

But the means of improvement are common to both—these are: careful selection of males, generous feeding, and comfortable quarters. The chief obstacles to the improvement of the cattle of Tennessee, are the very general practice of allowing inferior males to propagate, thereby transmitting their bad qualities; the cruel and improvident habit of compelling cattle to shift for themselves through the greater part of the year, unprotected from the inclemencies of the weather, and unaided by any nutritious food. While such practices prevail, improvement is impossible. With any sort of care, however, the best breeds known elsewhere may be introduced, and the native cattle may be improved to the great profit of the farmers and the general improvement of the agriculture of the State.

#### SHEEP.

There is probably no state in the Union, that in climate, physical features, and productions, excels Tennessee, in the proportion of her territory adapted to the successful prosecution of the important industry of wool-growing. The vast plateaus, and extensive ridges and valleys of the eastern division of the State, seem, almost, to have been fashioned by the Creator especially for the production of wool, while the table lands of the middle and western divisions can hardly be excelled for the grazing of large stocks. Notwithstanding these great natural advantages, for the want of proper legislation, and a correct appreciation of our true interest, the aggregate number of sheep in Tennessee is, according to the last census, only 826,783, and of wool 1,389,762 pounds. Our State, taking as low as the fifteenth rank in the production of this very important staple of commerce, the relation of the number of sheep to pounds of wool produced, shows only an average of 1.82 pounds per head; a very low estimate, which may be accounted for, inasmuch as this estimate, in all probability, fails to cover a large proportion of the home consumption never reported to

the census agents. The fact is, however, patent that our flocks call loudly for improvement. It will be observed that the per centum to our population, is only about one sheep to every three persons, while it requires at least two sheep to comfortably clothe each person; also, the small proportion of sheep to every one hundred acres in cultivation being only twelve head, shows how sadly this great interest is being neglected; and that, too, in the face of the fact that the United States annually import from forty to sixty million pounds of wool to clothe its inhabitants. Estimating that Tennessee consumes, in the proportion to their population, it would require at least one-thirtieth of this amount for her portion. Estimating this at only twenty-five cents per pound, (a low estimate), for the manufactured article, and we have the enormous amount of \$500,000 annually paid out by our citizens for the item of clothing alone, and that, too, for an article which, by producing at home, they would not only save the actual outlay, but annually benefit their lands, to at least an equal amount. Now, add to this the amount of mutton, which might be produced for public market, which would swell the aggregate to at least \$1,500,000 of revenue to our people, over and above the present product—and we have the loss from the neglect of this great industry.

We would respectfully point our law-makers to the fact, that in traveling through the State, our attention has been repeatedly directed to the disposition on the part of many of our enterprising citizens to engage in this pursuit, but are deterred by the want of proper legislation to guard the sheep from the depredations of the millions of worthless curs that infest every portion of the State. A State that has the advantages of Tennessee, both climatic and physical, that does not produce one-half of the necessary wool required to clothe its inhabitants, shows a bad condition of things, either in its legislation or in its producers. It has the capacity to produce besides the necessary amount required for clothing, wool enough for exportation, which, even at the present low price would realize money enough to feed every inhabitant and educate every child within her borders. This is a subject that must commend itself to the serious consideration of every thinking man of our State. We would here recommend to our people to demand it of our law-makers, to afford every legal protection to this important branch of husbandry within their power, in order that those of our citizens who are disposed to adopt it as a business may feel that they at least will have equal protection with other pursuits. There are at present but few persons in the State engaged in the development

of this interest, doubtless owing to the great risks they daily incur from a want of proper protection by our laws. Those who have given this subject any attention, have been abundantly rewarded, in their success, and Tennessee has just cause to be proud of having produced the finest specimen of wool that ever came under the micrometer, also of having received the grand medal at the great London Exhibition, held in 1849-50, where every nation of the world had specimens of wool on exhibition. This was done by Mark R. Cockrell, of Davidson county, a name so intimately associated with this special branch of husbandry, not only in the State of Tennessee, but throughout the world, that any mention made of wool-growing without his name, would be incomplete. After a careful study of the wool of every country, he fearlessly maintained that the peculiar climate and soil, and protecting agencies of Tennessee, would make it the best wool-growing region under the sun, and he proved it by wresting the premium for the finest fleece from the assembled wool-growers of the world.

Many counties of the State are introducing the improved varieties of sheep of late years, in addition to the famous Merino flock which dates its foundation back half a century, and that has always so eminently prospered under skillful treating, aided by our mild climate, and almost perennial herbage. The Cotswold, Southdown, Leicester, and Oxfordshire, have made their appearance and are prospering under skillful management in various localities. The great demand for combing wools of late years, has had the tendency to direct breeders to these long-wool varieties in an increased degree. Should our climate not prove too warm for these larger breeds, that lay on an excessive amount of flesh, they will certainly prosper as well here as in any part of the United States. With this industry properly protected, it will very soon receive the necessary attention to make it one of the leading sources of revenue to the State, commending itself to our citizens generally, not only as a cheap and remunerative investment, but as the most rapid and surest way of reclaiming the worn-out lands. By converting the half-wild animals now roaming at large in many counties of the State, (producing little wool of the lowest grades), to useful wool-bearing animals, by the introduction of improved blood, manipulated by skill and care, we produce a machine for converting the noxious weeds and useless herbage into gold, more easily than by any other means, thereby introducing comfort and happiness into thousands of cheerless homes.

## SWINE.

The adaptation of the soil of Tennessee to Indian corn, oats, and clover, renders the State one peculiarly fitted for the development of the live stock interest. Tennessee, regardless of the fact of only one-fourth of the area being in cultivation, and the loose system practiced by numerous farmers in many sections of the State, ranks seventh in the production of Indian corn, which is one of the great essentials in the successful production of large herds of swine for the public markets—ranking fifth in the number of hogs grown for market, aggregating 1,828,690, distributed very generally throughout every county in the State. The average production of corn per acre, in actual cultivation, being only 23 bushels, it becomes plainly perceptible that by a proper rotation of crops, clovering, pasturing, and a proper husbanding of manures, deep and improved modes of plowing, etc.—means that are within the reach of the humblest farmer—the average product can be easily doubled, or trebled, thus increasing, in like proportion, the average weight of hogs sent to market. In connection with this, the introduction and distribution of the improved breeds throughout the State, will vastly increase the hog crop, both in quantity and quality. This industry became well nigh annihilated during the late war, but owing to the rapid reproduction of this animal, especially when well cared for, our State is now producing twenty per cent. more hogs than previous to 1860. This animal is probably more rapidly susceptible of improvement, by judicious care and breeding, than almost any other species of our domestic animals, and sooner deteriorates under bad treatment and neglect. Hence, in renewing the herds in the State, the importance of introducing the improved varieties has evoked the attention of many of our best citizens, who are largely engaged in breeding the highest type of animal for breeding purposes, large importations having been made, and are constantly being made in many counties of the State, until many sections are already noted for the high quality and excellence of their swine.

Many persons from distant states, from old breeding districts, as well as our own citizens, who have attended our agricultural fairs of late, have expressed great admiration for the number and quality of the hogs exhibited; indeed, such is the interest and laudable rivalry manifested to procure the best, that many importations are coming into the State from Europe at great expense. Many of the different breeds

have been introduced with success; among them the Berkshire, Essex, Poland China, Neopolitan, Sussex, and others, each having their champions and especial admirers; but we believe the Berkshires, in their adaptation to the climate and wants of our people, have the most advocates. Such is the perfection to which the hogs of the State are now bred, it is exceedingly questionable whether as fine specimens cannot now be found in Tennessee as are either in the United States or Europe.

The State is at present producing twenty-six hogs to the 100 acres of land in actual cultivation, making the percentage about 145 hogs to each 100 inhabitants; whereas, we might easily produce one hog to each and every acre cultivated, in addition to other necessary live stock, making five times as many hogs as the State has population, increasing our surplus meat to at least 100,000,000 pounds; and this too, with manifest benefit to our lands, and an addition of \$2,000,000 net to our revenue. If we mistake not, in a very few years the State of Tennessee will become one of the great meat marts for the south. As such it certainly offers very great inducements, both to the emigrant from the old world, and the ice-bound, sterile land-owners of the northern and eastern states, who are desirous of seeking new fields for the development of skill and labor, in the pursuit of the pleasant and remunerative industry of stock husbandry. To all such we say, that no other enterprise promises a better reward for so small an outlay of capital as stock-growing in Tennessee.

## CHAPTER X.

## TENNESSEE AS A DAIRY STATE.

In a foregoing chapter, we have spoken of the aptitudes of the soils of Tennessee for the production of valuable grasses. It would almost follow as a necessary consequence that it has natural advantages for the economical production of butter and cheese. This subject deserves the attention of every one interested in the productive industry and wealth of the State. The fact is generally known that all kinds of farm labor are not equally profitable, and the thoughtful owner of the soil has to consider the question, what crops will pay him best, taking every fact and condition into account. In bringing dairy husbandry before the public for consideration, our object is to diversify our agriculture, not to disparage the planting of cotton, tobacco, corn, or any other crop, nor to discourage wool-growing, stock-raising, or the production of fat animals, like hogs, cattle and sheep, for meat. Rightly understood, every branch of tillage and of husbandry adapted to our climate and soil, may be regarded as a member of one family, a friend and near relative, which should never be treated as a stranger and an intruder, to be resisted or driven out. Last year, Great Britain consumed over thirty million bushels of corn grown in the United States, and eighty-five million pounds of our cheese. Tennessee corn was not worth fifty cents a bushel, generally, to the farmer to send to any foreign market; that is not one cent a pound; but good cheese, such as is made in Ohio, sold readily from thirteen to fifteen cents a pound at wholesale. If we can produce cheese, and one pound is worth from twelve to eighteen pounds of corn, it is plain that there will be a great saving in the cost of transportation to export our corn to Europe in the shape of cheese and butter, rather than in the form of grain.



The idea of sending grain, grass, fodder and other forage to market in the form of fat animals, or in the shape of young mules and horses, is not new to our readers; but not many have had facilities for properly studying the question, whether the vegetation of the farm will not return more profit if transformed into butter and cheese of the first quality, than if sold in bacon or any live stock. If we carry our dairy industry no farther than to supply the home demand for cheese and butter of northern manufacture, it will be one step in the right direction. Do this, and the fact will soon be learned, that while some southern farmers prosper by raising cotton for the factories of England and Scotland, other southern farmers may do even better by producing cheese and butter at from twelve to thirty cents a pound, to feed in part the operatives who card, spin and weave this cotton. The beauty of dairy husbandry is, that little or no plowing is needed. A field that has yielded excellent grazing for cows every year for half a century, is just in its prime, needing perhaps a little bone-dust or land plaster. There are Bermuda and blue-grass pastures in the south which are as old as the federal government, and without re-seeding or any cultivation—being generally in commons near cities and villages—they yield annually a liberal quantity of milk to thousands of families who pay nothing for this grazing.

Augusta, Georgia, was the capital of that state in the last century, and its large common has been well set in grass about a century. If the more southern climate of Georgia permits a dense turf to form and last so long on rather poor soil, naturally, even when hard tramped and close fed, it is absurd to believe that the climate of Tennessee is less favorable to any grass-growing or dairy purpose. So far as there is a deficiency of the best American and European grasses as they may be found in Kentucky, Ohio, New York and England, the defect is due, not to our forbidding sunshine, or lack of rain, but to the general belief that planting pays better than anything that grass can be turned into on the farm. If a cow-pasture or sheep-walk required as much cultivation and labor as a crop of cotton, from year to year, this opinion might be well founded. But there are pastures set in grass four hundred years ago, when Columbus discovered America, that still grow luxuriantly in England and on the adjacent continent, without any breaking of the sod or tillage whatever. In January, 1874, good butter sells in Nashville, New York, and London, at thirty-five cents a pound. A fat hog sells at five cents a pound in Nashville. It takes grain and plowing to make the five cents per pound porker, but not

the butter, worth just seven times as much per pound. Either our people, Europeans and northerners, do not know the relative value of meat, grain, and dairy products, or we should plant and plow less, have more land in grass, and reap our share of the wealth that flows from the skillful manufacture of butter and cheese.

Several cheese factories are in successful operation in North Carolina, and two are in contemplation in this State—one in East Tennessee and the other near Nashville. Experience proves that wherever the soil and climate will permit corn to grow, cheese and butter can be manufactured at a profit at present prices for good articles. Very poor butter, cheese and meat are unprofitable staples to produce, and that sort of industry should cease. But when we consider the fact that there are three hundred and fifty million people in Europe and America to be fed, and remember how many careless and stupid men and women there are in the world employed in husbandry, we need not be surprised to learn that, while there may be a surplus of mean butter and cheese, and of badly fattened or badly cured meat, prime articles sell at a reasonable profit to the intelligent and careful husbandman. The principle of *association*, carried into the dairy business first in the State of New York, and since adopted in England, Switzerland, and other countries, has wrought great improvements, and served to kill the market for inferior butter and cheese in all large cities. Agriculture, by close study and earnest efforts to excel, has become not merely a rude industry, but a fine art; not only an intelligent profession, but a highly cultivated and advanced science. The farmer wants to raise food that will give the toiling millions pure and healthy blood, at the least cost to them, and at a profit to himself. Food must sustain life, health and warmth. To do this with the greatest economy of labor, capital, and satisfaction to all parties, the dairy cow comes in as an indispensable agent, and an indispensable factor in the problem. Allowing her to give only ten pounds of milk in the morning, and the same quantity in the evening, for 200 days in 365, the yield in a year is 4,000 pounds. As a quart of milk weighs about two pounds, ten pounds at a milking requires only five quarts, while some cows give twice that quantity; and it is rare that a good milker goes dry 165 days in a year if she has proper attention. What is the value of 4,000 pounds of new milk as compared with the beef that can be made on the same amount of cow-feed? As we have avoided an exceptional case in favor of milk, we will do the same in reference to beef, that the comparison may be just. An average three-year old steer or heifer may give 600 pounds

of meat, estimating the hide as a part and of equal value. This assumes in substance that a dry cow will give 200 pounds of beef on the feed that might produce 4,000 pounds of milk. If we take ten pounds of fresh corn-beef, free from bone, and dry it perfectly, it loses seven and a half pounds of water, weighing when dry only two and a half pounds. Twenty pounds of milk dried in the same way weighs just the same as the meat, having lost seventeen and a half pounds of water by evaporation. From these facts, it follows that a cow or steer must return for food consumed 2,000 pounds of beef in 200 days to equal in *dry* nutrition matter that supplied by a dairy cow in the same length of time. If the curd, butter and sugar in new milk are worth as much, pound for pound, as good beef, excluding all moisture in both, but including the natural bone and fat in beef, then grass, hay, grain, fodder and roots, will yield mankind just *ten times more healthy blood* for human veins in cow's milk, or in butter, cheese, and milk-sugar, than in beef. Viewing dairy husbandry by the light of these facts, the reader will understand why it is fast driving the raising and fattening of cattle out of the best farmed districts of New York, New England, old England, and Europe. When a first-class cow gives ten quarts of milk twice in twenty-four hours, her yield per day is equal to twenty pounds of lean, fresh meat, in solid matter. The relative value of a pound of dry milk and a pound of dry meat is worth considering, as the question affects both meat and dairy production. Not only the young of grammivorous animals grow rapidly on milk, like calves, colts, lambs, and pigs, when liberally supplied, but the young of all carnivorous animals, like lions, tigers, and wolves, take their meat in the liquid form by sucking their mothers. The young of the human species is no exception to this general law. Milk is *improved blood* to promote the rapid organization of animal parts in early life. It is highly nutritive when its water is reduced one-half to bring it down to the standard of all fresh, lean meat. This separation of water is an easy process.

In 100 pounds of cured cheese the consumer buys seventy-five pounds of nutritive elements, including those that support respiration and animal heat; in 100 pounds of lean meat (muscle) he buys between seventy-five and seventy-six pounds of water, and less than twenty-five pounds of the elements of nutrition. If the steak or mutton-chop is worth ten cents a pound, the cheese should sell for thirty. But it has been shown that milk production is now so largely developed in the best cows, they having been milked for unknown thousands of years

before the time of Abraham, cheese can be made cheaper per pound than beef. There is less labor in the production of beef than cheese; yet the whey left from cheese-making, and the skim-milk left, including butter-milk, in making butter, are compensating items in the dairy business. Concentrating milk by gentle heat applied to large quantities in vacuum pans pays quite as well as to remove water and deliver the valuables in cheese, in butter and in sugar. As dried meat keeps much better than undried, so condensed milk may be preserved as easily as dried fruit. Eggs and oysters are dried and kept in good order for any length of time. The cheap and large manufacture of ice has an important bearing on dairy industry in the southern states. The cooling of dairy rooms is now well understood, and practicable at small cost. We should not hesitate to avail ourselves of these improvements no more than of steam engines, power looms, reapers, steamboats, railways, telegraph wires and electric batteries. A cheese factory is a new agricultural battery.

How to charge this battery is a question in agricultural engineering on which we will venture a few hints, drawn from the best authorities. Mr. La Mont, who has been engaged many years in the manufacture of cheese in Tompkins county, New York, raises forty tons, dry weight, of good corn-fodder on five acres at one crop. He finds this corn-hay equal to that made from timothy or herds-grass; while the yield being eight tons to the acre, is four times larger on any given surfaces. In three-fourths of the counties of Tennessee, by planting the earliest varieties of corn, two crops for fodder can be raised in succession on the same land within six months. This is impracticable in all the northern states, and as they all find corn, hay, and green blades and stalks the cheapest feed for dairy cows, it is easy to see that our cotton climate, properly understood and utilized, will keep more cows to the acre, and yield more milk, butter and cheese to the ten acres or one hundred, than the dairy farms of New York worth \$100 per acre, or those in England worth five times that sum in gold. Milk comes directly from the blood of the ew, and is one form of her blood, of which, strange to say, some cows have given sixty pounds in twenty-four hours. Such cows are all stomach, which is usually very large, as well as its other digestive and assimilating apparatus. The machinery which extracts first-class cheese and butter from green corn-stalks and leaves is very simple and easily managed. Carrots make rich, yellow butter and cheese. Twelve hundred bushels of carrots have been grown on an acre, but 600 may be relied on with fair sea-

sons, good tillage and rich soil. As four bushels of carrots are equal to one of corn for cows or horses, this makes a crop of roots equal to 150 bushels of corn per acre. If it was impossible to raise corn, cow-peas, turnips, cabbages, beets, carrots and pumpkins in Tennessee, or blue-grass and other northern grasses, clovers, Bermuda, and many other southern grasses, we should not commend the industry which may easily transform these cheap articles into cheese worth from twelve to eighteen cents a pound, and into butter worth from twenty-four to thirty cents a pound. Let Tennessee farmers give earnest attention to the production of the best dairy stock—and in what part of the world can better cows be raised? If any northern state has better blood for breeding purposes, surely we can buy and import a few bulls and heifer calves for seed to start with. An enterprising people who have built many cotton and woolen mills, iron works, railroads, and their equipments, need not dread the cost of seeding land to perennial grass for pastures, nor the expense of raising dairy cows, and supplying all the wants of cheese and butter factories. At one of these new institutions a small farmer, whether he rents land or owns it, can sell at a fair price all the milk he can possibly produce, whether it is ten pounds or ten thousand pounds a day. This market for milk creates at once a demand for land and a demand for labor, in a new and profitable industry.

To render the milk a commercial article like good bacon, it requires simply the extraction of the surplus water that exists in this lacteal secretion. It will not pay to transport much water from Tennessee to New York or London; and seven-eighths of milk as drawn from the udder is pure water. If we coagulate the curd dissolved in milk-water by using a little rennet or acid, and press it into cheese, most of the water and nearly all the sugar are separated in whey. Nothing in farming is more chemical in its processes and results than dairy husbandry; nothing more favors a division of labor. One farmer may raise dairy cows as his business, another feed them and send their milk to the factory, which, if large, may be divided into three departments. In one the milk goes into vacuum pans to be condensed by evaporation at a low temperature, and sealed up for exportation. In another department cheese is manufactured, while in another butter is the product. Hogs or cows eat the butter-milk, whey and milk-sugar. Everything is carefully saved and turned to the best account. All the droppings of dairy-cows are husbanded as having value in gold; and so far as bone material is exported in cheese it is replaced in the soil

by the purchase of bone-dust, guano or South Carolina superphosphates. On many a meadow and pasture a spring branch, creek or mountain stream, for irrigation, is quite within our reach in Tennessee. The annual fall of rain in this State, and its distribution through the year, greatly encourages grass culture, dairy husbandry, the formation of bold and lasting springs of cool water, cheap and successful irrigation. The general topography of Tennessee enables farmers to carry water from one level to another, by its own gravitation, in ditches, for fertilizing purposes; and in probably every county hydraulic power is available to pump water in quantity for watering fields and gardens. These, and many other inestimable agricultural advantages really exist, and our people have only to improve, utilize and enjoy them.

But one of the greatest advantages which the State of Tennessee enjoys is the length of the growing season. It will be seen by reference to the chapter on climate, that the average length of the growing season, through a period of twenty-three years, is 189 days. The hardy grasses will grow through nine months in the year on many of the low sheltered valleys in the State, so that the actual number of days in which cattle must be fed wholly upon hay, bran, meal or corn, is very small. This we regard as quite an important element in the calculation of the profits upon dairy products. One of the most practical and successful dairymen in the State, Mr. S. Collins, formerly of Ohio, in a communication upon this subject, says that grazing furnishes the principal food from the first of March to the first of December. In the sale of milk and butter this gentleman estimates the annual profits in the dairy business, near a city, on each cow to be \$100 net, and that over and above the value of the calves raised and the manure made. In regard to the profits in a neighborhood away from a city or a railroad, he says:

“In that case the cost of hauling the produce raised to a shipping point is quite an expensive item. The cows could consume these products and furnish in their stead butter and cheese. A very ordinary cow will produce two hundred and fifty pounds of butter, or five hundred pounds of cheese annually. For the next twenty years first-class butter will sell at not less than forty cents per pound, and cheese in time will become one of the staple articles of all classes. In this case the butter would pay one hundred dollars to the cow, and the cheese seventy-five, besides the butter-milk and whey for the rearing of hogs would amount to quite a sum.”

“I do not,” he continues, “propose to make the calculations in detail. The farmers of Tennessee should investigate this branch of industry. If they could see, as I have seen in the dairy districts of Ohio and New York, such prosperity and wealth as abound there with the increased fertility of the soil, they would not hesitate one moment, but speedily go to work and make this the great dairy state of America. A cow can be raised and fed for one-third less here than in the dairy districts of Ohio and New York. The growing seasons begin here so much sooner, and continue so much later in the fall; the winters are so much milder and shorter, that Tennessee has overpowering natural advantages over the states named. Cool springs are numerous. I have seen as fine, firm butter made here in the spring-houses in the hottest days of summer as I ever saw made in the north. There is no question better settled in my mind than this, that if any noted family of milkers, such as Devons, Ayrshires, or Alderneys, were brought here and bred for twenty years they would greatly increase in size and in the flow of milk. Gen. Harding, a breeder of note, has a family of Alderneys which he has bred on his farm for years. The largest cows of that breed I have ever seen, came from his farm. It may be asked, what has climate to do with increasing the size of a cow? Just this: If we sow rye and barley early in the fall, we have good grazing almost the whole year. The young calves are sure to get their share, and this has a powerful influence on the growth of any animal, and when continued for years the size of the lacteal ducts are increased from constant distension, and a consequent increase in the flow of milk. There is not a milkman in Ohio but will say that cows increase in their milk as soon as they are turned upon the green grass in spring. The cows may have been fed their fill on bran, slops, hay, cooked or raw carrots, etc., but green grass will produce the greatest flow of milk. I do not say that the milk is altogether as rich, quantity for quantity, but the amount of butter will be greatly increased, for the quantity of the milk will more than compensate for the slightly increased deficiency in richness.

“The inducements for entering upon this special department of farm economy in Tennessee are very great. The changes that would be wrought would be of the most beneficial character. By entering into dairy husbandry, the farmers would not only increase the fertility of the soil, and make the State prosperous and wealthy, but the whole aspect of this country would be changed. Old wornout fields would be converted into green pastures and their former fertility restored;

the productive wealth of the State would be doubled, and happiness, peace and calm enjoyment would take the place of the worry, vexation, uncertainty and discontentment of the present course of farming. Nor is this the dream of a theoretical visionary. The dairy business is not of recent origin. It is a branch of agriculture that every farmer knows something about. Every family has a cow or a few cows to furnish milk and butter for domestic use. By increasing the number and converting all the products of the farm into butter and cheese, they save transportation, assure a ready market, and build up a prosperity impossible, when all the products of the farm are shipped from the farm upon which they were raised. In New York and Ohio, the most successful farmers are those who thus dispose of their products. Their farms are in better condition. Their bank balances are on the right side. And yet these farmers live in a more rigorous climate than this, and where the cost of a pound of butter is one-third more than in Tennessee. Double the profit can be made in this State that can be made in Ohio. In illustration of this, I will simply mention the fact that during the winter of 1873-4, I killed a beef every two weeks, and they were fat and good, as many men from Ohio, Indiana, Illinois and Wisconsin, who stopped with me, can testify. Now, these beeves did not eat one grain of corn during the entire winter, and had only occasional feeds of hay, and that when snow was on the ground. I state this to show how easily we winter cattle here. If the farmer wishes to soil his cows, he has two or three months longer to soil-feed from."

Such is the testimony of one of the best dairymen in the State, as to the natural advantages which Tennessee offers for the dairy business. Around Nashville, there are about forty dairies. Sweet milk sells for eight and a third cents a quart; butter-milk fifteen cents per gallon, and good butter forty cents per pound. A cow that will give six hundred gallons of milk annually, which is a small estimate, will bring in two hundred dollars, and upon the supposition that it will require half this amount to feed her and market the milk, there will be realized one hundred dollars net.

Now, in the State of Vermont, where cows have to be fed six months in the year, and where the facilities for getting milk to market are equally as good as in the State of Tennessee, we have this statement furnished by one of the dairymen of that State, in which it will be observed there is no milk sold, probably for want of a market. The cows were a mixture of natives, Devons, Durham and Jerseys, and were in number twelve. In June, it took twenty-two pounds of



milk to make one pound of butter, and towards the close of the summer twenty-one, and in winter twenty. The skimming was done twenty-six to twenty-eight hours after straining. And here is the account kept by Mr. Drew with twelve cows :

	<i>Creditor.</i>
Sold 2450 lbs of butter for.....	\$1,152 02
Used in family 186 lbs, worth at 35c.,.....	65 10
Sold calves, pigs and pork,.....	120 00
Pork salted, 500 lbs at 7c.,.....	35 00
Killed one calf worth.....	5 00—\$1,377 12

	<i>Debtor.</i>
Cost of meal feed to cows,.....	\$ 197 00
Cost of meal feed to hogs,.....	10 00
Paid freight and express on Butter,.....	60 00— 267 00
	\$1,110 12

Leaving \$92.50 per cow to pay for work, hay and pasture.

It will be seen that the profits in the State of Tennessee are over twice as large, while the superior advantages of milder weather will make the business far more agreeable here than in Vermont.

From Memphis, we have the following statement from a very reliable and intelligent gentleman. He says, in response to our letter of enquiry :

“There is almost an unlimited demand in Memphis for good milk and good butter. Dairying, properly managed, not including a third of the minutiae, expense, etc., common in the eastern states, is here a very profitable business; so much so, that one Italian who commenced poor, is now a wealthy merchant and owner of a number of fine brick houses—all made since 1860, and nearly all from profits on his dairy.

“There are about thirty-six dairies around Memphis, the largest of which has about one hundred and fifty cows in milk. The trade is wholly local, and not one pound of good fresh butter is made to the one hundred demanded by the local consumers. The price of butter ranges from forty-five to seventy-five cents per pound. There is usually great carelessness in its manufacture, yet even this inferior article averages fifty cents per pound.

“I cannot imagine a more lucrative prospect than that promised by a butter factory located near the city, with the necessary fixtures,

spring-water, capital, knowledge of and attention to business. Milk sells at fifteen cents a quart, or from forty to fifty cents a gallon, and this is usually considerably diluted with water. The cows are turned upon the commons, except in the dead of winter, to make their own support from the spontaneous growth of grass. The native cattle is almost wholly used, there being a strong prejudice against the importation of the Short-horns from the blue-grass region of Kentucky. These fine cattle treated, or mistreated, as they are here, are not healthy. Confinement does not agree with them, and their digestive apparatus is not equal, under our hot suns and with our muddy water, to the task of reducing our coarse garbage and herbage to milk, butter and a healthy animal economy."

Around Knoxville, the dairy interest is assuming considerable importance. The influx of many northern gentlemen has given a fresh impetus to this department of agriculture, and we doubt not that in a few years Knoxville will be the center of one of the greatest cheese-producing regions south of the Ohio river. The rich valley lands, sparkling springs, moderate climate, and ready markets, all point out that division of the State as pre-eminently suited to dairy husbandry. Even now, butter forms one of the staple products, and its manufacture is regularly increasing. The shipments of this article from the stations along the East Tennessee and Virginia railroad during the year ending June 30, 1873, was 346,819 pounds, of which over 25,000 pounds were shipped from Knoxville.

As the profits of this business depend greatly upon the richness of the milk as well as the quantity, we append a table showing the relative value of the milk of the different breeds of cattle. This table is the result of carefully conducted experiments made in England a few years since, and is exceedingly valuable to those intending to embark in this business.

#### MILK OF DIFFERENT BREEDS OF CATTLE.

##### NO. 1. FEED—GRASS AND HAY ONLY.

Pure Brittany cow's milk.....	19.27	per ct. cream.
Pure Jersey.....	18.65	" "
Pure Durham.....	15.32	" "
Pure Ayrshire.....	13.47	" "
Pure Devon.....	11.87	" "
Cross between Jersey and Durham.....	17.95	" "

No. 2. FEED—GRASS, HAY, ONE LB. LINSEED CAKE.

Brittany cow's milk.....	20.00	per ct. cream.
Jersey.....	18.98	" "
Durham.....	16.02	" "
Ayrshire.....	14.14	" "
Devon.....	15.31	" "
Cross breed.....	18.21	" "

No. 3. FEED—GRASS, HAY, BREWERS' GRAINS AND ONE MEASURE CONDIMENT.

Brittany cow's milk.....	20.00	per ct. cream.
Jersey.....	18.62	" "
Durham.....	16.09	" "
Ayrshire.....	14.09	" "
Devon.....	16.07	" "
Cross breed.....	18.84	" "

No. 4. FEED—GRASS, HAY, MEAL AND FEED EXTRA.

Brittany cow's milk.....	22.00	per ct. cream.
Jersey.....	20.00	" "
Durham.....	17.95	" "
Ayrshire.....	13.94	" "
Devon.....	15.09	" "
Cross Breed.....	19.05	" "

No. 5. SAME FEED—BUT CHANGE IN PROPORTION.

Brittany cow's milk.....	21.50	per ct. cream.
Jersey.....	19.08	" "
Durham.....	18.56	" "
Ayrshire.....	14.84	" "
Devon.....	17.00	" "
Cross Breed.....	18.60	" "

To sum up the advantages which Tennessee offers as a dairy district, we have :

1. Comparative cheapness of pasture lands, being about one-fourth the price of those of the same quality in Ohio and New York.
2. The adaptability of these lands for the growth of the various grasses—among others the celebrated Blue-grass of Kentucky.
3. The length of the growing season.

4. The mildness of the weather and the short time that cattle have to be housed and fed.

5. Active demand at high prices for all dairy products, and the regularly increasing consumption of them.

It may not be generally known that the value of the dairy products in the United States is as great as that of the cotton crop. The following figures, taken from the census report of 1870, will show the enormous proportions to which this business has attained. In a comparison of its value with the cotton crop, we have put butter at thirty cents and cheese at twelve cents per pound, and milk at thirty cents per gallon :

*Comparison of the Value of the Dairy Products of the United States with the Value of the Cotton Crop for 1870.*

DAIRY PRODUCTS.

Butter, 515,092,683 lbs. at 30c.....	\$154,527,804 90
Cheese, 53,492,153 lbs. at 12c.....	6,419,058 36
Milk, 235,500,599 gals. at 20c.....	47,110,119 80
	<hr/>
Total value dairy products.....	\$208,056,963 06

COTTON CROP.

Bales, 3,011,996@450 lbs to bale, would be 1,355,498,200	
lbs at 15c.....	\$203,324,730 00

Showing the value of the former to exceed the latter by \$4,712,233.

In 1870, Tennessee reported 9,571,069 pounds of butter, 142,240 pounds of cheese, and 415,786 gallons of milk sold, which, at the prices above given, would amount to \$3,071,545.70. The cotton crop of the State for the same year was worth \$12,274,335. If the same ratio was preserved in Tennessee that obtains for the United States in relation to these two products, Tennessee would have to increase her dairy interest by nearly \$10,000,000.

The value of the dairy products in the United States is considerably more than half the value of all slaughtered animals, and is over two-thirds the amount of wages paid to farm hands, including board.

The state of society in the south has been such that but little attention has been paid to this branch of agriculture, and many farmers are unacquainted with it as an element of wealth and prosperity. It has always been classed with the smaller industries, but in the aggregate value of its products, the dairy interests overshadow every other farm product. With such advantages as Tennessee presents, it will certainly, in the near future, become one of the great dairy districts of America.

## CHAPTER XI.

## GRAPE-GROWING IN TENNESSEE.

Perhaps in no direction has a greater forward movement in our State been made during the last decade than in the cultivation of the grape. The admirable adaptation of the soil and climate to the raising of this product was in a great measure unknown, or neglected, until after the great social revolution which the war occasioned, and our farmers began to consider the feasibility of cultivating a crop that would combine the profitable with the pleasant, and in a measure dispense with the steady, hard toil demanded in the cultivation of cotton or tobacco.

One of the first efforts to grow grapes in this State was made by Mr. P. F. Tavel, a native of Switzerland, who came to the county of Stewart in 1844, bought land, and afterwards returned and brought out his family in 1845. During the fall of that year he set out two acres of grapes upon Lick Creek, two miles from Dover. The varieties he planted were imported, and they failed to do well. In only one or two years out of seven or eight was there a full crop, but it was observable that the vines which were pruned closely did not do so well as those which were suffered to run upon trellises, and the European plan of close pruning was believed by Mr. Tavel to be a disadvantage to the vine on our rich virgin soils. The attempt was finally given up, and the impression made that our climate was not propitious for the growing of this excellent fruit.

Some ten years afterward a few enterprising persons in various parts of the State were induced, after inspecting the vineyards around Cincinnati, or hearing of the wonderful success of Mr. Longworth, to plant a few vines of the Isabella and Catawba varieties.

Among these early pioneers we may mention Mrs. Rebecca Dudley and Mr. James Clark, both of Montgomery county. No history of grape culture in the State can be written without making honorable mention of these two persons, who, long before grape-growing or wine-making was thought possible in our State, planted and successfully managed several acres of vines, and made wine, that by reason of its excellence and flavor soon became famous throughout the country. The varieties they planted, however, were not well suited to the latitude, and the frequent failures of their vineyards induced the belief that Tennessee could never be made a grape-growing State. For a time they were even discouraged, but eventually, from some circumstances not necessary to detail, Mr. Clark was led to believe that his frequent failures did not arise from the nature of the location, soil or climate, but from the unsuitableness of the Isabella and Catawba to our latitude. Acting in this belief, he tested some new kinds and found that they did well, among others the Ives Seedling and Concord. These he subsequently planted altogether and abandoned his old vineyard. Several other vineyards in the meanwhile were planted in the county, and many new varieties tested. Among the most fruitful of these are or were owned by N. F. Hood and P. H. Porter. Hon. O. P. Temple, of Knoxville, A. Severin, of Chattanooga, A. Cox, of Pulaski, and T. S. Barbour, of Shelby, also richly deserve the name of pioneers in the growing of the grape.

We propose to give in this chapter, as far as we may be able, some account of the vineyards in the various divisions of the State.

#### GRAPES ON THE HIGHLAND RIM.

Clark's vineyard is planted upon a spot of ground that had been turned out on account of its exhausted fertility; it occupies an elevated situation in Montgomery county upon the north bank of Red River, one of the tributaries of the Cumberland. The land is rolling, and has a red, gravelly subsoil. The whole rests at a considerable depth upon blue limestone. Geologically, it belongs to the coral or Lithostrotion bed of the Carboniferous. The land, before its exhaustion, was well adapted to the growth of wheat, corn and tobacco, and had been alternated with these crops until its sterility was so great as to render their culture no longer remunerative.

Two acres of this land were set out in the month of April, 1869, in grape vines six feet each way. Potatoes and peas were planted be-

tween, and the vines received no other cultivation than that necessary to make this crop of vegetables, except to keep the grass cleared away next to the vines.

The succeeding year, 1870, Mr. Clark set out four additional acres, seven feet apart, varying the distance more with a view of saving vines and testing the difference in the yield per acre than anything else. He is now impressed with the belief that upon land of moderate fertility, six feet is ample when the training is done on stakes. Upon very rich soil he would prefer a greater distance.

After the vines were set out, which was done by marking off the land the distance before mentioned, and digging a hole at the crossings, into which about a peck of rich light black loam was put, and the roots of the vine covered with about three inches of soil, he planted stakes, which reached about five feet above the surface of the ground, and tied up every vine. The best wood for stakes is cedar, or black locust. Higher than five feet is not to be desired, as in that case they are apt, in wet seasons, to be blown about by the wind to the great injury of the vine. Hickory bark is used for tying—the bark being kept to its proper height by nails driven under it.

This vineyard is planted exclusively with the Ives Seedling, which, Mr. Clark is of opinion, is decidedly the best wine grape that can be grown with us. When the whole vineyard comes into bearing, he expects to get on an average at least 500 gallons to the acre.

In the making of wine, he uses an ordinary cider-press, putting the bunches in whole. The expressed juice is put into nice, clean barrels and stowed away in a cellar for fermentation. Care is taken to keep the barrels full and the bung-hole loosely closed.

When it is remembered that all the work on this vineyard is done by one old man seventy-five years of age, except during the season of gathering and pressing, it certainly suggests, in a most forcible manner, suitable employment for the many persons in our State who, either from feebleness or misfortune, can find nothing remunerative to engage their attention.

Hood's vineyard is situated just east of the city of Clarksville, on Red River, and about a fourth of a mile from the corporation. The land slopes slightly to the north and west, and the soil is a clayey loam, a small proportion of which is gravelly. In all essential particulars, it is much of the same character of soil as that of Mr. Clark's vine-



yard, except that much of it is free from gravel. This vineyard covers about seven acres, and about 700 of the vines are six, and 2,200 five years old; the remainder, four years old. They are set six feet by eight, the narrow way being east and west. They are tied to stakes four feet high with bark, and were all pruned in the spring to one bud. Mr. Hood uses the two cane or arm system of training. The vineyard was plowed five times during the summer, and the hoe and fork used once about the vines, requiring the work of two hands, who also perform the work of summer-pruning or pinching six times.

Unlike the vineyard of Mr. Clark, this has a great variety. We observed the Concord, Ives, Taylor, Clinton, Diana, Rentz, Hartford Prolific and Crevaling. Of these the Concord and Ives are most prolific and most profitable. The Concord is slightly subject to rot, but always yields a good crop. The Ives never rots, is hardy, and always prolific. The Clinton and Taylor are hardy, but shed their leaves through July and August, thereby exposing too much the bunches to the direct rays of the sun. Crevaling does best on loose soil free from gravel. The Diana and Rentz are both hardy, the first superior in quality. The Rentz is not well flavored, and is chiefly valuable for coloring matter. The wine is very dark, and is used to give color to lighter wines. The Hartford Prolific is a good early grape, but not desirable for wine. The Taylor makes the finest wine, but yields too scantily to be profitable. The next best for wine are the Ives and Crevaling. Mixed with the Concord, the Ives makes a very superior wine, and one much sought after in the wine markets. From the Concord, wine of two colors may be made. Pressed before fermentation, the wine is white; after fermentation, a rich, bright red.

We have rarely seen anything in the way of vineyards approaching the productiveness of Mr. Hood's. His older vines averaged over twenty-five pounds of grapes in the year 1872, and the bunches were compact, free from rot, well shouldered, and positively beautiful. This productiveness is doubtless attributable in a great degree to the care, good culture, and intelligent pruning given them by Mr. Hood. The late frosts injured the crop of 1873. From his vineyard he made, in 1872, nearly seventy barrels of expressed juice, each barrel holding forty gallons. In addition to this wine, he shipped from his vineyard several hundred boxes of grapes to the various markets north, realizing from this sale a sufficient amount to cover all the expenses of extra labor.

Porter's vineyard is also on the banks of Red River, two miles east

of Clarksville. It has an elevation of 500 feet above the sea, is open to the north winds, and the soil, in all essential particulars, is the same as that upon which the vineyards before mentioned are planted. In response to our enquiries concerning his vineyard, and his success, Mr. Porter says:

*“Secretary Bureau of Agriculture:*

“In obedience to your request, I propose to give in detail my experience in the cultivation of the grape, feeling well assured that it will in time be one of the leading industries of the State. Soil and climate mark the State of Tennessee as well suited to the growth of this delightful fruit, and the only drawback to its culture is the limited demand for wine. For twelve years past, I have been experimenting on a small scale in the culture of fruits in general, and of the grape in particular. My location might be called hilly, for it would be very difficult to find a level spot on my premises. Soil, a tenacious, gravelly clay; have no trouble in finding gravel and stone to make all necessary roads. Underlying this is plenty of limestone. My first planting was red and white Catawba for family use, these being the only grapes of which I had then any knowledge (except the Isabella, which with us is worthless). These vines were planted around my garden and on the border, and have had good crops for several years. In the spring of 1862 I ordered from St. Louis two each of Delaware, Herbemont, Taylor, Hartford, Union, Village, Concord, and Norton’s Virginia Seedling; also, some cuttings of Norton’s Virginia, which I grafted on wild unfruitful vines. From these grafts I had a good crop the ensuing year—from one vine seventy-five bunches. From these vines I made cuttings and layers, and during the next three years planted one acre lying on a hillside with southeastern exposure, rows running east and west, eight feet wide and six feet apart in rows. These I have since trellised with number ten annealed wire, three wires to the row, bottom wire two feet from the ground, second eighteen inches above, and third eighteen inches, making trellis five feet high. Good cedar posts, twenty-four feet distant, end parts well set in the ground and braced from inside; wires drawn tight, supported by one nail in each post; drawn half length in post and bent over. This trellis has borne three heavy crops of grapes without any repairs. Cost per acre for wire about sixty dollars. I think this trellis, if well put up, will endure twenty-five or thirty years, and though more expensive at the outset, will, I am satisfied,

be found more economical in the aggregate, should it last only ten years, than the single stake system. The cultivation of these vines consists of one plowing in early spring with shovel plow to loosen the soil, and hoeing to cut the grass in the row of vines. After that the cultivator is used about once in two weeks to keep down weeds and grass and keep the surface soil loose.

"I prune pretty closely at any time in pleasant weather from the first of November till the first of March. To summer pruning I am opposed, believing that the grape when near maturity requires the shade of its own leaves to protect it from the hot sun of August and September. Where the vines grow luxuriantly, (and they frequently meet across eight-foot rows) I throw them across the top of the trellis, where they form a good protection to the grape against the summer heat. Where unprotected by this shade, I have had the upper branches scalded, as if laid on a hot stove.

"Of varieties, time of ripening, and qualities, I will here speak of such as I have tried.

"*Concord*. Hardy, very prolific, ripens very uniformly from about the 10th to the 15th of August, has had neither rot nor mildew, has fine showy bunches, good for the table, and makes a pleasant red wine; a rapid grower; will bear a good crop the third year from planting with fair cultivation.

"*White Catawba*. Ripens with above, rather thick skin, very sweet, somewhat pulpy, a regular bearer, hardy, a good grower, not quite so prolific as Concord; and mixed with Red Catawba, I think very much improves the flavor of the wine.

"*Araph* (white). Very much resembles White Catawba, bunch rather smaller, thin skin and less pulp.

"*Rogers, or Rogers' Hybrid No. 28*, (white). Fine, large berry and bunch, bears well, and has a delicious flavor.

"*Martha*, another white grape. My vines, young, bore a few bunches past season. I am much pleased with it.

"*Salem*, another Rogers' Hybrid.—Vines bore a few bunches past season; promises well.

"*Herbemont*. Said to be a superior wine grape; too tender for our climate. Mine were killed root and branch.

"*Delaware*. Perhaps the most delicious of all our native grapes; hardy, a slow grower while young, tardy in coming into bearing, re-

quires better soil and culture than any other grape, but in its fourth or fifth year will richly repay the labor and time spent on it; wood very firm and difficult to propagate from cuttings in open ground.

“*Creeching*. Drops its leaves; not worth planting.

“The above ripen about the same time, and can be used together in making wine, and, properly mixed, adding to its value.

#### LATE GRAPES.

“*Norton's Virginia Seedling*. Propagated only by layers; difficult to grow, (I have lost more of these in transplanting than all other varieties;) a rapid grower; when started, rather capricious in bearing, sometimes yielding an immense crop, at other times almost nothing; makes a very astringent red wine; highly praised by some; when thoroughly ripe, pleasant, acid; berry small, bunch large. The must of this grape possesses more body than that of any of the preceding varieties, by fifteen per cent., by Oisheu's scale.

“*No Name*. This grape I found growing here twelve years ago, and do not know its name or origin; wood short-jointed, firm; difficult to propagate from cutting; exuberant grower; buds out very late in spring, thereby escaping spring frosts; bears profusely; berry, black, small; bunches very large, shouldered, and the most compact I have ever seen; fine flavor; ripens about with Norton's Virginia, August 1st to 15th of September, and makes a beautiful brown wine of great body. I am so pleased with this grape that I wish to plant, as soon as I can raise the vines, five to ten acres of this variety alone.

“And now for the celebrated *Ives Seedling*, of which we have all read and heard so much of as a wine grape. I have between six and seven acres planted. A portion of these bore the past season—their third season from planting. They are at least one year longer coming into bearing than the Concord, and I do not think they will yield as many grapes per vine, but they are hardy, healthy, easily propagated, and will give satisfaction. I have not made wine from them alone, (not having sufficient the last season to fill a cask) but by a test with the saccharometer, find very little variation in the must from that of the Concord. The Ives colors earlier than the Concord, but in their

period of ripening there is little difference. As a table grape, I think it inferior to the Concord, possessing more acid, which may probably be in its favor as a wine grape.

“Besides these named varieties, I have perhaps a dozen or two others on trial, of the merits of which I cannot speak at present from experience. I have been making wine for the past five or six years as an experiment, without any previous knowledge of the business, sometimes using sugar and sometimes without, and believe our State as well adapted to the growth of the grape, possessing as good wine qualities as any east of the Rocky Mountains. We do not expect to compete with California, for there they can grow all the foreign grapes, which we cannot, out doors. Is it profitable? I believe that I can produce, on an average, 500 gallons of wine per acre, and can make more money with wine at fifty cents per gallon than with tobacco at \$15 per 100 pounds. Besides, the greater portion of the work is light and pleasant. Many may not wish to make wine, but every one is fond of grapes, and can raise them cheaper than almost any other fruit.

“P. H. PORTER.”

#### GRAPES IN THE CENTRAL BASIN.

Cox & Dunlap's vineyard is one of the most extensive in the State, embracing thirty acres, and is situated within one mile of Pulaski, upon an elevation 300 feet above the town, and commands a fine view of the surrounding country. The soil is a black loam, exceedingly fertile, of the depth of sixteen inches, and has a large number of black cherty rocks intermingled with it. Its great fertility may be inferred from the fact that its original growth was black walnut and wild grape vines.

The first preparation which Messrs. Cox & Dunlap gave the land was plowing and subsoiling to the depth of twenty inches, thereby insuring a good drainage, which is all-important in a vineyard. They then visited the vineyards in Ohio, where they spent some time in gathering all the information they could in reference to the grape and its manufacture into wine. This was in 1867. The same winter they purchased 2,000 vines one year old, of the Ives Seedling variety, at \$125 per thousand, besides a large number of cuttings at about \$20 per thousand. They included in this last purchase all the varieties grown there, in order that they might test each variety and ascertain

those best adapted to the soil and climate of Middle Tennessee. With these they set out eighteen acres, and have since that time raised a sufficient number to plant out twenty-one acres more.

Of the original eight acres about four are in Ives Seedling; the remainder is divided between the Concord, Norton's Virginia, Hartford Prolific and Diana. The last, Mr. Cox thinks, is by far the best table grape, but is not such a sure crop as the Ives Seedling, Norton's Virginia, Hartford Prolific or Concord. He has no confidence in the Catawba; and the Isabella rots so much that he hardly thinks it is worth planting. Of all the varieties the Ives Seedling rots least, and next to it the Hartford Prolific and Norton's Virginia. The Concord is an excellent variety, but not such a good bearer as the Ives. The Delaware he has high hopes of. The order of ripening is Ives Seedling first. It is ready to be worked into wine by the first of August, usually. Immediately afterward comes the Hartford Prolific, then the Concord, then the Diana, then the Delaware, and lastly Norton's Virginia, which is ripening during the whole month of September.

The Ives Seedling is highly recommended as a superior grape for wine. The bright red of the wine and its rich flavor make it a favorite wherever it has been tried. Norton's Virginia also makes a red wine, but the color is deeper. It has a fine flavor, great body, and is much esteemed for its medicinal qualities. The Concord makes a showy, light red wine, but not so good as the others mentioned, though, as answering the purpose of both a table and wine grape, it could probably be made as profitable as any grape grown.

Messrs. Cox & Dunlap have also five varieties of Scuppernong, which they procured from North Carolina, and are giving them a thorough trial. Besides the old Scuppernong, they have the Thomas, Flowers, Sugar and Tenderpulp, and they feel quite sure that these valuable varieties will do well on an elevated, rocky situation.

All the varieties of grapes, except the Scuppernong, are planted eight feet each way, and trained to stakes, two stakes to a vine. The system of renewal is adopted, and all suckers and shoots are pinched off, except two canes to each vine, which are left to bear the succeeding year. Each one of these canes in winter is carried up one stake and bent over to the other, there being two stakes, one for each cane. The stakes to each vine are placed one and a-half feet apart, and if the vines are properly trained, all the space between the stakes, as well as around them, will be filled with grapes. After the land has been

marked off, one active man can plant out 200 vines a day, and can keep down throughout the year the weeds and grass from eight acres, besides keeping the vines pinched back and suckered. No more cultivation is required than is necessary to raise a crop of corn, and after the third year, with proper management, each vine ought to yield twenty-five pounds of grapes.

The products of this vineyard for 1872, were 2,500 gallons of wine, and many hundred boxes of grapes, or altogether about 8,000 pounds were shipped by the Louisville, Nashville and Great Southern railroad to Louisville, Chicago, Cincinnati, and other points three weeks in advance of the maturing of the same varieties around these cities.

The quantity of wine made in 1873 was not equal to that made the previous year. The frosts of 1873 materially lessened the yield of grapes, as care was not taken to protect the vineyard by clouds of smoke.

In Lincoln county, on the high rolling ridges that surround Fayetteville, grapes yield profusely. It is precisely the same character of soil as that upon which Mr. Cox's vineyard is planted. Dr. Diemer has for years made the growing of this fruit highly remunerative. Around Columbia and Nashville are some flourishing vineyards.

#### GRAPES ON THE CUMBERLAND TABLE LAND.

By reference to the chapter on soils it will be seen that the soil of this region is almost wholly from sandstone, porous and thin. Elevated 2,000 feet above the sea, this Table Land has a climate considerably cooler than the localities named. It, indeed, has the climate of New York and Pennsylvania. Mr. Rogers, of Beersheba, and E. A. Nathurst, of Tracy City, both of Grundy county, have given considerable attention to the cultivation of this fruit. The vineyard of Mr. Rogers overlooks one of the deep gorges that make such a distinguishing feature of the landscape around Beersheba. The fogs and mists that cover the mountain side in the summer months made the spot unpropitious for grape culture, and his vineyard of several acres proved a comparative failure. On the other hand the vineyard of Mr. Nathurst, situated several miles from the steep escarpments of this plateau, where the land is rolling but not subject to the fogs that rise up from the deep gulfs and lowlands that lie at the foot of the mountain, is highly productive, and produces crops with reasonable certainty every year.

From a five year old vineyard he sold for the year 1872, 3,000 pounds of grapes, averaging nine cents per pound, or \$270 for grapes. In addition to this he made 200 gallons of wine, worth probably \$200. Total income from vineyard of seven-eighths of an acre, \$470. He estimates that the labor cost him \$70, leaving \$400 profit. This land was considered good for nothing except for the underlying coal and tan-bark privileges.

The Swiss who have settled upon the Cumberland Table Land feel greatly encouraged at their success in grape-growing. Nearly every little farm has a few vines, and some of the immigrants have set out quite extensive vineyards. They manufacture the grapes into wine, and after bottling it is sold to visitors. A ready market is the only thing lacking to ensure great success in this branch of husbandry.

#### GRAPES IN EAST TENNESSEE.

From the ridgy character of the lands in East Tennessee, and the possibility of securing any desirable exposure and soil, great expectations are entertained in regard to the future developments of this crop; and the experiments that have been made fully justify these expectations. In many of the counties the grape has been grown with remarkable success.

Stanley and Richey's vineyard is situated four miles east of Chattanooga, on Missionary Ridge, which rises 1,100 feet above the sea. It has an eastern exposure, and embraces twelve acres, five of which are in full bearing. The oldest vines are five years old. The fourth year they bore enormous quantities of the finest grapes. From five acres 40,000 pounds of grapes were sold, of which 25,000 pounds were sold at an average price of ten cents per pound—many of them selling for sixteen cents. These sold in Macon, Georgia, and Montgomery, Alabama, brought sixteen cents, in Atlanta twelve and a-half, and in Chattanooga ten cents. At least 15,000 pounds were lost in consequence of the breaking out of the cholera.

The soil of this vineyard is loose and gravelly, with a deep red clayey subsoil. The gravel extends a considerable depth below the surface. The original growth was hickory and black oak.

The varieties planted are the Concord and Hartford Prolific, the former largely predominating. The former is much more certain in its fruitage, but the latter ripens from two to three weeks earlier, and has



a tougher skin, and for that reason will bear transportation better and will keep a greater length of time.

The vines are trained on horizontal wire trellises, and are set eight feet apart each way, though it is thought that eight by twelve would be better—the vines twelve feet apart in rows eight feet wide.

The grapes of the same variety will ripen in Chattanooga four or five weeks earlier than in Cincinnati. On Walden's Ridge, which rises five hundred feet higher than Missionary Ridge, the grapes ripen two weeks later, but will retain their plumpness and sweetness two weeks longer, on account of the purity of the atmosphere.

Great complaint is made of the want of care in the handling of the grapes by the express companies, and the sale is oftentimes greatly damaged on account of their bruised condition.

All through East Tennessee similar situations may be found. Eastern or southern exposures hasten the maturity of the fruit, but it is thought no other benefit accrues from such exposures. One competent man can superintend thirty acres.

The vineyard of Judge Temple, near Knoxville, though small, is one of the most productive in the State. It is situated near the bank of the Holston, on a commanding eminence, and overlooks the river. The late frosts of 1873 did not affect it. When seen by the writer, the vines were loaded down with rich, purple clusters, which peeped out from their leafy coverts with tempting sweetness. They were sold in the Knoxville market for about twenty cents per pound. This vineyard has several varieties, but mostly Concord.

#### VINEYARDS IN WEST TENNESSEE.

Near Memphis, there are several extensive vineyards which yield bountifully. One of the largest and most productive is owned by C. F. Vance, who says in relation to it:

"I have vineyards about two miles east of this city. Ten acres of Scuppernong grapes and two acres of other varieties, consisting of Concord, Ives, Virginia, Norton's Virginia, Herbemont, Delaware, Goethe, Cynthiana, Hartford Prolific and Clinton. Of these last varieties, about one-half were planted a year ago, and the remainder last fall. They are all thriving and promise well. Fifteen hundred of them stood the heat of last summer, and all survived except two or three.

"This is the fifth year of my Scuppernong vineyard. I lost about one-fourth of the plants set out by the injudicious stirring of the ground about their roots in summer. The ten acres are now doing well. They bore some fruit last summer, and will increase every season from now onward. I think they are better suited to this soil and climate than any other variety. They are never caught by frost, and are not attacked by the insects or diseases that other varieties are subject to.

"I have two vines in my garden about fourteen years old, and they never failed any year to bear fruit; some years more plentiful than others, but always fruit.

"They need no pruning after the first year; all that is needed is scaffolding for the vines to run upon. The vine is of very luxuriant growth, and requires a great deal of scaffolding. I am using trellis wires—No. 9 annealed wire; whether they will do or not when the vines become old, I cannot say. It is an experiment, but well recommended by persons who have tried this mode of training.

"I made this last summer a few kegs of wine out of the Scuppernong grape. The grapes were rather immature when pressed, but the wine is pronounced by good judges excellent. The perfume or 'bouquet' of the Scuppernong wine is very manifest. Some wines have no 'bouquet' at all, but this 'bouquet' is perhaps more distinguishable in Scuppernong than in any other variety. The wine-ether and the 'bouquet' are easily recognized in the Scuppernong by smell. It is a white wine, and worth \$4 per gallon.

"The soil of my vineyard is sandy—the land gently rolling, and well drained by nature. I chose the locality on account of the wildness of wild grapes which festooned nearly every tree in the grove."

B. B. Barnes also has six acres in Scuppernong grapes, half a mile east of the city of Memphis. Vineyard planted four years ago—vines trained on wire, (No. 8) seven feet above the ground. Most of the vines fruited last summer. The land is rolling, with slopes towards the four points of the compass—all slopes equally favorable so far. The vines grow better at the apex of the hills than at the base.

He also has 1000 dwarf pear trees—12 different varieties—four years planted. Lost twelve per cent. by late frost last spring. Bartlett's suffered fifty per cent; Duchess d'Angoleme nothing. Duchess is his favorite, and in future will plant nothing else.

T. S. Barbour, three miles from Memphis, is exclusively engaged in

the culture of the small fruits. The surface of his land is rolling, with southern and northern exposures. Soil black loam, with a hard clay subsoil. The farm embraces fifty acres, ten of which are in grapes, ten in raspberries, and twenty-eight acres in strawberries, besides a few gooseberries and blackberries. He has several varieties of grapes, among others, the Concord, Delaware, Ives Seedling and Hartford Prolific. The two first named varieties are most valuable. These and the Ives Seedling are the best paying varieties. The Ives and Delaware have never rotted, but the Concord sometimes rots badly, and the older the vines the worse they rot. His habit is to plant the Concord every year and to cut down the older vines. The Hartford Prolific is valueless, and rarely ever brings a paying crop. The Ives Seedling ripens about the same time, and in a measure supplies its place. Mr. Barbour has cut down all his Hartfords, believing the effort to raise them is time and work wasted.

The Concords yield about ten thousand pounds to the acre, while the Ives have averaged as high as twenty thousand. Mr. Barbour says he can see no difference in the yield and time of ripening on a northern or southern exposure, if other things are equal, such as soil, cultivation, etc. The price of grapes in the Memphis market for the last three years has been on an average through the season of eight and ten cents per pound. They are shipped to New Orleans, Louisville, St. Louis, Cincinnati and Chicago in large quantities, and a much higher price realized. It will be observed that at the lowest price named, Mr. Barbour realizes \$1,600 per acre from his Ives Seedling, and half that amount from his Concords.

Of strawberries, his main crop consists of Wilson's Albany. They usually begin to ripen about the middle of May, and sell in market for from sixteen to twenty-five cents per quart, owing to supply, quality, etc. Mr. Barbour says the best yield he has ever obtained from an acre was 32,000 quarts, or nearly one hundred bushels. Too much rain or a long continued drouth greatly lessens the crop. In addition to his Wilson's Albany, he has five acres in the Kentucky Late, a few Charles Downings, Jucunda, etc. He regards the Wilson's Albany as the only variety that will bear transportation over rough roads. Currants do not succeed in the latitude and soil of Memphis. It may here be mentioned that Mr. Barbour is the pioneer in berry and grape-growing in the vicinity of Memphis.

There are several vineyards around Humboldt that promise well, as

also in the neighborhood of Jackson. We have no statements from the owners of these vineyards, but it is generally understood that they are small but productive. For certain varieties, the soil and climate of West Tennessee are well adapted, especially for the Scuppermong, which likes a sandy, porous soil and a hot climate.

Several years since, Mr. Severin, of Chattanooga, had charge of a vineyard near that city, which was a model of neatness, and proved highly remunerative. The subjoined communication from his pen gives his method of culture and propagation. It is a plain, practical statement of everything necessary to be learned by any one desirous of entering upon the pleasing occupation of grape culture, as well as the profits that may be expected:

#### ESSAY ON THE MANAGEMENT OF VINEYARDS.

*To the Secretary of the Bureau of Agriculture:*

In reply to the request for information on the subject of grape culture in Tennessee, I will endeavor to present my views and experience in a manner rendered in some degree feeble and imperfect in consequence of a want of readiness in the use of the English language.

I am pleased to perceive the cultivation of the grape is attracting the attention which its importance deserves, as, with the exception of California, the soil and climate of no country are better adapted to wine-growing than the soil and climate of our State. The grape has as yet received but little attention with us: we find a few vines growing, with little culture, in our gardens, or as ornaments on porches; but the cultivation of it on a large scale, aided by science and practiced skill, has been rarely attempted, or has soon been impatiently abandoned. The war, too, laid its desolating touch upon many vineyards which had just begun to reward the labors of their owners. It is unfortunate that few of our people have the inclination, or through the want of means, the ability to test and follow up any experiment of a kind which requires a period of years to develop its intrinsic merit. Such persons are discouraged by every obstacle or providential hindrance, and of course will thereafter condemn and denounce all similar enterprises.

The grape ought to become a great source of revenue to our country, as I am confident that no other fruit can be made so profitable. It grows to its highest perfection in our climate, our burning sun in-

creases the saccharine principle ; and even the pulpy varieties are rendered sweet and palatable, with just acid enough to please the taste. I believe that Tennessee is better adapted to the grape than Missouri or Ohio, owing to our latitude and greater length of the warm season.

In 1859, I sent Mr. Longworth, of Cincinnati, six bottles of Catawba wine, six months old, made from cuttings bought from him three years before. He could not believe that the wine was made of the Catawba, and asked whether I had added any sugar.

*Varieties of Grapes.* There are many excellent varieties suitable to this climate, but too numerous to mention. I shall name only those which I know to be healthy and productive. Some of the imported kinds flourish a few seasons, then, for some unknown cause, they deteriorate, or the vines show signs of decay ; but in other localities they continue to prosper. A better plan is to select some native varieties, which are more durable and valuable than the imported. I prefer employing a few only which I know to be healthy and best adapted to our soil and climate ; such are the following :

*For Table Use.* The Dutch Sweet Water, Black Prince, Red Constantia, and West St. Peter's.

*For Wine Culture.* The Catawba and the Concord. The Catawba is without a rival as to quality, but subject to mildew. I made of it a very superior wine, for which I obtained three premiums. I would recommend to any one possessed of the requisite skill and judgment, to experiment with this and other varieties, and thus be enabled to discover that which is best adapted to his peculiar locality.

*Soil.* Since different plants require soil suited to their individual wants, it is necessarily of the highest importance to select for the grape such soil as is best adapted to its nature. The tendency to disease, the prevalence of destructive insects, and an inability to mature the fruit, may all be traced to the soil. I consider a soil rich in carbonate of lime, and having a slope towards the south-east, as preferable ; besides this, it should be a rich, sandy soil, high and dry. If not naturally dry, it should be made so artificially.

*Cuttings.* In selecting cuttings from vines, care should be taken, so that they may not be too massive ; they should have at least five short joints, a small part of the old wood being left at one end. After being tied up in bundles, they must be put in dry ditches, and covered up carefully till planting time.

*Planting.* I plant six by six, two cuttings in one hill. If both grow, I reject the inferior one in the following spring; only one vine should be left. Planting vines six feet apart will give the roots ample space, and leave sufficient room for cultivation.

*Cultivation and Pruning the First Year.* The soil should be stirred around the young vine two or three times during the season. I would recommend the two-pronged Yearman hoe and the plow to keep down weeds. In the fall, I take away two inches of earth from around the vines, so that the frost may kill the eggs of insects imbedded in the soil.

*Pruning the Second Spring.* During January and February, I observe whether the vine has not been injured by insects, such as the pulp-worm or grape-borer. I drive a stake nine feet long freely near each vine; then cut down the plant to two joints or eyes (for safety take off one afterwards). Replant, if necessary, from a hill where two are growing; replace the soil previously removed. During the summer, pinch off lateral shoots and suckers; tie the vine to the stake; keep off insects, and hoe down weeds.

*Pruning the Third and Fourth Year.* Notice whether there is any damage by insects, prune at the same time as in the second year; but it now requires good judgment, since the standard-bearing stalk has to be selected and established. I select for this a healthy, but not too massive stalk, with joints close together, cut it down to six or twelve joints, according to the vigor of the vine and strength of the soil; another cane I cut down to a spur of two eyes, and raise the cane for bearing next year. I cut off branch roots three inches below the surface so that the summer showers may not cause a too rapid growth of the wood. I have the bearing vines made in semi-circular bows, with three ties to the stake. This should be done carefully. I prefer low training, to have the crop ripened equally for wine culture. There are many methods of culture, each of which has its advocates. Pruning properly performed, and in the right season, is of the highest importance to keep the vines under proper control; but excessive pruning shortens the life of the vine. After two bearings and prunings I have always relaid the vines, to give the young roots a new area; it will keep up a healthy and young vineyard. This climate and the native grapes differ so much from those of Europe, that every intelligent vine-dresser will have much to learn by observation and experiment.

*Summer Training.* I remove the young shoots from around the crown, replace the soil as before stated in the second year. I have no

work done when the vines are blossoming, the seed is "stoning," or the fruit ripening. I tie the bearing branches neatly to the stakes to allow the drying winds to blow through them, remove such lateral shoots as seem to be unnecessary, to strengthen their growth without taking any leaves from the fruit-bearing wood. I also carefully remove all insects. In August, when the fruit has turned and the wood is ripe I have the vines topped to admit the sun's rays. This is the last labor. Summer pruning should not be too close nor too long deferred. Cleanliness around the vine is also of much importance.

*Insects.* It would require much time and space to enumerate the various insects that are destructive to the grape. I will name only a few of the most common.

One very destructive to the young plant is a red, brownish worm, three-quarters of an inch long; it feeds on the pith of the cutting and destroys it. In this case the cutting will sometimes take root only on the first eye below the surface, and grow for a few years, and will bear hardly any fruit because it has not a tap-root, and is therefore worthless.

Another enemy to the vine is the grape-borer, or wood-sawyer. If allowed to become domesticated it will, in some seasons, destroy a whole vineyard. It gnaws into the main-trunk root four inches below the surface. Its presence is seen by the general aspect of the vine, which seems to droop, the leaves turning up-side down, and on pulling the vine the soil will be seen to yield. This worm must be watched for, and destroyed whenever it is found.

A third kind is a small variety of the *Carpocapsa Pomonella*; it destroys the vine by depositing its ova. To destroy this I have fires made from the middle of June till July. When permitted to become too numerous it is very injurious, the whole vineyard appears to have the "rust," and as if scorched by fire. It is a good plan to permit free ingress to turkeys, which feed upon it.

The bumble-bee and yellow-jacket are also met with in some localities. When the labor is done and the crop seems certain, these pests commence their devastations. I once observed a bumble-bee destroy twenty-seven bunches of grapes in twenty-five minutes; it went from berry to berry, cutting them open and letting the juice run out. All that can be done is to catch and kill them.

Insects that are injurious to the foliage are:

1. The *Tettigonia* or Vine-hopper. In some seasons, when yet in their first state and unprovided with wings, they cover the entire

leaf, which will assume a blotched and scorched appearance. They are seen in July and August.

2. The Spotted Pelidnota. It is about one inch in length, and of a brownish yellow color. It flies in day-time with a humming sound. As it clings to the leaves it can be easily taken and killed.

3. The American Procris. It is covered with short hairs of a yellow color when in the caterpillar state, and is seen, several together, underneath the leaves feeding upon their substance, leaving only the ribs and stalks.

*Frost.* The great danger threatening all vineyards in the spring is that of frost; the more so because it cannot be foreseen, and it may be encountered at any time, and sometimes as late as May.

In 1859 a heavy hoar-frost visited our neighborhood from the 18th to the 21st of April, and was most fatal to the grape crop, as the shoots were from two to three feet long, and the vine was ready to blossom. I had the whole vineyard under fire so as to produce a smoke. The result was, I saved the whole crop of forty acres, with an outlay of \$25, while my neighbor, Judge Massingale, now of Nashville, lost his whole crop, though our vineyards were not four hundred yards apart.

In conclusion, I beg leave to state that it is not in my power to do justice to this important subject in this short treatise. This branch of industry is yet wholly in its infancy, but it is hoped, in course of time, it will receive the attention which its great importance deserves. To this end it is necessary that all the information, the results of observation and experiment, be gathered from every source and communicated to and disseminated by the State Bureau of Agriculture.

To the above I will add a statement of the amount of labor and expense required in the cultivation of ten acres in grape-vines; also, an estimate of the probable profits of such a crop:

ESTIMATED COST OF A VINEYARD OF TEN ACRES FOR FOUR YEARS.

Ploughing, ten acres at \$10.00.....	\$ 100 00
Harrowing " " 1.00 .....	10 00
Checking off " " 1.00 .....	10 00
Cost of 26,000 buttings at \$3.00 per 1,000.....	78 00
Planting, at \$3.00.....	30 00
Cost of 13,000 stakes, at \$25.00 per 100 .....	325 00
Setting of same, at \$5.00 per acre .....	50 00

\$ 618 00



COST OF LABOR FOR FIRST YEAR.

Wages of one hand for two months, at \$26.00.....	\$	52 00
Ploughing three times at \$3.00 per acre .....		30 00
Removing the soil from the root, at \$2.00.....		20 00
	\$	<u>720 00</u>

COST OF LABOR FOR SECOND YEARS.

Spring pruning, at \$2.00 per acre.....	\$	20 00
Wages of one hand six months, at \$26.00.....		156 00
Taking away soil, at \$2.00.....		20 00
Strings to tie vines, at 50c.....		5 00
	\$	<u>921 00</u>

COST OF LABOR FOR THIRD YEARS.

Expense the same as second year.....	\$	201 00
Wages of wine-dresser six months, at \$35.00.....		210 00
Strings to tie vines, at \$1.00.....		10 00
Extra labor for one month .....		26 00
	\$	<u>1,368 00</u>

COST OF LABOR FOR FOURTH YEAR.

Expense the same as third year.....	\$	447 00
Extra labor of wine-dresser three months, at \$35.00.....		105 00
Wages two hands two months, at \$26.00 .....		104 00
Contingencies .....		100 00
Entire cost.....	\$	<u>2,124 00</u>

An average crop will produce 6,500 lbs. of grapes per acre.

At 13 lbs. to a gallon, this will yield 500 gallons, at \$1.00

per gallon.....	\$	500 00
Or 6,500 lbs. of grapes, at 6c per lb.....		390 00
Hence, an average yield of ten acres in grapes .....		3,900 00
Cost of raising.....		<u>2,124 00</u>

Profit.....\$1,776 00

Or a little over 80 per cent, on cost.

In 1859, I made from two acres in the fourth year, 1,643 gallons of must.

Yield per acre 10,679½ lbs. of grapes

## CHAPTER XII.

## THE HONEY RESOURCES OF TENNESSEE.

Among the many industries that have engaged the attention of the people of Tennessee, not the least is the production of honey. From the first settling of the State, it has been the custom of a large majority of the farmers to secure a few colonies of bees as a necessary adjunct to a well-stocked farm. Bees, it has been well said, "work for nothing and feed themselves," only requiring a small expenditure for hives and a little degree of attention. But in this as in every other pursuit, it is found that the profits are directly in proportion to intelligent management, and though the old system of bee-keeping furnished ample supplies of honey for domestic uses, it was not until the introduction of improved hives, artificial swarming, moveable combs, and mel-extractors, that it was pursued as a separate vocation. At present there are many persons who engage in this business almost exclusively, and whose profits are such as to give reasonable satisfaction. In the year 1850 the number of pounds of beeswax and honey (the beeswax not being separated) reported for Tennessee, was 1,036,572; in 1860 there were of beeswax 98,882 pounds, and of honey 1,519,390 pounds; in 1870, 51,685 pounds of beeswax, and 1,039,550 pounds of honey. The falling off of this product, as shown by the last report of the census in the decade ending in 1870, is doubtless attributable to the devastating effects of the war. At the close of hostilities the number of hives had been reduced fully two-thirds. In many parts of the State scarcely one could be found. But as peace resumed its sway the peaceful arts began to claim attention, and the introduction of all the recent improvements in bee-keeping, as well as of the Italian bee, gave a powerful impetus to this branch of rural industry. The yield of honey has been greatly increased during the past three years, and the yield

for the year 1872 perhaps exceeded that of any previous year in the history of the State. The heavy rains in the spring of 1873 greatly reduced the honey product, it falling far below the average yield for many years. However, the high character of Tennessee honey, made in northern cities by the shipments of 1872, and the satisfactory prices for which it was sold, atoned in some respects for the short yield the following year, and our bee-keepers are more hopeful than ever of the profitableness of this business. Uniting, as it does, pleasure with ease and plenty without drudgery, and opening a field for original and profitable investigations and discoveries, it is growing more and more each year in public favor, and with the natural advantages that Tennessee affords, it will doubtless assume increased proportions as the State becomes thickly populated.

It is claimed by eminent bee-raisers that Tennessee has the best climate and the greatest variety of food for bees of any state in the Union, it having all the forage of the northern states, and all to be found in the southern, while it has some that is not found in either. The White Clover, Golden Rod and Aster are not found in states further south. In the extreme south the honey is not so good, nor are the bees disposed to lay up stores of food, as they can be furnished with supplies outside almost throughout the year. The climate of Tennessee being a medium one, with mild and short winters and agreeable summers, and with the delightful seasons of the fall and spring, makes the State specially adapted to bee-culture. Dr. Hamlin, one of the most extensive and eminent bee-raisers in the United States, says the bees and queens reared in this climate are large, thrifty, and not excelled by any he has met with from any portion of the world. He further says, in a note to the Bureau, that no state or section of country, with which he is acquainted, equals Tennessee in all the departments of bee-culture. We suffer less in the loss of bees in winter, and from those diseases to which they are subject in other localities. Some of most destructive diseases are unknown in Tennessee.

The Italian bees were first brought into this State in the year 1866, by Dr. T. B. Hamlin. They were imported directly from Italy. Since that time they have greatly increased, and 2,000 queens were raised in the State in 1873. Eminent superiority is claimed for this species over the common black bees, and their results are far more satisfactory. They are domesticated; they are what may be called civilized; they are less hostile and more given to the peaceful pursuits of collecting and storing up honey; they are more manageable and less fretful. Mr. Lang-

stroth, whose experience with this species entitles his opinion to great weight, gives the following as their points of superiority:

"1. The Italian bees gather freely from the second or seed crop of red clover, and from other sources of forage not frequented by the common bees. In regions where late summer or fall forage is scarce, this will often make the difference between a good profit and a heavy loss.

"2. The pure Italian bees are much more peaceable than the black bees. The assertion, however, which has been made by some, that they will not sting, is not true; and the crosses between them and the black bees are far more difficult to subdue, if once enraged, than the black bees.

"3. Italian bees gather much larger stores of honey than the black bees. Dzerzon, the great German apiarian, after many years experience, says that the profits of his apiary have been doubled since their introduction, and we have received numerous statements showing that colonies of these bees have in this country secured a generous living, and often a surplus, where common stocks have not gained a sufficiency.

"4. The Italian queens are more prolific and keep their brood more compactly in the combs, than black queens, and their swarms are usually earlier and larger than those from black colonies.

"5. In opening a hive, an Italian queen is much more readily found than a black one, not only on account of her brilliant color, but because the Italian bees are much more quiet on the combs than the black ones, and the queen is less disposed to leave the combs for the bottom board or sides of the hive.

"6. Italian bees are far more inclined to supercede their queens, when past their prime, than the black bees, and colonies are therefore much less liable to become weak and queenless.

"7. The Italian bees are far less disposed to rob than the common kind. The importance of this peculiarity in an apiary where moveable-comb hives are used, will be readily appreciated.

"8. The Italian bees defend their hive against robber bees, whether black or Italian, much more successfully than the black bees. In opening a large number of full stocks and nuclei during several seasons from April to November, we have not lost a single colony from robbery. The experience of Dzerzon on this point fully agrees with our own.

“9. The Italian bees protect their combs from the ravages of the bee moth much more effectually than the black bees.

“10. The Italian bees cling much more tenaciously to their combs than the common bees, so that in handling the combs the young bees which cannot fly do not, like black ones, drop on the ground or upon the person of the operator.

“11. When the position of a colony is changed, the Italian workers acquaint themselves with their new location much more readily than black bees, thus greatly facilitating many important processes in the practical management of an apiary.

“12. Italian workers are much longer lived than black ones, and the queenless colonies therefore do not become so rapidly depopulated.

“13. Colonies of Italian bees can be united during the working season, with far less quarreling than would be incurred in uniting black ones. The first cross between the Italian and black races is far superior to the black bees, which are improved by any mixture of Italian blood. It may also be added that the Italian bee is less subject to casualties and disease than the black bee.

The Italian is fast superceding the old black bee, and will doubtless in a few years drive it out altogether.

Mr. S. W. Cole, of Madison county, Tennessee, one of the most practical and successful bee-keepers in the State, in answer to a letter of inquiry, sends the following communication to the Secretary of the Bureau of Agriculture. It shows the immense advantages that Tennessee presents for the business of the bee-keeper, both in the mildness of its climate, the variety and regular succession of wild flowers, and in the immunity which the bees enjoy from disease.

*Secretary Bureau of Agriculture:*

Emigrants intending to settle in Tennessee would naturally look at its resources from the various standpoints of their occupations, professions, and tastes. The agriculturist would desire information as to the productiveness of the soil, and the various farm products, prices, etc. The miner would look to the mineral wealth of our mountains; the stock-raiser to the adaptability of the country to grass-growing, and the horticulturist to the character of the soil, elevation, freedom from frost, and access to market, etc. It is the intention of this paper to call the attention of the above mentioned class, and all others, to

the "Honey Resources of Tennessee," for the reason that it clashes with no interest or interferes with any other profession, but is freely given to all. The production and sale of honey are fast becoming an industry of no mean importance. As our rapidly-growing cities increase in population, the demand for honey increases, and the fearful rate at which parts of our country are being denuded of forests, and with them many of our choicest honey plants and trees, its price will surely be enhanced. The supply of honey now does not nearly keep pace with the demand, and although the introduction of moveable-comb hives, the Italian honey bee, and the use of mel-extractors, have caused so great a revolution in bee culture that the production of honey is now three-fold more than it was a few years ago—the price has not only kept up, but has steadily advanced. A half-century back, the sale of honey in the United States was hardly thought of. Twenty-five years ago, ten cents per pound was the top of the market, and it was considered dear at that—while now, with the immense amount that is put on the market, the bee-keeper who uses improved methods to obtain his honey, is insulted if he is offered less than twenty cents per pound, and a choice article will now bring double that price. For a number of years, I have made bee-keeping a specialty, and with the improved methods of management, have obtained results which prove Tennessee to be *one of the best* honey-producing states in the Union. Fully fifty per cent of all the bees wintered in the northern states are lost every winter from dysentery and other diseases, caused from confinement of the bees in the hive during the very cold and prolonged winters. Our mild winters in Tennessee permit the bees to fly from their hives, at intervals of from two to three weeks, all through the winter, to relieve their distended bodies of the fæces accumulated from the excessive use of food during cold weather, and they thus avoid the cause of dysentery or bee cholera, so prevalent and so destructive to bees in the northern states. I have not lost one per cent. of my bees during any winter since using moveable-comb hives. In the year 1871, I set apart seven good hives of bees, from which I took no swarms, and used only for the production of honey. The honey was emptied from the combs with an extractor as fast as gathered, and the empty combs returned to the hives to be re-filled by the bees. The following report I made to the North American Bee Keepers' Society, at Cleveland, in December, 1871 :

## HONEY RECORD OF SEVEN HIVES FOR 1871.

*Estimated by carefully weighing, and after extracting, re-weighing and deducting from the first amount.*

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.
April 29th.....	20 lbs.		21 lbs.	21 lbs.			
May 5th.....	20 lbs.	20 lbs.	17½ lbs.	21 lbs.			
" 12th.....	29 lbs.	27 lbs.	29 lbs.	33½ lbs.	33 lbs.	22 lbs.	27 lbs.
" 16th.....	34 lbs.	37 lbs.	31 lbs.	36½ lbs.	42 lbs.	29 lbs.	42 lbs.
" 19th.....	29 lbs.	32 lbs.	28 lbs.	29 lbs.	33 lbs.	24 lbs.	22 lbs.
" 23d.....	23 lbs.	22 lbs.	22½ lbs.	20 lbs.	24 lbs.	15½ lbs.	22 lbs.
" 26th.....	25½ lbs.	22 lbs.	20 lbs.	18 lbs.	23 lbs.	13½ lbs.	29 lbs.
June 2d.....	35 lbs.	25½ lbs.	24 lbs.	19 lbs.	33½ lbs.	20 lbs.	14½ lbs.
" 9th.....	20½ lbs.	14½ lbs.	12½ lbs.	11 lbs.	16 lbs.	12 lbs.	8 lbs.
" 15th.....	7½ lbs.						
August 15th.....	11½ lbs.	10 lbs.	8 lbs.	7½ lbs.	14 lbs.	18½ lbs.	14 lbs.
November 1st.....	8 lbs.	15½ lbs.	2½ lbs.	8½ lbs.	29½ lbs.	7½ lbs.	11½ lbs.
Total .....	263 lbs.	225½ lbs.	216 lbs.	225 lbs.	248 lbs.	162 lbs.	190 lbs.
Total amount, 1,529½ pounds.			Average per hive, 230½ pounds.				

It will be seen from the above that the highest yield from one colony for one day was eleven pounds, for one week seventy-five pounds, and for the whole year, from the best hive, 263 pounds, and an average of 218½ pounds per colony, which I think can be done in any good locality and season in Tennessee. There has been a constant effort made by prominent and interested honey-dealers in the northern states, for years, to represent southern honey as inferior to northern honey. They fear the competition of our more favored locality. Now, the most gratifying result of the above exhibit of honey, was that I shipped 1,000 pounds of it to C. O. Perrine, of Chicago, the most extensive wholesale honey dealer in the country, who reported it as the *best lot of honey he had ever bought*. I have since sent samples to different cities, and am gratified to know that Tennessee honey is everywhere pronounced strictly first-class. For the assistance of those seeking good localities for bee-keeping, I will mention some of our principal honey-yielding plants and trees. It is not a complete list, as very many have been left out as of minor importance, and others have been doubtless overlooked.

*Red Maple.* The first warm south winds in February bring out the myriad flowers of the red maple. It is particularly valuable in affording an early supply of natural pollen for the bees, and induces them to commence to rear brood early. It grows in countless numbers along the branches, creeks, and river bottoms.

*Plum* blooms from March 10th to 20th; is becoming more abundant about old settlements.

*Peach* from March 15th to April 1st.

*Spicewood*, March 30th to April 1st.

*Dogwood*, March 20th to May.

*Sassafras*, March 30th to April 20th.

*Pear, Cherry, Gooseberry*, bloom from March 30th to April 15th.

*Raspberry*, from April 10th to 20th.

*Red Bud*, April 15th to 20th.

*Apple*, April 1st to 25th.

*Willow*, April 10th to 30th, and is a splendid source of bee pasturage with us, growing thickly along all our water courses. This is our first source of honey supply, and I have had strong colonies to store twenty-nine pounds from it during the last week in April.

*Wild Cherry* blooms from April 20th to 30th, and is quite plentiful in some localities, where it gives the peculiar wild cherry flavor to all honey gathered at this time.

*Dewberry* blooms from April 25th to May 25th.

*White Clover* blooms from April 30th, until checked by summer drouth. It is very abundant, seems to prefer moist clay soil; is very variable in its yield of honey. Some seasons the bees seek it eagerly, and in others scarcely touch it.

*Red Clover* blooms from April 30th until midsummer; black bees touch it but sparingly, but the Italian bees work on it freely.

*Alsike Clover* is in bloom from first of May to very late summer, grows vigorously with us on wet clay soils. Its variegated pink and white blossoms are the delight of honey gatherers. A ten-acre field in full bloom on a Sabbath morning in May, with an Italian bee hanging to each blossom, is a sight worth seeing.

*Black Gum* blooms from May 1st to 10th.

*Blackberry* from May 1st to 30th; grows in the greatest profusion everywhere, and yields the most deliciously flavored honey we have.

*Black Locust* blooms from May 1st to 15th. It is a good honey yielder, and will grow anywhere.

*Poplar* blooms from April 30th to May 30th. Undoubtedly this is the greatest honey-yielding tree in the world; some seasons the secretion of nectar is so abundant in the blossoms that it can be dipped out on the point of a knife blade. Tennessee is the home of the poplar; here it attains its greatest size; trees can be found that will measure nine feet in diameter.



*Holly* blooms from May 10th to 20th. This is a splendid honey tree, but is found only on creek and river bottoms; bees resort to it in great numbers during the whole period of its blooming.

*Linden* blooms from May 15th to 25th. Unfortunately is found but sparingly, otherwise would be only second in importance to the poplar.

*Buckwheat*, in favorable sections, can be made to bloom for several months. Our soil seems to be well adapted to its growth, and experiments with it for bees have been highly satisfactory.

*Butterfly Weed* is found nearly everywhere, but in too limited quantities to afford a fair test of its honey-producing qualities. Like buckwheat, it will bloom for several months. We have often noticed the peculiar action of the bees while feeding on it. Instead of passing rapidly over it with eager haste, as they do on most flowers, they crawl slowly over it, then remain quite still for a long time with bodies quite distended. It could be easily propagated, as it seeds profusely.

*Turnips and Mustard*, while in bloom, afford good pasturage for bees.

*Bucker Bush* is found in abundance in some localities, and is valuable.

*Persimmon* blooms from May 25th to June 10th.

*Wild Grape*, from May 25th to June 30th; very abundant.

*Catnip* blooms from May 20th to June 25th; is a splendid plant for bees, and is easily propagated—a few bunches set out on top of any old worn-out hill will soon cover the whole hill, as it spreads rapidly.

*Red Sumac* blooms from June 15th to 25th.

*Corn*. Blossoms are eagerly sought for by the bees early in the morning, but principally for the pollen it yields.

*Honeydew*. We usually have an abundance of this during the latter part of May and early in June. I have seen it so abundant as to crystallize on the leaves of trees. It is an exudation from the leaves—is gratefully received by the bees, and makes a very good honey.

*Peas* of almost every variety yield a considerable amount of honey, but the whippoorwill seems to excel all others as a bee plant—blooms from July till frost.

*Heartsease* blooms from August 1st to September 1st. It is an excellent bee plant, and grows abundantly after corn on good soil.

*Thoroughwort* or *Boneset*, blooms from August 10th to September 16th; secretes honey copiously.

*Asters* bloom from August 15th to October 1st.

*Golden Rod* blooms from August 15th to October 1st. It is very abundant, growing almost everywhere, and in favorable seasons yielding an abundant harvest of beautiful honey.

One peculiarity seen in all our fall honey, is that it has a strong balsamic flavor, very soon granulates in large crystals, and in that state resembles sugar more than honey.

S. W. COLE.

ANDREW CHAPEL, TENN., MARCH, 1873.

Mr. Henderson, of Murfreesboro, writes that his product for 1872, from fifty-four hives, was 3,000 pounds of honey, and in 1873, only 500 pounds, showing how disastrous the heavy rains of 1873 proved to the honey supply.

Mr. A. G. Willey, from the same place, gives us a memorandum of his product for the same years as follows:

1872. From 6 colonies in spring and 10 do. in fall.....	1,200 lbs.
1873. From 10 colonies in spring and 16 do. in fall.....	500 lbs.
The honey was sold at 15 cents per pound, netting .....	\$255 00
Bees sold to the amount of .....	36 00
Queens.....	20 00
Increase of 10 colonies.....	100 00
Amount from apiary for two years.....	\$ 411 00

In Gibson county, West Tennessee, there are seventy-five bee-keepers that will average fifteen colonies each, besides a large number of persons who have smaller colonies. The average for the county is ten pounds for each colony. The price of honey near Humboldt is twenty-eight cents per pound. Mr. Wiggins, a large apiarist, estimates his product to be 3,000 pounds in three years, but a small portion of which is to be credited to the year 1873.

Dr. T. B. Hamlin, of Davidson county, keeps about 300 full stocks, varying for the last five years from 250 to 350. His honey crop for the year 1872 amounted to 7,000 pounds, (5,000 extracted and 2,000 comb); beeswax about 150 pounds; making twenty-four pounds the average for each colony. His product was quite small the following year, owing to causes which we have mentioned.

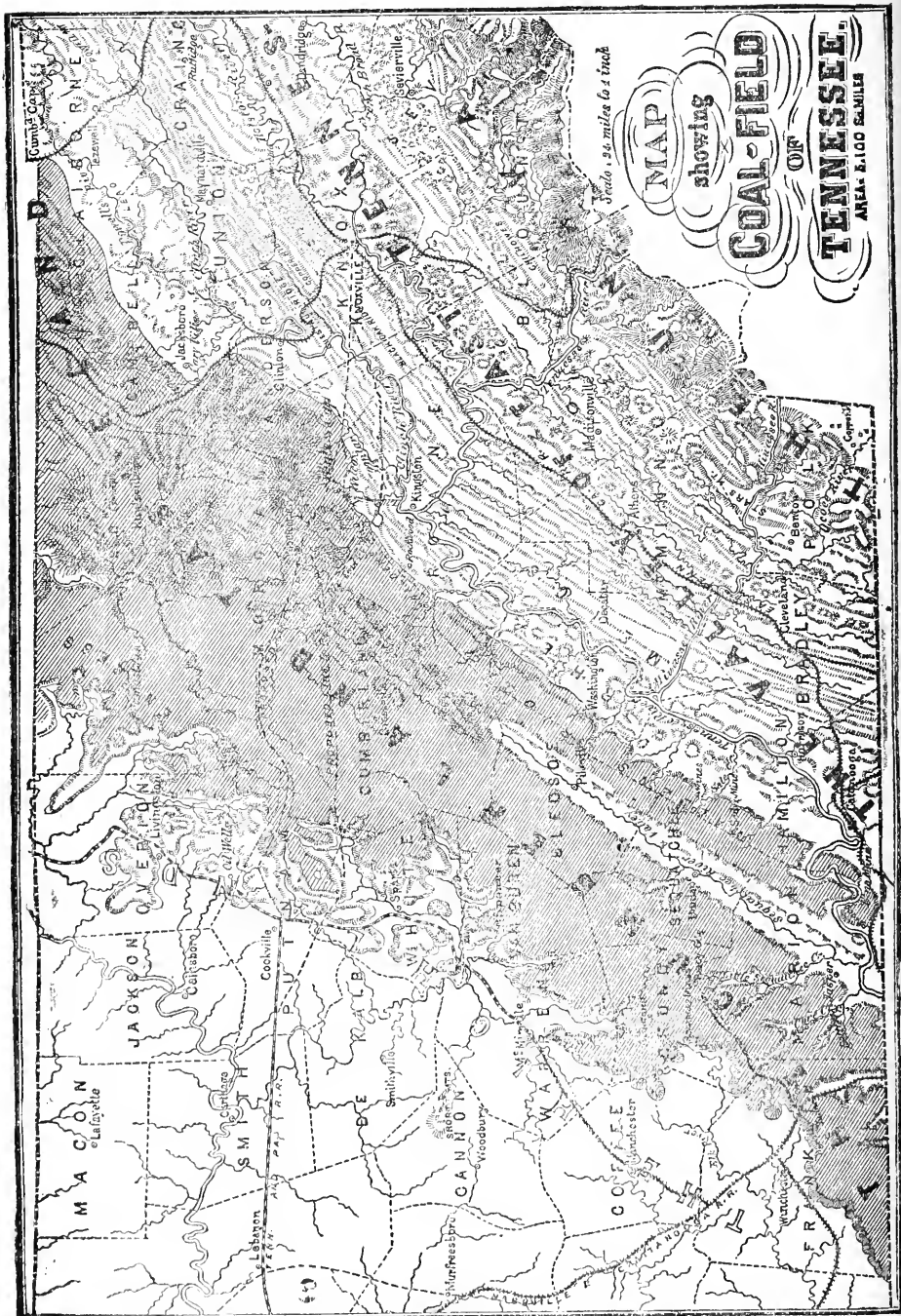
We feel confident that a few years will develop this pleasing business into one of first rate importance among the rural pursuits.

## CHAPTER XIII.

## COAL.

Under the stimulating effect of a brilliant sun, a humid climate and an atmosphere charged with carbonic acid, myriads of ages before man appeared, vast forests, gorgeous in their beauty and dense in their foliage, sprung up in widely extended swamps, flourished for a time, decayed and made thick mats of slimy organic matter. Earthquakes with tumultuous throes upheaved mountains and produced depressions. These depressions were swept over by the huge waves of a stormy ocean, depositing their burdens of sand, gravel and clayey matter upon the vegetable mass. Oscillations afterwards elevated this sand and clay-covered deposit, and vegetable life appeared to be at some remote period again submerged. These processes continued through ages, the deposits of earthy matter weighing down and shutting out from the influence of the atmosphere and the light of day the remains of plant-life, in which condition they were transmuted into coal. Such is the theory of geologists in regard to the formation of bituminous coal, and doubtless a true one, as the same process in all of its stages may be found going on at the present day. Anthracite coal is the bituminous coal coked under pressure and subterranean heat.

By far the most important coal field in America is the Appalachian, extending in a north-east and south-west direction a distance of 875 miles through the western part of Pennsylvania, the eastern part of Ohio, the western corner of Maryland, nearly all of West Virginia, and the eastern part of Kentucky. It crosses Tennessee, and ends near Tuscaloosa, in Alabama. The area of this coal-field, in Tennessee, covers about 5,100 square miles, and includes within its limits the counties of Scott, Morgan and Cumberland, the greater parts of Fentress, Van Buren, Bledsoe, Grundy, Sequatchie and Marion, consider-



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able parts of Claiborne, Campbell, Anderson, Rhea, Roane, Overton, Hamilton, Putnam, White and Franklin, and small portions of Warren and Coffee—twenty-one in all. It is co-extensive with the Cumberland Table Land, the third natural division of the State, and forms an irregular quadrilateral 71 miles wide at the northern end, and 50 at the southern.

This Cumberland Table Land has generally a broad flat top, capped with a layer of conglomerate sandstone, averaging perhaps seventy feet in thickness. This layer of sandstone on the edges of the Table Land forms a steep escarpment or brow, bold, distinct, and well marked from 20 to 100, and sometimes 200 feet high. Beneath this often overhanging brow the steep, woody slopes of the sides begin and run down to the low lands. These slopes below the cliffs usually rest against the lower Coal Measures and upon the Mountain Limestone. The eastern outline of this Cumberland Table Land, as may be seen by the accompanying Map, is a nearly direct line, bulging out in a graceful curve, and taking in portions of Roane, Anderson and Campbell counties. The western edge is jagged, notched by innumerable coves and valleys, and presenting a scalloped or ragged contour, with outlying knobs separated from the main Table Land by deep ravines or fissures. In the southern portion, near the eastern side, is a deep gorge, canoe-shaped, with steep escarpments rising 800 to 1,000 feet above the valley, through which the Sequatchie River flows. This is the Sequatchie Valley, which separates the lower end of the Table Land into two distinct arms. Through the eastern arm the Tennessee River breaks, and after flowing down the Valley, which is an extension of the Sequatchie Valley, for a distance of sixty miles, turns at Guntersville, Alabama, and soon afterward cuts through the western arm fifty miles from the Tennessee line. This Sequatchie Trough is 160 miles in length, the Tennessee end being sixty miles, and the Alabama end one hundred.

The eastern arm of the coalfield, on the western side of which this remarkable Valley passes, is six or eight miles wide. Between the Tennessee River and the Nashville and Chattanooga railroad, it is called Raccoon Mountain. Separated from this by Wills' Valley, rises up in massive proportions, Lookout Mountain. The latter is an outlier of the Cumberland Table Land, and geologically is closely allied to it.

Passing now to the north-east corner of the coal region, we find a quadrilateral block dis severed from the mountain mass by the valleys

of Elk Fork and Cove Creek, the former running northeast and emptying into the Cumberland River, the latter running south-east into the Clinch River. Through this pass the route for the Cincinnati Southern railroad has been surveyed.

The average height of the Cumberland Table Land is two thousand feet above tide-water, but some of the ridges of the north-eastern part rise to a much greater height, reaching at places, as at Cross Mountain, 3,370 feet. The Valley of Cove Creek is 2,300 feet lower than the high points of Cross Mountain. The part of the Valley of East Tennessee contiguous to the mountain is about 1,000 feet above the sea, so that, viewed from that Valley, the Cumberland Table Land stands out with singular boldness and sharpness of outline. Everywhere in the northern part it is marked by a succession of cliffs, elevated one above the other, with intervening wooded slopes. Parallel with the main mountain mass, on the eastern side, and separated from it by a narrow vale, is a steep, roof-like sandstone ridge, with the layers upturned on their edges, and resembling a huge military work protecting the main mountain from incursions from the Valley of East Tennessee, the only access being through a few gaps like that of Coal Creek. This ridge is known as Walden's Ridge. Following this ridge southward, the name is applied to the whole arm between Sequatchie Valley and the Valley of East Tennessee.

We have said that this coal region is sheeted with a thick conglomerate sandstone, but upon this sheet, a short distance from the edges of the precipices, other strata are superimposed, rising in some places 1,000 feet above the conglomerate or general surface, and forming, as it were, mountains upon the top of the Table Land. Cross Mountain is one of these.

In the northern part of the coal region its plateau character is destroyed by these superincumbent mountains. For many miles Cross Mountain, especially in the counties of Anderson and Campbell, forms the eastern escarpment of the main coal region, though Walden's Ridge, which runs parallel with it, contains some coal, but in it the coal always dips at a high angle.

But without going further into details as to the topographical features of this coal-bearing area, we return to its general features, in order that the reader may have a clear conception of it. First swelling up from the lowlands and forming the base of this plateau, is the massive Mountain Limestone, from 400 feet at the northern end to 720 at

at the southern extremity in thickness, extending one-third, and sometimes two-thirds of the way up to the general top. Then come strata of shale, sandstone interstratified with seams of coal, the whole capped by the thick conglomerate before mentioned. These strata between the Mountain Limestone and the overcapping conglomerate sandstone, are called the Lower Coal Measures. The mountains and ridges made up of strata of coal, shale, fire-clay, sandstone and clay iron-stones that are superimposed upon the conglomerate, are called the Upper Coal Measures. Coal Measures may be defined as a group of strata, in which the coal is interstratified. The coal often appears in beds so thin as not to be workable. These beds, sometimes, however, swell out locally to great thickness.

Recurring again to the building up or formation of this coal plateau, at the risk of being tedious to the reader familiar with it, we shall endeavor to give a clearer idea by an illustration. Suppose a long, narrow table to be placed on the ground, sitting longitudinally north-east and south-west. Build up under this table a stone foundation with a sloping surface, lower at the northern end, but reaching half way to the top of the table at the southern extremity. Upon this foundation pile up sheets of plank until they touch its under surface. The stone foundation will represent the Mountain Limestone, the sheets of plank the Lower Coal Measures, and the top of the table the thick conglomerate cover.

Thin blocks piled on the table top, a short distance from the edge, at some places higher, at some lower, being greatly higher near the north-east corner, will represent the Upper Coal Measures. Now, if a little to the east of the longitudinal middle line a wide gash were cut down to the ground through piles of blocks, the table top, sheets of plank, and masonry, from its middle, but southward, dividing the southern part of this mass into two parallel but unequal arms, this gash would represent the Sequatchie Valley, the eastern arm taking the name of Walden's Ridge. A similar gash in the north-east corner, running north-east, would represent Elk Fork Valley. From the head of this valley, if another were cut running south-east, it would represent Cove Creek Valley, both together cutting off the quadrilateral block.

It may here be stated that wherever the highest ridges and mountains upon the general surface of the Cumberland Table Land are found, the conglomerate has been depressed, and sinks to a lower level than where there is no superincumbent weight.

The reader is now able to appreciate the following section entirely through both Coal Measures. The section was traced out near the Sewanee Mines, in Grundy county, by Dr. Safford, and is found in his Geological Report. It is the most complete section of both Coal Measures yet found in this part of the coal field, though the Upper Coal Measures in the north-eastern portion of the coal regions have more beds, sometimes reaching as high as twenty-one. At other places, some of the strata thin out and disappear. Beginning at the top and descending, as though in a well or shaft, we have the

## SEWANEE SECTION.

UPPER MEASURES; 290 feet.	{	(13) CONGLOMERATE; cap rock of the upper plateau, and the uppermost stratum in the region,.....	50 feet.
		(12) Coal, a few inches, (G).....	
		(11) Shale, .....	23 feet.
		(10) Coal, outcrop, (F).....	$\frac{1}{2}$ foot.
		(9) Dark Clayey Shale,.....	1 foot.
		(8) Sandy Shale, .....	25 feet.
		(7) SANDSTONE, .....	86 feet.
		(6) Shale, more or less sandy,.....	45 feet.
		(5) Coal, Main Sewanee, from (E).....	3 to 7 ft.
		(4) Shale, some of it sandy,.....	45 feet.
		(3) Coal, outcrop, (D).....	1 foot.
		(2) Shale,.....	3 feet.
		(1) Sandstone,.....	17 feet.

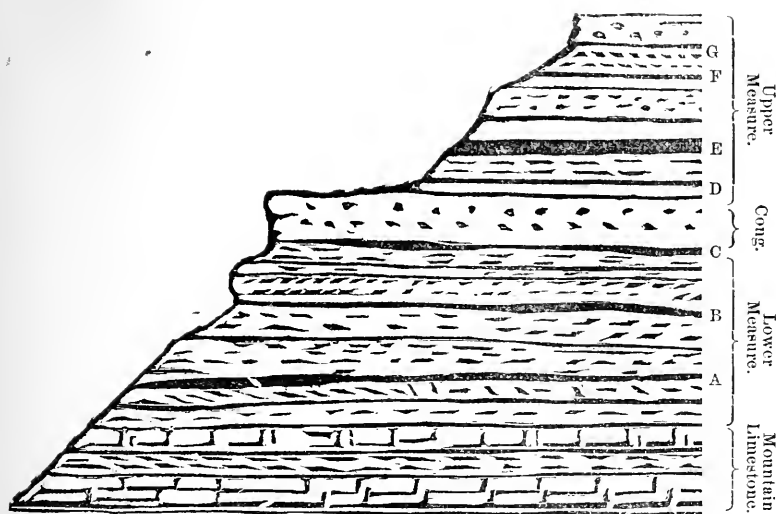
We here reach the bottom of the upper Coal Measures, and come to the thick conglomerate that caps the whole coal region. Descending, we pass successively through

		CONGLOMERATE,.....	70 feet.
LOWER MEASURES; (Gizzard Portion;) 228 feet.	{	(10) Coal, outcrop, from (C).....	$\frac{1}{2}$ to 1 foot.
		(9) Shale, with clay at top,.....	10 feet.
		(8) SANDSTONE, Cliff Rock; (Lower Cong. of Aetna Mines),.....	65 feet.
		(7) Coal, outcrop, from (B).....	$\frac{1}{2}$ to $1\frac{1}{2}$ ft.
		(6) Shale, with a few inches of indurated clay at top, .....	8 feet.
		(5) Sandy Shale,.....	22 feet.
		(4) SANDSTONE, hard, .....	78 feet.
		(3) Coal, has occasionally shale above and below it; the Coal from (A).....	1 to 3 feet.
		(2) Hard Sandstone, local,.....	20 feet.
		(1) Shale, including a thin sandstone, .....	20 feet.

## MOUNTAIN LIMESTONE.

The last or the Mountain Limestone forms the pedestal, as it were, upon which the Coal Measures lie.





The above cut is a representation of the entire Coal Measures as exhibited at this region. It will be observed that the main conglomerate, which has been spoken of as forming a sheet over the whole Cumberland Table Land, divides the Upper from the Lower Coal Measures; and furthermore that the veins below the conglomerate are lenticular in character, while those above are more uniform in thickness. If additional strata were piled upon the portion above the conglomerate, including not far from a dozen beds and seams of coal, it would be a fair representation of the Upper Measures as found at Coal Creek, in Anderson. The second coal (bed E.) above the conglomerate is the Main Sewanec, the only one which has been worked so far at this point. The second below (bed B.) corresponds to what has been called the Main *Ætna*. The escarpment or slope represented in the engraving, is typical of the slope on the western side of the Table Land, in which appear successively the wooded slope, the vertical or overhanging conglomerate, which forms such conspicuous cliffs, the back bench and the uppermost rock. The level portion above the main conglomerate may be considered as the general surface of the Table Land; but, as will be seen from the engraving, there lies, at a greater or less distance from the edge, superimposed strata that make considerable hills, which often present themselves as a well defined terrace. It may be added for clearness, though involving some repeti-

tion, that the main conglomerate in the north-eastern part of the Table Land sinks to a lower level while the strata are so multiplied as to make mountains. In the Sewanee section, the conglomerate is about 800 feet above the low lands at the base of the Table Land, while at Coal Creek, and at other points to the north-east, it comes down to the level of the valleys.

Including the Upper and Lower Coal Measures, there are seven veins of coal, aggregating a thickness of from seven to fourteen and a half feet. Many of these beds, however, are too thin to work, and are given merely to show the extent of the Coal Measures.

#### SEWANEE MINES.

As an industrial enterprise, this company has some features deserving notice.

The effort to mine and ship coal immediately after the war, when transportation cars could not be obtained from the railroads, drove the company to put up a car-shop and build its own cars, as far as its means would allow. Since 1859, a small force has been kept employed building and repairing cars, until now the company has 149, which are kept constantly employed, with perhaps about the same number of cars furnished by railroads and coal dealers. In connection with the work, the company has constantly kept going two blacksmith shops—and for a time these shops did most of the work on the engines—but as the business increased it became necessary to get machinery for doing certain work, until by degrees a regular machine shop, at the head of which is a master mechanic, has been built up, and now the company turns its axles, bores its wheels, takes off and puts on wheels, and does all the work on its own engines. The demand of the company justified private enterprise in putting up, in connection with the machine shop, both a brass and iron foundry. The company is running a saw-mill, sawing considerable quantities of lumber, which is used mainly in and about the mines, and in constructing its own buildings.

Coke burning is now coming to be a leading business with this company. It is erecting 100 coke ovens, and besides is burning on the ground 2,500 bushels of coke per day. In all, the amount of coke burnt will be about 7,500 bushels daily.

Recently the company has built a small blast furnace, and is now making iron. This is said to be the first *coke* blast furnace ever built

in Middle Tennessee. The ore used is brought from various points in Wills' Valley, on the line of the Nashville and Chattanooga railroad, and on the Georgia State road. This furnace was erected mainly with a view of testing the different ores of the country. The ore is brought to the mines in return coal cars, and the blast for the furnace is made by the engine running the fan mill. The company is running a railroad which connects with the Nashville and Chattanooga railroad, and on which it uses five locomotives.

The whole force employed at the mines, including 156 convicts, is about 450 men. This is the regular minimum force at the season of the year when the work is running light. In the fall and winter the working force is largely increased. This does not embrace the incidental employment of labor, such as getting saw-logs, cross-ties, props and caps for the mines, etc., all of which is done by contract. The product of this work is about 235,000 bushels of coal per month, with a continuing increase. Under the advance move made this year of burning coke and making iron, it will be necessary for the company to largely increase the coal production. Looking to this, the company has increased its area of lands by a purchase of 5,000 acres, nearly all of which is coal land, and it is now opening other mines one mile and a half from the main entrance. The work of building a railroad to these new mines has been commenced.

An analysis of this coal shows as follows:

Fixed Carbon, .....	63.5
Volatile matter,.....	29.9
Ash,.....	6.6

And its use in locomotives, as well as all other uses in contact with iron, shows that it is remarkably free from sulphur.

The feature in this coal enterprise, in which the public are most interested, is the cheap production of coal. The reports of the President and General Manager for that year, show that the company is mining coal and shipping to Cowan at an actual cost of about six cents, and that coal is sold there upon contracts, by the year, at eight and a half cents.

The Sewanee Coal Mines embrace a considerable portion of Grundy and Marion counties. They are worked at present from three openings, and preparations are being made for opening at two other points.

The vein of coal averages about four and a half feet, and is nearly level; all the openings being just high enough above the railroad to make loading into cars through chutes quite convenient. Fortunately the stockholders in this company have all agreed that it was their interest to build up the property rather than declare dividends, and this policy has resulted in increasing the work from five cars to sixty (the average maximum work) per day.

This company owns about 10,000 acres of coal. The entries through which, making in all about nine miles, fully prove what the coal bed is, averaging four feet ten inches. By an extension of the company's railroad eight miles, it would strike Lane Coal Bank, which is the commencement of a bed of coal extending about thirty miles. This coal has not been worked, but it is probably one of the most extensive bodies of coal to be found in any country.

South of the Sewanee Mines, near the Anderson depot, on the Nashville and Chattanooga railroad, is a section which has four coal seams, and so of a section taken at a point a mile east of the lower end of Battle Creek, and at the *Ætna* Mines. In the northern part of Grundy and in Warren county, the veins are reduced to two, and the whole volume of the Measures reduced from 360 feet to fifty.

The veins of the Lower Coal Measures are quite variable, irregular, and often deceptive. They sometimes swell out into lentiform masses of five, six, seven, and even greater thicknesses, and then diminish to a mere thin plate. The quality of the coal is not highly bituminous, generally, but compact, solid, and burns freely. The quantity of coal in the Lower Coal Measures is quite large, and there are some heavy local developments of this coal in the Valley of the Little Sequatchie Creek, which rises near Tracy City, runs south, and empties into the Sequatchie River a short distance above Jasper. In one place the coal is five feet in thickness, and in another locality it shows itself beneath the cliff nine feet thick, exposing a horizontal layer for the distance of forty feet. In the Valley of Crow Creek, near Anderson depot, on the Nashville and Chattanooga railroad, a bed in the Lower Coal Measures 160 feet below the conglomerate, from two to five feet in thickness, has been worked, but operations, except for local demand, have been discontinued at that point. The quality of this coal is said to be excellent, being lustrous and laminated by thin seams of mineral charcoal. Some pyrites, in seams, occur in this vein. This vein thickens further south, and in one place in Ala-

bama it was found to measure seven feet, soon, however, thinning down to two.

At the head of Little Crow a vein two feet in thickness supplies an excellent quality of coal. The Valley of Battle Creek supplies a large amount of coal from the Lower Coal Measures. The shipments by the Chattanooga railroad from Bridgeport, the point to which all the coal from that region is sent by the Jasper Branch, amounted for the year ending June 30, 1873, to 279,480 bushels, of which 270,241 bushels were from the Battle Creek Mines.

### THE ÆTNA MINES.

These mines are in Marion county, thirteen miles from Chattanooga, near the Nashville and Chattanooga railroad, and between it and the Tennessee River, in what is called Raccoon Mountain. They were first opened in 1854, and are now worked by J. C. Haselton. The Upper Measures contain the Walker seam, four feet in thickness; the Slate Vein, five to six feet, with eighteen inches of slate and coal mixed, and the Kelly coal, two or three feet—the Kelly coal being the lowest. These veins or beds are all above the upper conglomerate, which is here simply a sandstone seventy-five feet in thickness. Between this conglomerate and the lower conglomerate, which is the same that caps the coal region, are two thin veins of coal, unimportant. Below the last named conglomerate are four seams of coal. First in order of descent is the Main Ætna or Cliff vein, the most important bed in the Raccoon Mountains. It has been often worked and large quantities of coal taken from it. Twenty feet below these, the intervening strata being composed of shale, is a vein of coal from one-half to a foot in thickness.

Two more veins lie below this, from both of which coal has been taken. In the lowest a bank was opened, which at first was six feet in thickness, increased to nine, and then fell off to three, showing the lenticular characteristics of the veins of the Lower Measures. This locality is interesting as showing nine distinct veins, five of which are of workable thickness. From this point a very large amount of coal has been taken from the Lower Measures, peculiar in its structure. The laminae of this coal are separated by seams of charcoal resembling that made of poplar wood, fuzzy or soft and spongy. The coal is of good quality, comparatively free from pyrites, and makes good coke. The

shipments from these mines have been as high as 367 cars per month, or 91,750 bushels, but now amount to only forty cars, or 1,200 bushels, owing to the falling off in demand.

The section at this place, as taken by Dr. Safford, is as follows :

UPPER MEASURES, 220 ft.	{	(8) SANDSTONE, cap-rock of plateau above the Ætna Mines ..... 75 feet	
		(7) <i>Shale</i> ..... 48 "	
		(6) <b>Coal</b> , " <i>Walker Coal</i> ;" uniform, good, cubic..... 4 "	
		(5) <i>Shale</i> , including sometimes a thin <i>coal</i> , (Cravens) from...30 to 40 "	
		(4) <b>Coal</b> , " <i>State Vein</i> ;" including a layer eighteen inches thick, of shale and coal mixed.....5 to 6 "	
		(3) <i>Shale</i> ..... 44 "	
		(2) <b>Coal</b> , " <i>Kelly Coal</i> ;" good, cubical coal, from.....2 to 3 "	
		(1) <i>Fire-clay</i> , from.....1 to 2 "	
		<b>UPPER CONGLOMERATE</b> , simply a sandstone here..... 75 "	
		(4) <b>Coal</b> , seam, a few inches.	
(3) <i>Shale</i> .....30 to 40 "			
(2) <b>Coal</b> , seam, ten inches.			
(1) <i>Sandy Shale</i> , from.....100 to 130 "			
<b>LOWER CONGLOMERATE</b> , <i>Cliff Rock</i> of the sections east of Sequatchie Valley, in which it is included in the <i>Lower Measures</i> ; becomes a well-characterized <i>Conglomerate</i> over the upper coal (Main Ætna or Cliff Vein) at Gordan's Mines, in Georgia, doubtless coalesce at some points with the Upper Conglomerate, the intervening layers thinning out, from.....70 to 100 "			
LOWER MEASURES, (not including Lower Cong.) average, 288 feet.	{	(14) <i>Shale</i> , sometimes wanting, the rock above making the roof of the coal from.....0 to 12 "	
		(13) <b>Coal</b> , <i>Main Ætna</i> , or <i>Cliff Vein</i> ; will average, perhaps.....3 "	
		(12) <i>Fire-clay</i> , indurated, contains <i>Stigmaria</i> , often with rootlets attached; has been made into good fire-brick.....1 to 3 "	
		(11) <i>Shale</i> ?.....5 to 20 "	
		(10) <b>Coal</b> , thin..... ½ to 1 "	
		(9) SANDSTONE and <i>Sandy Shale</i> .....80 to 120 "	
		(8) <i>Shale</i> .....0 to 5 "	
		(7) <b>Coal</b> , of good quality, usually too thin to be mined, from...½ to 2 "	
		(6) <i>Fire-clay</i> .....0 to 3 "	
		(5) <i>Sandy Shale</i> or <i>Sandstone</i> .....20 to 25 "	
		(4) <i>Shale</i> .....15 to 20 "	
		(3) <b>Coal</b> , lowest bed like the last, and banks have been opened in both.....½ to 3 "	
		(2) <i>Fire-clay</i> .....0 to 3 "	
		(1) <i>Shales and Shaly Sandstones</i> .....80 to 150 "	

MOUNTAIN LIMESTONE FORMATION.

Variegated Shales and Limestones in the Valley of Running Water.

In the deep gorge made by the Tennessee River, where it cuts its way through Walden's Ridge, the same presentation of coal veins

appears. The one corresponding to the Main *Ætna* has been worked to some extent, and the coal shipped by the Tennessee River.

#### THE VULCAN MINES.

These mines are in Marion county, sixteen miles from Chattanooga, and near the railroad leading from the latter point to Nashville. They were first opened in 1868. They are worked by Dodge & Eaton, who employ at present (January, 1874,) sixty-five hands. The product of these mines for the year 1873, was 365,000 bushels, (eighty pounds to the bushel,) the market for which is Chattanooga and points south. Considerable quantities have also been sold to the Nashville and Chattanooga Railroad for use on locomotives.

The seam worked at present is two and a half feet in thickness. There are three other seams in the mountain that are known, the largest of which is about three and a half feet thick. The other two average about ten inches each, though a careful examination would doubtless show their lentiform character.

#### SHOAL MINES.

These were opened in September, 1873. They lie six miles north-east from Chattanooga. There are four veins in view; the upper one, four and a half feet thick, is the one worked. When first opened, the coal from this vein was soft and friable, but became harder as the entry advanced. The outcrop of the vein is only eighteen inches in thickness. It swelled out to five and a half feet, and then went to four and a half feet. It has remained regular after reaching that thickness. The dip of the vein is about five degrees outwards, just enough to secure good drainage. The mines are not worked at present, owing to the falling off in the demand for coal. The lowest vein at this point was worked by the government during the war.

#### SODDY CREEK MINES.

These are in Hamilton county, on Soddy Creek, twenty miles above Chattanooga, and four miles from the Tennessee River. A tram-road leads down to Soddy Creek, where the coal is dumped into barges and shipped by the creek to the river, thence to Chattanooga and other points south.

This coal is regularly stratified, bituminous, and burns freely. At present, about twenty-five hands are kept employed, and 150,000 bushels per month are exported. The mines were not regularly worked until 1836, when a company of energetic Welchmen leased them for fifty years, paying a royalty of one cent per bushel. A lump of this coal weighing 3,600 pounds is exhibited on the streets in Chattanooga. The upper surface for four inches is spumous and shelly, the remainder of the block is a stratified hard coal, but not cubical. The vein is from two and a half to three and a half feet thick.

#### SALE CREEK MINES.

Nine miles north-east of Soddy, on Rocky Creek, three miles from Tennessee River, in an outlying ridge, are the Sale Creek Mines. The coal from these mines is said to be superior for all purposes. It has fine welding properties, and is therefore much sought after by blacksmiths. These mines were worked as far back as 1843; but little coal, except for blacksmithing, was consumed in this State at that time. In 1866, Major Thomas A. Brown and Col. John Baxter, of Knoxville, began to mine the coal for shipment. At present, they are worked by Welchmen, who have leased them, as well as the Soddy Mines, from Clift, McRea & Pearl. Thirty miners are employed, all of whom are interested and lessees. The monthly product is 50,000 bushels. A tram-road conveys the coal to the river, where it is shipped in barges to points below. Much of it is consumed in the iron works at Chattanooga. The structure of this coal is peculiar. No stratification is observable, but it has the appearance of having been boiled, and resembles hardened blocks of boiled pitch. The thickness of this vein is about four feet.

The Morgan Mines and the mines at Piney are only used for local purposes, and contribute but little to the coal product of the State. The veins are from two to five feet in thickness. At White's Creek, there is a vein five and a half feet thick, which is used for local purposes. At Clear Creek there is a fine development of coal. This property has recently been purchased by Stambaugh, of Youngston, Ohio, who contemplates the erection of a furnace at this point. Two coal veins have been tested, one showing from five to seven feet in thickness, and the other from two to three feet.

At Rickland Creek, below Sale Creek Mines, is a vein of coal about three feet thick, and another higher up the mountain from four



to five feet thick. This property has been recently bought by English capitalists. From this point southward, the coal lies in veins nearly horizontal. North of this, the strata are greatly disturbed, the coal veins forming horsebacks, and sometimes assuming a position nearly vertical, lying sometimes in great masses, and again thinning out to a mere wafer.

### ROCKWOOD MINES.

Continuing north-easterly from Sale Creek Mines, we reach the mines of the Roane Iron Company, situated in Roane county, ninety-two miles, by land, above Chattanooga, and one hundred and twenty miles by water. This remarkable body of coal was discovered in 1840, by William Green, an employee of John Brown, the father of Major Brown, of Chattanooga. Green and William Brown entered the land shortly after its discovery. The coal was soon thereafter opened for local purposes, and used by blacksmiths until the property was purchased by Wilder & Chamberlain, in 1867. These gentlemen subsequently induced capitalists to enter into business with them, and they have increased their capital from \$100,000 to \$1,000,000. Two blast furnaces are built at this point, with capacities respectively of twenty-five and thirty tons per day. The iron ore lies in a continuous vein, nearly vertical, about four feet in thickness, and is supposed to be a stratum of a synclinal trough which disappears under the Cumberland Table Land, reappearing in the Sequatchie Valley and in Elk Fork Valley. The dip of the iron vein is about eighty degrees, and inclined towards the mountain mass. This dyestone vein, or bed, extends from Alabama to Pennsylvania, running a distance through Tennessee of 160 miles. Upon the top of many hills it is folded back by lateral pressure so as to resemble a flattened S. A quarter of a mile from this iron vein, are seen the outcroppings of the coal. The dip of the main Rockwood seam is thirty-five degrees towards the north-west. This seam is remarkable for the immense curled masses of coal rolled up between the "horsebacks," and attaining a thickness of from sixty to one hundred and ten feet. By reason of the "horsebacks," the dip of the vein is sometimes locally reversed. Three principal entries have been driven in at this place, designated respectively Banks 1, 2 and 3.

In Bank No. 1, the main entry is 1,200 yards long, with 1,600 yards of cross entries, and more than a mile of rooms.

Bank No. 2 has a main entry 1,000 feet long, with 575 yards of cross entries, and 1,200 yards of rooms.

Bank No. 3 has an entry 500 yards long, but no cross entries.

The outcrop of coal above No. 1, is 250 feet; above No. 2, 500 feet; above No. 3, 75 to 100 feet.

North-west of the furnace, at a distance of 1,200 yards, in the bottom of a small stream that runs down the ravine towards the furnace, is a remarkable outcrop of coal, over which the water flows for one hundred yards. It is on this mountain stream that a local thickness of 110 feet of coal is found. After these thick accumulations, the vein thins out to a mere thread. The coal has a crushed appearance, and though well suited for the purposes for which it is employed, will not bear transportation well. An analysis of this coal, as well as of several others, will be found further on in this chapter.

The number of hands employed at the coal mines at Rockwood is eighty, of which number fifty-four are miners. The daily product is 4,000 bushels, which is brought down by a tram-road to the furnace, and conveyed by a chute into the stock-room. The fine coal is made into coke. Forty coke ovens, besides numerous coke pits, are kept constantly in operation.

The proportions of charges are :

Coal, . . . . .	1,600 pounds.
Coke, . . . . .	1,200 pounds.
Ore, . . . . .	2,200 pounds.
Limestone, . . . . .	600 pounds.

Seventy-seven of these charges are put in the hot blast furnace, Rockwood No. 2, in twenty-four hours. There are no shipments of coal from Rockwood, the whole amount being consumed by the furnaces at that point, and by the various machine shops. There are other veins above and below the one worked at Rockwood, and the supply is practically inexhaustible. All have the same dip, but disturbed by local flexures.

#### HOOPER MINES.

These are on the Little Emory, four miles from the Tennessee River, and have been worked, for local purposes, for twenty-five years. The vein is four feet thick, and the coal is of a very superior quality.

## WILCOX MINING COMPANY.

The property of this company is situated along the north-east line of Roane county, occupying the south-eastern slope of Walden's Ridge. It touches the Big Emory River, in which there is always water enough to float barges and small steamers, into which the coal is dumped from the cars. The property also includes ten acres upon one of the spurs of Cumberland Mountain, behind Walden's Ridge. In 1866, William and Edward Small, of Baltimore, bought 1,200 acres of land, and subsequently added other tracts. These gentlemen worked the property until 1869, when they became bankrupt, and the property passed into the hands of Col. John Baxter. Wilcox Brothers bought the property in 1870, and it was transferred to the Wilcox Mining Company in August of the same year. At the time this company took possession, the facilities for transferring the coal to the river were very poor, but a narrow gauge road has been built with easy grades. The coal is lowered from the mine to the track by an incline 1,000 feet long. The property is now worked by Col. W. J. Betterton.

The following is a general section of the strata in that region, as made by Prof. Bradley, beginning with the highest beds exposed, and numbering downwards, while the coal seams are numbered from below upwards:

1. Shaly and shaly sandstones—mostly covered, .....	130 ft.
2. Dark clay shales,.....	8 to 10 "
3. Hard dark micaceous shale,.....	1 "
4. COAL No. 12,.....	1½ "
5. Hard black sandy shale, .....	1 "
6. Covered space—sandy shale at 90 ft.,.....	136 "
7. Thick-bedded and shaly sandstones, .....	16 "
8. Thick, irregularly-bedded hard sandstone,.....	21 "
9. Soft clay shale,.....	5 "
10. COAL No. 11,.....	1 to 2 "
11. Soft fire-clay, .....	1 to 2 "
12. Sandy shales and thick-bedded sandstone,.....	35 "
13. Clay shales, partly sandy,.....	50 to 60 "
14. Hard sandstone,.....	1 to 3 "
15. COAL No. 10,.....	1 to 3 "
16. Hard fire-clay and soft shales,.....	6 to 8 "
17. Thin and thick-bedded sandstones, .....	20 to 30 "
18. Covered—mostly shales, .....	50 to 60 "
19. Irregular thin-bedded sandstone,.....	16 "
20. Clay shales, partly black, .....	5 to 10 "
21. COAL No. 9,.....	1? "

22.	Covered—mostly sandy shales, .....	50 ft.
23.	COAL No. 8, .....	" 1 $\frac{3}{4}$ " "
24.	Thick-bedded sandstones, .....	18 "
25.	Covered—mostly shales, .....	45 "
26.	Heavy-bedded sandstone, .....	72 "
27.	Covered—mostly shales, partly sandy, .....	58 "
28.	Heavy-bedded sandstone, .....	153 "
29.	Covered—probably shales and shaly sandstones, .....	171 "
30.	Heavy and thin-bedded sandstones, .....	54 "
31.	Ferruginous sandy shales, with beds of iron-stone, .....	90 to 100 "
32.	Irregularly-bedded sandstone, .....	50 to 70 "
33.	Covered—sandy shales and iron-stone— <i>probably with COAL No. 7,</i> .....	180 to 200 "
34.	Heavy-bedded sandstone, .....	40 to 45 "
35.	Shales, .....	30 to 35 "
36.	Thick-bedded sandstone, .....	1 "
37.	Dark drab, compact clay shales, .....	40 to 45 "
38.	Shaly sandstone, .....	12 to 15 "
39.	Dark drab to black and ferruginous clay shales, .....	25 to 30 "
40.	COAL No. 6, .....	3 to 6 "
41.	Dark drab clay shale, with some fire-clay, .....	5 to 6 "
42.	Shaly sandstone, .....	10 to 15 "
43.	Heavy-bedded sandstone, .....	47 "
44.	Shales, .....	8 "
45.	Heavy-bedded coarse and fine sandstone, .....	53 "
46.	Sandy shales, .....	8 "
47.	Heavy-bedded light colored ferruginous sandstones—part pebbly, .....	5 "
48.	Soft clay shales, .....	2 "
49.	Heavy-bedded fine-grained white sandstone, .....	31 "
50.	Ferrous shales—some sandy layers, .....	40 "
51.	COAL No. 5, .....	3 to 4 "
52.	Hard drab shales, .....	2 to 3 "
53.	Heavy-bedded sandstone, mostly conglomeritic. <i>Level of COAL No. 4,</i> .....	140 to 150 "
54.	Clay shales, part sandy. <i>Level of COAL No. 3,</i> .....	180 "
55.	Heavy-bedded sandstone, lower half compact, upper granular, ..	25 "
56.	Gray ferruginous shales, <i>including COAL No. 2,</i> .....	170 "
57.	Dark drab compact sandstone, .....	40 to 50 "
58.	Thin-bedded sandstone, with shaly partings, .....	45 to 50 "
59.	Shales, <i>including level of COAL No. 1,</i> .....	150 to 200 "
60.	Bluish-drab fossiliferous limestone, .....	35 to 200 "
61.	Covered—shale or shaly limestone? .....	125 "
62.	Cherty limestone, with heavy bands of chert, .....	160 "
63.	Green and drab sandy shales, .....	3 to 24 "
64.	Black and drab shale, .....	26 to 117 "
65.	Covered—black shale? .....	90 "
66.	Red, greenish and yellowish sandy shales, including two bands of red hematite and a few thin sandstones, .....	100 to 150 "
67.	Dark reddish and ferruginous shales, .....	500 "
68.	Compact dark-blue limestone, .....	100 "
69.	Cherty limestone, part fossiliferous, .....	200 "
70.	Dark-drab limestones, part shaly, .....	50 "

"Of the above section," says Prof. Bradley, "Nos. 1 to 59 belong to the Coal Measures, showing a total thickness of nearly 2,700 feet. This is a greater thickness than has heretofore been attributed to the entire Coal Measures in this region; while it apparently does not include anywhere near all the formation. There is, however, only a small portion of the section which has not been measured, as well as estimated, and I am satisfied that the total is approximately correct in all its *essential* parts. It has been very carefully measured. Less attention was paid to the lower beds, as the section here is of little importance. Numbers sixty to sixty-two represent the characteristic divisions of the sub-carboniferous limestones. Numbers sixty-three to sixty-five represent the "Black Shale" of the West, which is generally accounted the equivalent of the "Genesee Shale" of New York, and called Devonian, though some of its fossils seem more nearly allied to sub-carboniferous than to Devonian species. Number sixty-six is what Prof. Safford, in his recent report on the Geology of Tennessee, calls the "Dyestone Group," and is mostly the equivalent of the "Clinton Group" of New York. The included sandstones at base may represent the "Medina Sandstone" of New York. Number sixty-seven may also belong to the Medina, though I have preferred to consider it the upper division of the "Cincinnati Group," to which belong numbers sixty-eight and sixty-nine. The latter beds are more compact limestones than are usually found in this group. Number seventy apparently belongs to the Trenton Group, though fossils are, as yet, wanting for proof of the fact.

"All the coal seams, for the vacant numbers, have not yet been found. Below coal number five, which is the first thick seam yet discovered at this place, four seams not observed here, have been found at the *Ætna* Mines, and it is believed that they all exist on this property. Number one has not been found. Number two was found and opened on the outcrop, and thickened from six to eighteen inches. Number four is the equivalent of the Main *Ætna*; it lies fifteen feet below the conglomerate number fifty-three. Coal number five has been opened at two points, but not fully tested. This is thought to be the equivalent of the seam marked G in the *Sewanee* section. Coal number six is over four feet thick; swelis, locally, to five and six feet, and has yielded a large amount of superior coal. This is the equivalent of the *Rockwood* seam, twelve miles south-west, and probably, of the Main *Sewanee*. Lumps of coal above number six, are the only indications of number seven. This seam is said to contain good bodies of coal at

White's Creek. Number eight and nine have not been distinctly recognized. They are most likely of no practical value. Number ten shows along Laurel Branch an average thickness of two feet of superior coal."

The upheaved strata, says the same authority, of Walden's Ridge are, in the main, evidently continuous with the level beds of the valley and mountain back of it. Along a limited space, from the lower part of Laurel Branch eastward to beyond D'Armond's Gap, a line of fault runs near the foot of the Ridge, along which the strata are completely broken off and displaced, the highly-inclined beds of apparently number forty-five of the general section being thrust under and against the edges of the nearly horizontal beds of number nineteen(?), in the Gap. Along Laurel Branch the disturbance is evident, but slight.

On the north side of the West Fork of Little Emory, for half a mile from the Gap, number ten has been worked, at various times, with a reported thickness of from two to three feet; but the openings have been abandoned. It is a superior coal, as shown by the analysis given below. The area of this portion of the seam is limited by the uplift of Whetstone Mountain beyond it. Still, if the seam were thicker and more regular, its area would be sufficient for profitable mining. As we pass eastward, the Valley of East Fork of Little Emory approaches the line of Whetstone Mountain, and makes number ten nearly or quite worthless for a mile or more before reaching the Gap through Whetstone. As the lower and thicker seams must underlie all this territory, it will become valuable when, in the indefinite future, the coal will pay for so deep mining.

As the valley approaches Whetstone Mountain, it retires from Walden's Ridge, and leaves a large area of number ten upon its south side. This is partly in Tarkill Ridge, which reaches from 270 to 470 feet above Little Emory, and partly on the slopes of Walden's Ridge, from which Tarkill Ridge is separated by the Valley of Machine Branch. In both these positions it has been worked, with a thickness of from one to three feet of excellent coal.

The upper seams, numbers eleven and twelve, have been found only in the higher parts of Tarkill Ridge. It is possible that number eleven may exist upon the slopes of Whetstone Mountain; but this is not probable. The heavy-bedded sandstone which forms the crest of Whetstone is apparently one of the beds which lie between number six and number eight.

The coal number six is very superior, and is pronounced by Prof. Wormley, of Ohio, to be the best coal he has analyzed. The high percentage of fixed carbon, as indicated by the analysis given below, together with the fact that it softens very little in the fire, shows that it could be worked with great profit in furnaces in its raw state. The percentage of sulphur is also small. The sample analyzed was a full section from roof to floor. This coal yields, in gas retorts, 4.47 cubic feet of gas per pound, as certified by the superintendent of the gas company at Knoxville. The seam, though the equivalent of the Rockwood, and tilted at a higher angle, has been less disturbed, and retains its laminated condition. The amount of slack is inconsiderable. The outcrop of this seam is 636 feet above the dump-house, on the bank of Big Emory. The mine is in the hollow of the mountain, and the general level of the outcrop along this part of the Ridge is from fifty to one hundred feet higher. Prof. Bradey thinks this seam will yield, above the tunnel, 440,000 tons per mile in length of Ridge, and below the tunnel 380,000 before reaching the centre of the Ridge.

The following is an analysis of coal number six, as made by Prof. Theodore G. Wormley, of Columbus, Ohio :

Specific Gravity,.....	1.308
Water,.....	1.50
Ash—light fawn color,.....	7.70
Volatile matter,.....	27.70
Fixed carbon—coke compact, .....	63.10
	<hr/>
	100.00
Sulphur,.....	0.53
"    left in coke,.....	0.45
Permanent gas per pound, in cubic feet, .....	3.32

ANALYSIS OF VEIN NUMBER TEN.

Specific gravity,.....	1.285
Water,.....	1.50
Ash—light fawn color, .....	2.60
Volatile matter, .....	30.10
Fixed carbon—coke compact, .....	65.80
	<hr/>
	100.00
Sulphur,.....	0.71
"    left in coke,.....	0.52
Permanent gas per pound, in cubic feet, .....	3.32

The product is about 500 bushels per day, and about thirty hands are kept employed.

## OAKDALE.

The coal at this point is very similar to that found at Rockwood, twelve miles below, but is not so soft, nor does it slack so readily. The vein worked is about four feet thick, swelling out sometimes to five, and then diminishing to two, making what miners call a "squeeze."

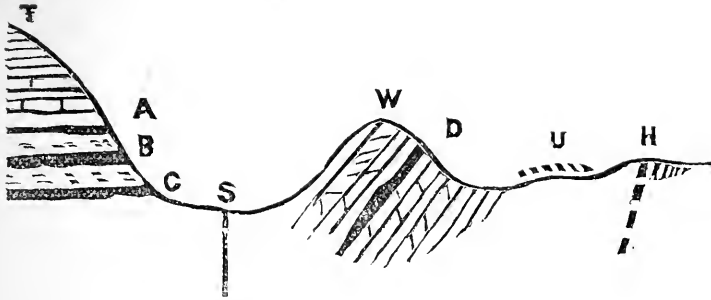
It was opened in the spring of 1873, and the coal is only used for making iron. The daily product is 1,000 bushels, and thirty hands are employed in the mines, all Welch. The mines are in Roane county, four miles from Big Emory River, about ten miles from the Tennessee and six from the Clinch. The coal supply is ample, but a sufficiency of men has not been employed to keep the furnace running to its full capacity.

## POPLAR CREEK, OR WINTERS' GAP.

Winters' Gap is a complete cut in Walden's Ridge, through which Poplar Creek finds its way from the Cumberland Table Land to the Tennessee River. In the Table Land at this place, several veins of coal have been opened; the principal one is a seven-foot vein, opened in 1852, and for many years the coal was shipped therefrom to Knoxville and Chattanooga, and to Huntsville, Alabama. It was highly esteemed as the best coal brought from Tennessee. It is a hard, free-burning coal, bearing transportation well, and when ignited burns like a candle. It is nearly free of sulphur. It was formerly shipped down Poplar Creek in barges. Near the gap is a salt well which was bored many years since, and deepened by Prof. Estabrook, who erected works at this point, but died before his plans were perfected. The well was sunk a thousand feet, and the water yielded eight per cent. of salt. On the eastern face of Walden's Ridge three or more seams of coal are known to exist, and one has been opened, supposed to be the main Rockwood.

The following diagram will serve to illustrate the topography of this most interesting spot, and will also give the position of the Red Hematite iron ore vein, with reference to Walden's Ridge and the Cumberland Table Land.





- T. Cumberland Table Land.  
 A. B. C. Horizontal Veins of Coal.  
 B swells out sometimes seven feet in thickness.  
 D. Coal in Walden's Ridge, five feet thick.  
 S. Salt Well.  
 W. Walden's Ridge.  
 U. Mineral Springs.  
 H. Vein of Red Hematite.

In the valley, at the foot of the ridge, are found a large number of mineral springs, consisting of red, black and white sulphur, magnesia, etc. The dyestone vein is here almost on a level with the Valley, as at Rockwood.

Above this, coal has been mined at Frost's Bottom, on the Mountain Fork of Poplar Creek. There is at this place a large surface display of Brown Hematite iron ore. The coal is said to be good and the supply abundant.

It has not been our purpose to enumerate all the points between Chattanooga and Frost's Bottom, where coal has been seen, but only such veins as have been worked. There is not a gorge in the mountain throughout the entire distance in which the outcroppings of coal may not be seen. Along this line at least fifty good coal mines can be opened. The quantity is enough to dispel any apprehensions of a failure of supply for centuries.

#### COAL CREEK MINES.

These mines are on Coal Creek, in Anderson county, thirty miles north of the city of Knoxville, on the Knoxville and Ohio railroad. The Coal Creek Mining and Manufacturing Company owns at this point 40,000 acres of land, 25,000 acres of which are coal-bearing.

A branch road from the main stem of the Knoxville and Ohio railroad runs through a gorge of Walden's Ridge up to the mines. Between Walden's Ridge and the Cumberland Mountains at this point, two streams, Coal Creek running north, and Welding Creek running south, meet nearly at right angles, and after their confluence pass through the gap before mentioned. Near the point of their union five companies are employed in mining coal.

Prof. Bradley, who made a survey of this property in 1872, gives the position of the strata and a vertical section of the same, which may not prove uninteresting, inasmuch as his practical skill as a geologist is well known. He says:

"That portion of the beds which forms the mass of the Cumberland Mountains, and underlies the included valleys, is approximately level, showing only slight dips, and these local and irregular. As a whole, however, I believe there is a slight westward dip of the whole mass. But in descending the mountain, and approaching the main branches of Coal Creek, we begin to find the dips increasing gradually and following two principal directions, corresponding with the courses of Walden's Ridge. Crossing the creek, we find the dips of those portions of the strata which form the Ridge increasing rapidly to  $60^{\circ}$  and  $70^{\circ}$ , and, at some points, even to  $20^{\circ}$  beyond verticality. As these latter portions consist of shales and sandstones, including coal seams, and corresponding in general appearance with the horizontal strata behind them, it is not surprising that the opinion has obtained, among persons who have not made careful examination, that they really constitute fragments of the visible horizontal strata, broken off and dropped on edge. But closer observation shows plainly that along the Coal Creek waters, at least, no such break has taken place; while it is also evident that the rocks along the whole length of the Ridge are simply the continuation of strata lying below all the horizontal beds that are exposed on this eastern side of the Cumberland Mountains, bent up in a grand curve by an immense force which acted so slowly as not to break them off. It was the same force which upheaved and displaced the rocks of the whole great Appalachian range. Most of the courses of disturbance follow a general north-east and south-west trend; but there are a few cross fractures, one of which runs from near Coal Creek up through Wheeler's Gap, and gives direction to that portion of Walden's Ridge. The lower portion of the Ridge, running towards Winter's Gap, is approximately parallel to the general trend. The two portions unite, not at a sharp angle, but

by a gentle curve, accompanied by considerable warping of the broad plates of sandstone, and more or less crushing of the included coal and other softer rocks. In the more nearly horizontal portions of the strata, opposite this junction, two or three considerable wrinkles were developed, which have been encountered as "horsebacks" in the mines opened at this point. They probably do not run very far under the mountain. It is fortunate for the miner that the waters of Coal Creek have at this point (the Gap having been located, very probably, by some cross crack corresponding with the aforesaid wrinkles), cut their way down through Walden's Ridge, so far as to admit him directly to the outcrop of one of the principal coal seams, at a level not far from that of the general drainage outside the Ridge."

The following is the general section of the strata, as given by Prof. Bradley. The strata are numbered from above downward, and the coal lettered from below upwards. The only coal now worked is that marked E, and which, from an examination, appears to dip towards a central basin at the rate of one and a half inches to the yard. This seam lies about sixty feet above the creek. It varies from four to seven feet in thickness, and supplies a good hard cubical coal. It contains, at one point, a band of cannel coal, varying from a mere steak up to two inches. The other veins have not been drifted into, but Prof. Bradley is of opinion that of the twenty-one, at least eight are of workable thickness, and will aggregate over thirty feet of coal. He estimates the amount beneath each acre of surface to be 6,250 tons.

## GENERAL SECTION OF STRATA AT COAL CREEK.

1. Shales and sandstones, little or no coal.....	200 ft.
2. Coal, (U).....	6 inches.
3. Shales and heavy cliffy sandstones,.....	80 ft.
4. Coal, (T).....	1 to 20 inches.
5. Underclay and sandy shales, .....	20 ft.
6. Coal, (S).....	3½ "
7. Shales, full of irregular ironstone nodules,.....	10 "
8. Coal, (R).....	1 "
9. Shales and sandstones, .....	10 "
10. Coal, (Q).....	1½ "
11. Shales and heavy cliffy sandstone,.....	20 "
12. Coal, (P).....	2½ "
13. Shales, with two or three heavy sandstones, .....	300 "
14. Coal, (O).....	5 to 7 "
15. Shales, with few thin sandstones, .....	350 "
16. Coal, (N).....	? "
17. Shales and sandstones, .....	110 "

18. Coal (M).....	?	"
19. Shales and sandstone, .....	100	"
20. Coal, (L).....	2 5-6	"
21. Shale, .....	10	"
22. Coal, (K).....	2 1-6	"
23. Shales and heavy cliffy sandstones,.....	180	"
24. Coal, free from (J).....	3½	"
25. Laminated sandstone, .....	30	"
26. Shales and shaly sandstones,.....	220	"
27. Irregular heavy-bedded sandstones,.....	10	"
28. Shales and sandstones,.....	50	"
29. Black bituminous shales.....	10	"
30. Coal, (I).....	?	"
31. Shales and sandstones, thick and thin .....	160	"
32. Coal, (H).....	2	"
33. Black slaty shale.....	?	"
34. Sandstone and shales .....	140	"
35. Black slaty shale .....	2	"
36. Coal, (G).....	2 to 3	"
37. Sandstones .....	40	"
38. Dark, hard clay shells, with ironstone bands at bottom.....	130 to 150	"
39. Laminated sandstone, shaly below.....	12 to 15	"
40. Coal, (F).....	1½ to 2½	"
41. Shale, clay and coal, interlaminated .....	1	"
42. Clay shale .....	9 to 15	"
43. Coal, (E) .....	4 to 8	"
44. Underclay .....	1 to 2	"
45. Sandy shale.....	4 to 5	"
46. Thin-bedded sandstone, part shaly.....	30 to 40	"
47. Dark drab to black clay shale—ironstone bands.....	30 to 35	"
48. Heavy-bedded sandstones.....	5 to 10	"
49. Thin-bedded flagging stone.....	12 to 15	"
50. Clay shales, partly sandy .....	10	"
51. Coal, (D) .....	1½ to 2½	"
52. Underclay.....	2 to 4	"
53. Hard, dark shale.....	15 to 20	"
54. Shales and thin sandstones.....	40 to 50	"
55. Coal, (C).....	3 to 4	"
56. Shales .....	12 to 15	"
57. Thin-bedded shaly sandstones.....	8 to 10	"
58. Sandy shales.....	30 to 35	"
59. Heavy-bedded sandstones.....	30 to 35	"
60. Dark, compact clay shales.....	55 to 60	"
61. Coal,—mostly brashy, with six inches of fire-clay—(B).....	1½ to 2	"
62. Dark shale, sandy below .....	15	"
63. Sandstone.....	8 to 10	"
64. Shales.....	15	"
65. Sandstone .....	25	"
66. Shales .....	70	"
67. Concretionary shales .....	15	"
68. Heavy-bedded sandstones .....	50 to 60	"
69. Sandstones and shales, including Coal, (A) .....	200 to 300	"
70. Limestone, part cherty.....	100 to 200	"
71. Sandstones and shales, including beds of iron ore.....		"

There are, then, at least twenty-one coal seams in this section.

The coal A is nearly worthless, being intermingled with large masses of sandstone and shales.

Coal B is thin and worthless, and Prof. Bradley thinks it attains nowhere a sufficient thickness and purity to be of any practical value.

The outcroppings of coal C, in the bed of the stream at the railroad bridge, have been covered with rubbish. It is said to be three or more feet in thickness.

Coal D is not of workable thickness, containing only ten or fifteen inches of good coal.

Coal E is the vein now worked, and noticed above.

Coal F is from eighteen to twenty-eight inches thick, and though a good caking coal, is not worth mining.

Coal G shows a thickness of from two to three feet of good coal. It was once worked to a moderate extent.

Coal H was examined by Prof. Bradley at one point, and showed two feet of good caking coal.

Coal I is probably the equivalent of the seam mentioned by Dr. Safford, six or eight miles west of Coal Creek. At the latter point it is three feet thick, with a parting of three inches of shale.

Coal J showed upon examination three feet of solid coal. It is a dry, free-burning coal, and well suited to work raw in an iron furnace.

Coals K and L are separated by ten feet of soft shale. The upper one is workable; the lower, not. Prof. Bradley thinks it probable they run together.

Coal M and N were not seen exposed. The latter is thought to be of workable thickness.

Coal O is from five to seven feet thick, with one heavy shale parting. It lies at a high level, but is valuable.

The coal seams from P to T are found near the top of the mountain. P and S are of workable thickness where exposed.

Coal U is thin and worthless.

Five companies are now mining coal at Coal Creek, viz: the Knoxville Iron Company, R. E. McEwen & Co., Coal Creek Company, Black Diamond, and Anderson County Coal Creek Company.

The Knoxville Iron Company employs fifty-four miners and fifteen laborers. It ships ten car loads of coal per day, averaging 250 bushels to the car load. The main entry, with cross entries, is about 2,400 yards in length. The coal is shipped to Atlanta, Augusta, and Macon, Georgia, and sometimes to Charleston, South Carolina. The fine coal of this company is utilized in the making of coke. This company has a lease of 360 acres.

The mine of R. E. McEwen & Co., a short distance from the preceding one, employs thirty miners and eleven laborers. The product for the year 1873 was 150,000 bushels. The main entry, 900 yards in length, is driven in at a water level, and the cross entries, dipping one inch to the yard towards the main entry, will probably aggregate as many yards as the main entry. This mine is so opened as to drain itself. The full capacity of the mine is 100 tons per day, or 2,500 bushels. This company has a lease of 250 acres.

The Coal Creek Coal Company employs twenty men. The main entry is 425 yards long, with cross entries amounting in the aggregate to 375 yards. The daily product of this mine is five car loads, or 1,250 bushels. This mine is pretty well exhausted, and the company propose to open a new mine higher up and above the Black Diamond.

The Black Diamond Company has twenty miners and eight laborers. It began operations on a lease of 250 acres, in January 1873. 125,000 bushels have been taken out. The mines drain themselves. The main entry is 150 yards long, with 200 yards of cross entries.

The Anderson Coal Creek Company employs twenty-six men, and the maximum product is ten car loads, or 2,500 bushels per day. The character of all this coal is the same. These companies, with the exception of the Coal Creek Company, work under a lease from the Coal Creek Mining and Manufacturing Company, paying a royalty of one cent per bushel.

The total product of the mines at Coal Creek, for the year 1873, was about 75,000 tons. The mines at this point are not worked to near their full capacity, for while their annual shipments amount to nearly 2,000,000 bushels, they could easily, with increased demand, ship 3,000,000 bushels.

The following letter from E. C. Camp will give additional information in regard to these mines, as well as an analysis of the coal:

KNOXVILLE, TENN., December 27, 1873.

*Hon. Wm. Morrow, Nashville, Tenn.:*

DEAR SIR—The letter from the Secretary of the Bureau of Agriculture, addressed to you, and forwarded to us, is received. In answer to the inquiries therein made, we state, that there are now five banks in operation at Coal Creek, mining, together, about 75,000 tons per annum. Aside from our local demand in East Tennessee, Atlanta, Augusta, Macon, and all intermediate points of consequence in Georgia, Lynchburg, Virginia, and points this side, with a considerable trade at Huntsville and Stevenson, Alabama, and other points on the Nashville & Chattanooga and Memphis & Charleston railroads, with some shipments to Savannah, Georgia, and Columbia, South Carolina, are, and in the order in which named, the principal points of shipment. Price at the banks in winter is ten cents per bushel for lump, nine cents for mixed, and five cents for slack coal. Some reductions are occasionally made to manufacturers who purchase large quantities, and to dealers, in summer, who lay in supplies for winter use. Freight from the banks to Knoxville (thirty miles) is four cents per bushel, with a reduction of one dollar per car if the coal goes to or beyond Bristol, Chattanooga or Dalton.

The thickness of the seam will average about five feet, and is of tolerably uniform thickness. The quality of the coal is almost precisely the same in all the banks, except the Anderson County Coal Company, which seems to be a little freer from dirt, and with less sulphur than the others. The analysis of the coal from the Coal Creek Company and the Anderson County Coal Company, (the two banks which I represent,) is as follows :

## COAL CREEK COAL COMPANY.

Moisture.....	1.04
Volatile combustible matter.....	38.87
Fixed carbon.....	56.44
Ash.....	3.65
Total.....	100.00
Sulphur in 100 parts coke.....	.59

## ANDERSON COUNTY COAL COMPANY.

Moisture.....	.99
Volatile combustible matter.....	38.82
Fixed carbon.....	57.52
Ash.....	2.67
Total.....	100.00
Sulphur in 100 parts coke.....	.13

The retail price of coal at Knoxville is eighteen cents per bushel, delivered.

I believe we have answered fully the questions, and trust it may prove satisfactory.

Yours, very truly,

E. C. CAMP.

ANALYSIS.

Sample of coal taken from vein E, on the property of Messrs. McEwen & Wiley :

Fixed carbon.....	57.69	per cent.
Ash.....	2.55	"
Volatile matter.....	37.80	"
Sulphur.....	1.70	"
Phosphoric acid.....	0.25	"
	<hr/>	
	99.99	"

The future prospects of the mines at Coal Creek are highly flattering. The coal veins are regular and reliable, and calculations can be made with certainty. With the opening of the Cincinnati Southern line, which will connect with the Knoxville & Ohio, the shipments of coal from this point, as also from Careyville, will be very large.

WHEELER'S STATION, OR CAREYVILLE.

At this point, eight miles above, four mines have been opened, with varying success, viz: The Powell's Valley Mining and Manufacturing Company, James Kennedy's mine, East Tennessee Coal Company, and Dr. Hart's mine.

The first of these is not worked at present, owing to some dispute in reference to the title. The vein is three and a half feet thick, and the mine was opened in 1869.

The mine of James Kennedy is worked by twenty-two men, with a daily product of 700 bushels. The main entry is 500 yards long, and is on a level with the Knoxville & Ohio Railroad. It was opened in 1868.

The East Tennessee Coal Company has met with a series of misfortunes. The first drift, after going 165 yards, struck a fault and was abandoned. The vein dipped at an angle of ten degrees, and after



the entry had been driven in twenty-seven feet, the vein jumped twenty-seven feet, nearly perpendicularly. It was, however, worked until the fault was encountered.

The second drift goes in 175 feet. The vein dips at an angle of thirty-five degrees for forty yards, then becomes horizontal or slightly undulating. Six or eight men only are employed, and the product is 250 bushels per day. It was opened in August, 1871.

#### DR. HART'S MINE.

This is now being opened, (January, 1874,) and the vein has a dip of forty-three degrees downward. It is five feet in thickness, varying, however, from four and a half to eight feet. The coal is of good quality, comparatively free of sulphur, and is highly esteemed for grates, bringing one cent more per bushel in Knoxville than that obtained elsewhere. Where the vein thickens to more than six feet, the coal is curled, twisted and rounded, has a crushed, shelly appearance, and does not bear transportation so well as that taken from where the vein is thinner. The entry has been driven to a depth of 125 feet, with but little variation in the dip. The total product from Wheeler's Station, for the year 1873, was 368,325 bushels.

The following is a section taken in 1859 by Dr. Safford, and will serve to illustrate the stratigraphical position of the Coal Measures at this point. The strata are nearly horizontal, except at the base, where they dip at a small angle in the mountain, and this dip is increased in the small spurs that shoot out from the mountain as though the edges were turned up by lateral pressure :

45. SANDSTONE, caps the highest points of the mountain .....	100 feet.
44. <i>Shales and Shaly Sandstones</i> .....	55 "
43. <i>Sandstone</i> .....	15 "
42. <i>Shales and thin Sandstones</i> .....	165 "
41. <i>Shale</i> .....	14 "
40. <b>Coal, a fine exposure</b> , contains a six-inch seam of black shale, but otherwise pure cubic coal .....	6 "
39. <i>Shale</i> .....	40 "
38. <i>Thin Sandstones and Shales</i> ; these rocks are in the gap through which the path leads from Wheeler's across to Beech Creek .....	155 "
37. <i>Shale</i> .....	45 "
36. SANDSTONE .....	37 "
35. <i>Shale and Sandy Shale</i> .....	74 "
34. <b>Coal</b> , fine outcrop, (may be six feet) .....	4 "
33. <i>Shale and thin Sandstones</i> .....	40 to 60 "

32.	<i>Sandstone</i> .....	60 to 80 feet.
31.	<i>Shale</i> .....	50 "
30.	<b>Coal, outcrop</b> .....	1 "
29.	<i>Fire-clay</i> .....	1 to 2 "
28.	<i>Shale</i> .....	50 to 80 "
27.	SANDSTONE.....	60 to 90 "
26.	<i>Shales</i> .....	130 "
25.	<i>Shales, with clay Ironstones</i> .....	20 "
24.	<b>Coal, outcrop</b> .....	1 "
23.	<i>Shale</i> .....	6 "
22.	<b>Coal, outcrop</b> at a large "lick" on Beech Creek side, may be a five or six-foot coal.....	3 "
21.	<i>Shale</i> .....	50 to 80 "
20.	<i>Sandstone</i> .....	50 "
19.	<i>Shales, mostly</i> .....	100 to 120 "
18.	SANDSTONE.....	75 to 100 "
17.	<i>Shale</i> .....	45 "
16.	<b>Coal, outcrop</b> , with shaly parting of three inches.....	3 "
15.	<i>Shale and Sandstones</i> , shales predominating.....	190 "
14.	SANDSTONE.....	50 to 80 "
13.	<i>Shale</i> .....	20 "
12.	<b>Coal</b> .....	3 "
11.	<i>Shale, with clay Ironstones</i> .....	25 "
10.	<i>Sandstone</i> .....	25 "
9.	<i>Shale</i> , heavy, thickness uncertain, say.....	110 "
8.	<i>Shale and "black slate"</i> .....	10 "
7.	<b>Coal, outcrop</b> .....	1 "
6.	<i>Shale and Fire-clay</i> .....	4 "
5.	<i>Shale</i> .....	5 "
4.	<b>Coal</b> , with a three-inch parting in upper portion.....	5 "
3.	"Black Slate," contains <i>Stigmaria</i> , with rootlets.....	3 "
2.	<i>Shale and Fire-clay</i> , with <i>Stigmaria</i> .....	6 "
1.	<i>Sandy Shale</i> , (foot of mountain).....	30 "

The entire thickness of the strata in the section above, is about 2,100 feet.

A section taken at Tellico Mountain by F. Chavannes, civil engineer, shows great richness in coal. Tellico Mountain lies on the north-western side of Elk Fork Valley, which valley has a great fault running through it. The Coal Measures lie north-west of this fault.

- |     |   |           |
|-----|---|-----------|
| 11. | <i>Shales, Slate, etc.</i> , a portion not defined; contains a bed of <b>Coal</b> not located; a heavy series at the top of <i>Tellico Mountain</i> , with a maximum thickness, according to Chavannes' sections, of not less than..... | 600 feet. |
| 10. | SANDSTONE, compact, forms cliffs, about.....  | 90 "      |
| 9.  | <i>Shales and Flaggy Sandstones</i> ; "contains, I think, a three and a half feet <b>Coal Seam</b> ".....   | 50 "      |

8. <i>Micaceous Flaggy Sandstones, Shales, Flaggy Sandstone</i> .....	80	“
7. <i>Shales and Slate, and very probably a valuable Coal Bed</i> .....	100	“
6. <i>Flaggy Sandstone, Shales, Flaggy Sandstone; contains Coal Seams</i> .....	250	“
5. <i>Slate, Coal one and a half feet thick, Slate, Sandstone, Coal two feet, Slate, Grit, Shales, Slate, Grit</i> .....	120	“
4. <i>Coarse Micaceous Sandstone</i> .....	200	“
3. <i>Slaty Grit on top, Shales, Slate, Yellow Shales</i> .....	80	“
2. <i>Slaty Grit on top, Shales eight feet, Slate, probably a four feet Coal Bed, Shales</i> .....	50	“
1. <b>CONGLOMERATE</b> , quartzose, thickness unknown. This outcrops in the Elk Fork Valley on the northwest side of the Fault. Mr. Chavannes, without giving any especial reason, says: "This rock is evidently higher in the series than the Conglomerate on the top of Pine Mountain." I know of no reason why it may not, provisionally, at least, be regarded as the same.		

Measures of Tellico Mountain, 1,620 feet, approximately.

Poplar Creek, Frost Bottom, Morgan Mines and Piney are only used for local purposes at present, though some of them will go into active business in a short time.

In regard to the northern portion of this great Tennessee coal field, it may be said that some of the beds which have been opened for local purposes, show coal of good quality. The want of transportation has suppressed development. In White, Cumberland, Morgan, Putnam, Overton, Fentress, and Scott are many fine exhibitions of coal, especially where the streams have gashed the mountain top. Coal has been mined for local purposes in all these counties. On Clifty Creek, in White county, and on Caney Fork are some fine presentations of coal. Much of the coal in White county is below the conglomerate. In Calf Killer Valley are several seams of three and four feet in thickness. No extensive mining has been done in this portion of the coal region, and until means of transportation are afforded, this great undeveloped wealth will remain valueless. A minute geological survey of this region would be exceedingly valuable, in an industrial point of view, to the State. Our purpose, in this report, is accomplished when we direct attention to such things as directly affect our agricultural interests. That the erection of manufacturing establishments would stimulate agriculture, and multiply the profits of the farmer, is not to be doubted. The evidence of this is seen in the erection of Rockwood Furnace. Before it was built, the farmers in the vicinity of the spot relied chiefly upon their corn crops for a supply of money. Those remote from the river could not even rely upon that

staple, for hauling it over a mountainous country was such a tax as to devour all the profits. Now, it is not uncommon to see, at one time, a hundred wagons in Rockwood loaded with chickens, turkeys, beef, butter, eggs, flour, corn meal, hay, oats, corn, etc. Twenty-five hundred barrels of flour, 15,000 bushels of corn-meal, and 15,000 pounds of bacon are consumed in a place that, six years ago, was an untamed forest. Lands and rents in the neighborhood have advanced. The valleys are crowned with orchards and gardens, with corn and wheat; schools have sprung up; population is crowding in; the quiet and gloom of the forest have been transformed into the glory of the field and the bustle and activity of a manufacturing town. A thousand such towns could be built in our coal regions, and the crops of the farmers be made to yield a remunerative return for their labor. As for the facilities which this region offers for the establishment, not only of manufactories of iron, but of cotton, wool and lumber, there can be no question. Contiguous to the cotton fields, in a region where sheep flourish and thrive upon the mountain grasses almost the entire year, and where timber of almost every variety abounds, such as walnut, poplar, oaks, hickory, ash, and maple, and where, too, the most health-inspiring breezes, free from malaria, invigorate and animate the physical frame; with an unlimited supply of coal and iron ore, it will be an anomaly in the history of industrial progress if this elevated region of Tennessee, does not become the seat of extensive manufacturing establishments. Nature has ordained it, and capital and labor cannot long resist it.

J. P. Leslie, accounted one of the best geologists in Pennsylvania, says of this region:

“The juxtaposition of this Upper Silurian iron ore in East Tennessee, with the beds of the Coal Measures, is a striking phenomenon, but one not peculiar to that region. We have before spoken of the great downthrow faults which have brought this result about—faults which run in straight lines for several hundred miles from Alabama to middle Virginia. It is to these faults that we owe the existence of the Cumberland Mountain Range, and the preservation of the coal beds. Before these faults took place, the coal was elevated 10,000 to 20,000 feet above the level of the sea, on a plateau covered with eternal snow and ice. When this plateau was cracked along parallel lines running east-northeast and west-southwest, intermediate sections of it dropped to about 3,000 feet above the tide level. The sections which retained their altitude have been eroded of all their Coal Measures, and of the

formations beneath the Coal Measures, as far down as the fossil ore. Thus, on two sides of each crack the ore and the coal lie facing each other. *Geologically*, they were separated by an immense interval. *Geographically*, they are now but a few furlongs, sometimes but a few yards, apart.

The Coal Measures also have been preserved by the vertical drop of the Cumberland Mountain, almost in their total original thickness. There are nearly 3,000 feet of vertical Coal Measures west of Knoxville. This is in strong contrast with the state of things in Pennsylvania. Our lowest coal beds are well known to run along the summit of the Alleghany Mountain Range, (which is the northern prolongation of the Cumberland Mountains of the southern states), and the coal basins which lie behind the Alleghany Mountains in Lycoming, Clearfield, Centre, Cambria, and Somerset, are comparatively shallow, never containing more than the lower 1,000 feet of the whole formation, and often not more than enough to take in the first, or the first and second coal beds. The Pittsburg bed, and the Upper Coal Measures, are not preserved to us except in the low country of the Monongahela and Ohio River Valleys.

But in Tennessee, the lowest coal bed comes to the surface at the very roots of the mountain, as if it came out in the workshop grounds at Altoona, or in the Susquehanna river bed at Williamsport and Lockhaven; and along these slopes, at intervals from the base of the mountain to its crest, run horizontal outcrops of numerous coal beds. It is true none of them are very thick; the largest one yet discovered being seven or eight feet thick. But the sum total of mineral fuel preserved for the use of the inhabitants of the south is practically infinite. Every valley and ravine that issues from the plateau lengthens the outcrops and facilitates access to the beds. In course of time, a thousand collieries will be started in the mountain, and a thousand iron works established on the ores at its foot; a thousand villages, towns and cities will grow up in the broad limestone plain before it; a thousand factories and mills will make these towns hum with life, and all this life will base itself on the mountain coal thus wonderfully preserved from destruction by throes of the earth in ancient days, which would have obliterated every trace of human life from the continent, had the divine invention of human life been made."

## PRODUCT.

The following table will give the monthly product of coal for the various mines now in operation :

	Bushels	Per	Month.
Sewanee .....	390,000	Bushels	Per Month.
Vulcan .....	30,000	"	" "
Ætna.....	12,000	"	" "
Battle Creek and mines above.....	23,920	"	" "
Coal Creek .....	156,250	"	" "
Wheeler's Station.....	30,694	"	" "
Soddy.....	15,000	"	" "
Sale Creek.....	50,000	"	" "
Rockwood.....	104,000	"	" "
Wilcox Mining Co.....	13,000	"	" "
Oakdale.....	26,000	"	" "
Shoal Mine.....	10,000	"	for 1873.

This shows a monthly product of about 833,000 bushels, or about 10,000,000 bushels annually.

The United States census reports of 1870 give the total amount of coal raised for the year which the census returns embrace as 3,335,450 bushels, or 277,871 bushels per month, so that it appears the coal product has trebled in three years. In the estimate made, we do not include those mines that are worked only for local uses, which was done by the census takers. The entire amount mined in 1854 was 247,400 bushels, in 1855 this was increased to 571,952 bushels.

The quantity of coal which the Coal Measures of the State will supply, has been estimated equal to a block one hundred miles long, fifty miles wide, and eight feet thick. Assuming that a ton is equivalent to one cubic yard, we have, within the boundaries of the coal fields of Tennessee, 42,127,360,000 tons; and this is not an over-estimate. If this were made into a solid bar, one hundred yards wide and thirty yards thick, it would pass through the earth at the equator.

There can be no more deceptive statement, remarks Mr. McFarlane, which may be at the same time true, than that of the area of the coal field only. Kansas has more square miles of coal than Pennsylvania; yet, one little bed in the latter State, five miles long and less than one wide, is worth more than all the coal in Kansas. The coal fields of Missouri, Nebraska, and Kansas cannot be compared, except in size, to the great Allegheny coal fields, a large portion of which is included in Tennessee. The coal in the latter is better, more abundant, more accessible, and the veins more reliable than in the trans-Mississippi Coal Measures.

The following table will show the various analyses of such coals as have not been given elsewhere :

COUNTIES.	NAME OF MINE.	CHEMIST.	CARBON.	VOLATILE MATTER.	ASH.
Grundy.....	Sewanee.....	F. Zwicke.....	65.50	29.00	5.50
Grundy.....	Sewanee.....	W. M. Stewart....	59.38	34.50	6.12
Grundy ....	Sewanee.....	R. O. Curry.....	79.56	14.21	6.25
Grundy.....	Sewanee.....	Yaryan.....	63.50	29.90	6.60
Marion.....	Upper Seam ....	W. M. Stewart....	59.50	38.00	2.50
Marion.....	Upper Seam ....	W. M. Stewart....	56.50	41.50	2.50
Marion.....	Lower Seam ....	W. M. Stewart....	49.50	43.00	7.50
Marion.....	Ætna.....	W. M. Stewart....	65.00	32.50	2.50
Marion.....	Ætna.....	Dr. J. J. Pohle...	74.20	21.39	4.40
Hamilton.....	N r Chatt'nooga	T. Sterry Hunt..	63.90	26.80	9.30
Hamilton.....	Sale Creek.....	W. M. Stewart....	56.75	40.75	2.50
Roane.....	Baxter's Mine...	T. G. Wormley....	65.80	31.60	2.65
Roane.....	Roane Iron Manuf'g Co..	Unknown.....	76.39	16.50	3.46
Roane.....	Baxter's Mine...	T. G. Wormley....	63.10	28.20	7.70
Roane.....	Kimbrough's....	Troost.....	71.00	17.00	12.00
Rhea.....	Gillenwater's....	Troost.....	69.00	14.00	14.00
Anderson.....	Coal Creek.....	R. O. Curry.....	82.00	10.00	7.00

In the preparation of this article, free use has been made of the excellent Geological Report of Dr. Safford, of the surveys made by Prof. Bradley, and the Coals of America, by James McFarlane, A. M., D. Appleton & Co., New York. To Mr. McFarlane we are also indebted for the beautiful map of our coal regions which accompanies this article. It is copied from the Geological Map of Tennessee. The plate was electrotyped at Mr. McFarlane's expense, and forwarded to the Secretary of this Bureau.

## CHAPTER XIV.

## IRON.

Iron has not been inaptly termed the world's great civilizer—the mother of all the useful arts. The consumption of it measures the progress of civilization, as the manufacture of it measures the progress of wealth. Its law of development is traceable to the same agencies that spread population, enterprise, intelligence and learning throughout the world. Those nations that have ascended the highest in the scale of civilization and refinement, and have made the greatest advances in industrial enterprises, are precisely those who have consumed, per capita, the largest amount of iron. In 1855, the annual production of iron throughout the world was 7,000,000 tons.\* Of this amount, Great Britain produced 3,500,000 tons, and the United States 1,000,000 tons. The consumption of Great Britain at that period was 144 pounds per capita; of the United States, eighty-four pounds; while the consumption of the world was only seventeen pounds per capita. Since 1855, the production of iron has been doubled, reaching in 1872, 14,000,000 tons; and the consumption has kept pace with the production, England now consuming 200 pounds per head, the United States 150 pounds, and the whole world thirty pounds. Should the whole world require as much iron as the United States per capita of population, the production will have to be increased to 70,000,000 tons, or five times the quantity at present made.

This country has been the only one in the world that has kept pace with Great Britain in the ratio of increase in the production of iron. When the latter country produced 3,500,000 tons, we produced 1,000,000. In 1872, her product was 7,000,000 tons, and ours was 2,830,070 net tons, or nearly one-half the product of Great Britain. The

\*Many of these figures are derived from an address by Abram Hewitt, before the American Philosophical Society, New York.



number of furnaces in operation in that year was 594, and this number was increased in 1873 to 636. The production of iron for the last named year in the United States was 2,695,434 tons, a slight falling off. If the financial crisis had not occurred, the production of 1873 would have reached 3,000,000 tons.

The following table will show the production of pig metal in the United Kingdom of Great Britain and in the United States in the following years :

YEAR.	U. KINGDOM. Tons.	U. STATES. Tons.	YEAR.	U. KINGDOM. Tons.	U. STATES. Tons.
1740.....	17,350	.....	1850.....	.....	564,755
1788.....	68,300	.....	1852.....	2,700,000	.....
1796.....	125,079	.....	1854.....	3,069,838	736,248
1806.....	258,206	.....	1855.....	3,218,154	784,178
1810.....	.....	53,900	1856.....	3,586,377	883,137
1818.....	325,000	.....	1857.....	3,659,477	798,157
1820.....	368,000	.....	1858.....	3,456,064	705,094
1825.....	581,367	.....	1859.....	3,712,904	840,627
1827.....	690,500	.....	1860.....	3,826,752	987,559
1828.....	.....	130,000	1861.....	3,712,390	731,544
1829.....	.....	142,000	1862.....	3,943,469	787,662
1830.....	678,417	.....	1863.....	4,510,040	947,604
1831.....	.....	191,536	1864.....	4,767,951	1,135,497
1832.....	.....	200,000	1865.....	4,819,254	931,582
1833.....	700,000	225,000	1866.....	4,523,897	1,350,933
1835.....	1,000,000	270,000	1867.....	4,761,023	1,461,626
1839.....	1,347,790	230,000	1868.....	4,970,206	1,603,000
1840.....	1,248,871	286,903	1869.....	5,553,757	2,046,124
1842.....	.....	215,000	1870.....	5,963,515	1,850,000
1845.....	1,512,500	486,000	1871.....	6,627,179	1,900,000
1846.....	.....	765,000	1872.....	7,000,000	2,830,070
1847.....	1,999,508	800,000	1873.....	.....	2,695,434

The quantity produced in the United States was from twenty-one states. The estimated annual capacities of all the furnaces in the United States are 4,371,277 tons net.

Of the amount produced in the United States for 1873, it is estimated that Tennessee produced about 50,000 tons. In 1855 the production went beyond this, and was so far in excess of the demand that many of the furnaces were abandoned, and have never been rekindled.

We propose, in this chapter, to give a succinct account of our iron fields, the facilities which the State affords for the production of iron, and the cost of its manufacture, together with the number of furnaces now in blast.

## IRON BELTS.

There are four distinct iron belts or areas in the State of Tennessee, occupying in whole or in part forty-four counties, excluding the Cumberland Table Land.

1. *The Eastern Iron Belt.* Extends through the State, and lies mainly in front, and at the base of the Unaka Range of Mountains. It reaches beyond the limits of the State, to the north-east into Virginia, and to the south-east into Georgia.

2. *The Dyestone Belt.* Skirts the eastern base of the Cumberland Table Land, or of Walden's Ridge, from Virginia to Georgia; spreads out laterally from ten to twenty miles into the Valley of East Tennessee; the Sequatchie and Elk Valleys are included. This belt reaches far to the north-east beyond the limits of the State, and to the south-west into Georgia and Alabama.

3. *The Cumberland Table Land.* Co-extensive with the Coal Measures of the State, and extending into Kentucky and Alabama. The ores in this are inferior, being *clay iron-stones*, and black bands that have never been used for the making of iron in this State, but form by far the largest amount used in England. In Pennsylvania and Ohio, they are of great value. We have not included the counties of the Table Land among those containing iron ore, for the reason that there is some doubt whether the ore exists in workable quantities.

4. *The Western Iron Belt.* Lies west of Nashville, or say west of the Central Basin; is mainly between the latter and the Tennessee River, though extending a few miles in some counties west of the river. Northward it reaches into Kentucky.

## THE EASTERN IRON BELT.

This belt embraces the extreme eastern tier of counties, viz: Johnson, Carter, Washington, Greene, Coeke, Sevier, Blount, Monroe, McMinn and Polk; to these we may add Sullivan, which adjoins this belt on the north-west.

Along the North Carolina line is a great double range of mountains, constituting one of the natural divisions of the State, and denominated the Unakas. This range of mountains consists of several long, high, parallel ridges, intersected by deep cuts or chasms, through which the

Watauga, Nolichucky, French Broad, Big Pigeon, Little Tennessee, Hiwassee and Ocoee Rivers flow out of North Carolina and Georgia into this State. A part of this range is called Smoky Range. The ore banks of the Eastern Iron Belt lie mainly to the north-west of this Smoky Range, some of them, however, occurring in the valleys and coves between the more westerly ridges.

The most important ore found is what mineralogists call *Limonite*,\* a compound of iron, one form of which, *common iron-rust*, is well-known. In nature it is found in all sorts of forms, sometimes as yellow powder, which, when mixed with clay, is "yellow ochre;" sometimes as a porous sponge-like mass, called *honey-comb ore*; again in a compact, hard stone-like condition. It not unfrequently occurs in curious stalactitic forms, and often in hollow balls, or "pots." In all these forms, however, it retains the simple chemical composition of ordinary iron-rust. That composition, when the mineral is pure, that is to say, when there is no clay, or sand, or other foreign substance mixed with it, which by the way is usual, is in percentage numbers as follows:

Iron.....	59.92
Oxygen .....	25.68
Water .....	14.40
	100 00

It contains, therefore, when pure, very nearly 60 lbs. of iron to the hundred. Practically, owing to the presence of impurities, and losses in the reduction, it never yields so much.

The purest possible Limonite, or Brown Hematite, cannot possibly contain more than sixty per cent. of pure iron, the assertions of mineral enthusiasts to the contrary notwithstanding.

This ore does not occur in regularly stratified beds like the Dyestone, to be mentioned, nor in true veins like many other metalliferous minerals, but is met with in irregular masses of all sizes, from small lumps (shot ore) up to blocks ten or fifteen feet in diameter. The matrix is composed of clay, gravel and decomposing rock. A spot of ground, (it may be a knoll, part of a ridge, or part of a mountain slope,) in which the ore is discovered by digging, is called a *bank*. A bank may be defined to be an area beneath which lies a considerable depth of

\*Limonite is derived from a Greek word, signifying meadows, because this ore was first found in boggy or marshy places. The term includes both bog ore and brown hematite.

clay, sand and rocky debris, interspersed with which iron ore (Limonite) is to be found in greater or less quantity, the ore presenting itself, as stated, in irregular masses of all sizes up to blocks as large as railroad coaches. The banks differ much in quantity of ore—some are said to be rich; others are poor, requiring the removal of much foreign matter; others, again, are little else than clay and debris—all require the removal of more or less dead matter before the ore can be obtained. In many banks great excavations, mostly open to the day, have been made, into which large buildings might be tumbled. The banks, although in some cases a hundred feet in depth, are superficial formations, and rest upon stratified limestones, shales, and other rocks. As may be inferred, mining in such banks is rather an uncertain business, both as to the quantity and the exact position of the ore. Nevertheless, the best of them yield an abundance of mineral.

In a given valley, or on a given ridge, there may be from one to a dozen banks, the latter of any length from a hundred yards to a mile. In the Eastern Belt, banks occur in all the counties. Johnson and Carter contain many of them, some of which are exceedingly valuable. In Greene county there are very good banks. Two large furnaces have been erected in this county since the war, and are doing a good business. The ore yields from forty to fifty per cent. of tough grey iron.

Limonite, as has been stated, is the principal ore of this belt. In addition to this, the black ore of iron, *Magnetite*\* of the mineralogists, occurs at one point at Crab Orchard, near the North Carolina line in Carter county. How much of this there may be we are not able to state. Much excellent bar iron has been manufactured from it in a common bloomery. In Sullivan county, in addition to the Limonite banks, are veins, or banks of red ores, *Hematites*.† The Crockett and Sharp banks afford this variety, and are capable of supplying much good ore. In McMinn county is a remarkable deposit of stratified red ore, which, on account of its proximity to the Unaka Range, we include in the Eastern Belt. This is Hill's Bank. The ore is a stratified, fossiliferous rock, much like the ore of the Dyestone Belt, to be mentioned. This bed of ore is noticeable from the fact that it belongs to the Lower Silurian series, while the Dyestone belongs to the Upper Silurian. The main deposit is a third of a mile or more in length, and at some points fifty or sixty feet wide.

\*Magnetite takes its name from the property the ore has of being attractable by the magnet.

†Hematite comes from a Greek word signifying blood, because of the blood-like color of the iron ore. The term brown hematite as, applied to limonite, would appear to be a misnomer.

The Tellico ores in Monroe county are varied. The Limonite is most abundant, but there are a few localities where the Hematite and Magnetite are found. The Hematite ore is so compact that blasting powder is used in raising it. It is very pure, having a few seams of yellow and white ochre.

Shot ore is likewise found in this vicinity. Donelley's Bank is the name of the principal deposit of this ore. A tunnel has been driven into a ridge, and for a while large quantities were taken out that yielded in the furnace fifty per cent.

Many years ago the immense masses of brown Hematite which cap the copper veins at Ducktown, in Polk county, attracted the attention of iron men. Many attempts were made to work it, but the small percentage of copper ore present made the iron worthless. Time may develop processes by which it can be made available, but at present the quality of iron is what is called "red short," and is almost worthless for any practical purposes.

There are now in operation, or temporarily suspended, five furnaces in the Eastern Iron Belt; one in Carter county, one in Washington, two in Greene, and one in Johnson. The quantity of iron made is small, on account of the inadequacy of railroad facilities. While the quantity produced in this region will not exceed 10,000 tons annually, the capacity of the furnaces is equal to the production of 15,000 tons. This charcoal cold-blast iron is very superior. Its chilling properties are just such as to make it most suitable for the manufacture of car wheels, and nearly all the iron made in this region is consumed in Knoxville and other points for that purpose. It has been pronounced equal to the best made anywhere for car wheels, axles, locomotive tires, and, indeed, everything in which toughness, elasticity and strength are required. A fair test was also given to this iron at West Point, for armory purposes, and proved entirely satisfactory.

#### THE DYESTONE BELT.

This belt of iron ore is remarkable for its length and richness. It skirts the eastern base of the Cumberland Table Land, and extends in our State from Chattanooga to Cumberland Gap, a distance of one hundred and sixty miles. The following counties, or parts of them, are embraced within this belt: Hancock, Claiborne, Grainger, Union, Campbell, Anderson, Roane, Rhea, Meigs, James, Bradley and Ham-

ilton. As before stated, the belt includes the Sequatchie and the Elk Fork Valleys, which places parts of Marion, Sequatchie and Bledsoe counties within its area.

The chief ore of this belt is a stratified red iron-rock, called at many points *Dyestone*, being sometimes used for dyeing purposes. It is highly fossiliferous. Like a limestone, or a bed of coal, and unlike the Limonite of the Eastern Belt, it occurs in layers. Its quantity, in any given locality, can therefore be estimated, and the result of a given amount of mining can be calculated with some precision. As a mineral species, the ore is a variety of *Hematite*, which in plain English is *blood-stone*, the word referring to the color of the ore. If we take common iron-rust and burn it, we obtain a *red* rust, the change being brought about by the expulsion of water simply. Common brown or yellow iron-rust is then Limonite, the same burned is red Hematite. By the burning more than fourteen per cent. of water is expelled. The composition of Hematite is as follows:

Iron.....	70
Oxygen.....	30
	100

One hundred pounds of the pure ore might be made to yield seventy pounds of iron, but, as in case of Limonite, the impurities defeat this maximum production. In practice from forty to fifty per cent. (and rarely sixty) may be regarded as good work. The ore usually soils the fingers readily. At some points it is hard and is quarried out in blocks; occasionally it is soft and easily crushed. The impurities in it are sandy and argillaceous matter and carbonate of lime. Originally much of it contained limestone matter, this having been in the course of ages leached out, leaving red layers as we now find them.

One, and, at many points, two or more layers of Dyestone outcrop at the eastern base of the Table Land, almost without a break, throughout its whole extent from Virginia to Georgia. Also in many of the minor ridges, lying from one to a number of miles from the Table Land but running parallel with its eastern border, are other outcropping layers. The latter will perhaps, in the aggregate, equal an outcrop extending continuously through the State and following the direction, as above, of the outline of the Table Land. In addition there are lines of outcrops in Sequatchie and Elk Fork Valleys. Elk Fork Valley is in the extreme north-western part of Campbell county.

One of the richest deposits of this ore occurs within a few hundred

yards of Cumberland Gap, and extends without a break twenty miles along the mountain and is half a mile in width. It forms a regular stratum of Walden's Ridge, four feet beneath the surface and varies from eighteen inches to three feet in thickness. This stratum is parallel with the slope of the ridge, and forms a complete sheet or shield, with an overlying stratum of clay, sand, and gravel. The ore is raised with powder and thrown out in large broad sheets. It is here very hard and massive. The whole cost of raising this ore at Cumberland Gap, and depositing it in the bridge loft ready for smelting, is one dollar per ton. This fact will be appreciated by the reader when he reflects that ores delivered ready for smelting in the Pittsburg furnaces cost from ten to twelve dollars per ton. On the spurs which shoot out from the Cumberland Table Land, are deposits of Limonite iron ore of superior excellence, yielding from the furnace fifty per cent. This ore caps the hills, forming a ledge with intermingling gravel from sixteen to eighteen feet in thickness. Some of these beds are said to have an unusually small quantity of dead matter. In other places in the same vicinity are said to be deposits of the black oxide, and silicious iron ore, which have never yet been tested in a furnace.

Limestone for flux, and sandstone for hearths, are found all through the Dyestone region. Coal, too, abounds in juxtaposition to the iron ore, though preference, until the establishment of Rockwood Furnace, was given to charcoal, for the manufacture of which there are ample supplies of timber. Until the erection of Rockwood Furnace, since the war, stone coal had never been used in this State for the smelting of iron.

Very fine deposits of this Dyestone ore occur in the Half Moon Island region, both on the Island and on the mainland. Being on the river, it is easily transported at small cost to Chattanooga and other points. Before the war a large furnace was in operation at Chattanooga, which used the ore from this region.

But we cannot pretend, within the limits of this chapter, to point out all the advantages which this region affords for the manufacture of iron, or to enumerate all the exposures of ore. What has been said is sufficient, perhaps, to give a general idea of the facts. The thickness of the layers varies from a few inches to four and five feet, sometimes swelling out locally from eight to ten.

So far we have spoken of the Dyestone as occurring in Tennessee; but it has a great range outside of the State. It extends south-west-

ward through the north-west corner of Georgia far into Alabama, and is represented by several lines of outcrops. It is the Red Mountain ore of Alabama, and has yielded many hundred tons of iron in that State. To the north-west it extends into Virginia, and indeed through it, reaching into eastern Pennsylvania, where it is extensively reduced in splendidly appointed furnaces.

The layers of ore are attended with shales and thin sandstones, which, with the ore, make up the *Dyestone Group* or formation. This is a part of the Niagara geological series. The Dyestone Group is often associated, in the ridges, with two other formations, the *Black Shale* and the *Silicious Group*, both of which lie above it. The three make a *trio* of formations often met with.

Prior to the war there were in the Dyestone Belt five blast furnaces and fifteen bloomaries. The quality of the iron made was excellent. Soon after the end of the war attention again began to be directed to the dyestone beds, and it was not long before a new era in iron making was inaugurated in a portion of the belt, by the building of a superior furnace in Roane county at Rockwood.

At this place are now erected two furnaces, only one of which is in blast. The burning of the gas in the furnace, heats the boilers and makes the steam. These furnaces were built under the superintendency of Gen. J. T. Wilder, whose communication to the Bureau of Agriculture, included in this chapter, will be read with increased interest as the wonderful resources of this iron belt are made known.

We have already said that the Dyestone Belt lies at the very base of the Coal Measures. Here, then, we have, sandwiched, coal, iron ore, limestone and sandstone, the latter suitable for hearths. This circumstance adds much to the interest of this region. Nothing is lacking to make it one of the most famous metallurgical centres in America but facilities for transportation, capital and enterprise. The Cincinnati Southern railroad has already been prospected, and the route surveyed through this iron belt. It is understood that \$10,000,000 have been subscribed, and doubtless in a short time the iron horse, with its civilized shriek, will run over beds of ore as rich and as exhaustless as any that exist on the continent. A chain of fiery furnaces will then be built that will illumine the whole eastern margin of the Cumberland Table-land. The light of one will reflect back the light of another. The wilderness of the forest will be replaced by enterprising industry, and there will gather along this line busy communities. Flourishing



towns will spring up, in which manufacturers from the colder regions of the north will rear their establishments for the fabrication of fire-arms, cutlery and farming implements. Under the shadow of the mountains a new empire of industry will spring up, in which there will be no idlers. With the creative power of coal the iron rocks that have slumbered for unknown ages beneath the surface will be fashioned into articles of utility and value. Ponderous trip hammers will shake the earth, and the eternal whirr and buzz of machinery will make the very atmosphere redolent of life and enterprise. Farms in the long, rich valleys will teem with luxuriant crops, that will find a ready market near, at good prices, and communities that now live from hand to mouth will revel in all the blessings, superfluities and luxuries of life.

Nor is this a fancy picture. Under a good government, in a happy climate, wherever coal and iron lie in juxtaposition, and are made accessible by railroad communication, great centres of population are established. See Pittsburg, how opulent! Mr. Valentine, the able superintendent of Wells and Fargo's Express, says of it:—"If you would see what coal can do for a people who turn it to full account, look at Pittsburg, a city with its environs of 300,000 inhabitants built up by miners of coal. There are no drones in its hive—heads and hands are busy. It lost \$30,000,000 by the war without shaking its credit. No city on this continent contains more solid wealth according to its population." If coal can do this for Pittsburg, surely coal and iron can do the same for this portion of the State, and Knoxville and Chattanooga will gather in their laps an almost fabulous wealth, and in time become the Pittsburgs of the South.

In the Dyestone Belt are four furnaces now in operation or temporarily suspended, and two or three others in course of erection. Oakdale, stone coal, hot-blast, has a capacity of 1,200 tons per month; Rockwood, Nos. 1 and 2, both stone coal, hot-blast furnaces, have capacities respectively of 750 and 1,200 tons per month; and the Cumberland Gap furnace, charcoal, cold-blast, has a capacity of 105 tons per month. Crockett furnace, in Claiborne county, will soon be put in blast. This has the same capacity as the one at Cumberland Gap. Two will soon be in blast in Chattanooga; one already completed, with a capital stock of \$100,000, and the other under way, with a like amount of stock. These furnaces propose to work mixed ores from various points with stone coal. The capacity of each is thirty tons per day.

The following letter from Gen. Wilder, superintendent of Rockwood,

to one of the commissioners of the Bureau of Agriculture, will be read with interest.

ROCKWOOD, TENN., March 10, 1873.

*Mr. Tom Crutchfield, Commissioner of Agriculture, Tennessee:*

DEAR SIR:—Your favor, asking me to give you a general outline of the mineral resources of East Tennessee, is received. With diffidence I undertake the subject, knowing my inability to do it half justice, yet feeling anxious to assist in, such manner as I may, the early development of the vast mineral resources of this wonderful country.

East Tennessee is a high Valley, with an elevation of 1000 feet above the sea, running northeast and southwest about two hundred and eighty miles from Chattanooga, on the southern line of the State to Bristol, at the northeastern end, the line of Virginia, with an average width of sixty miles. It is bounded on the southeastern side by the lofty chain of the Unaka range of mountains, reaching sometimes an elevation of over 6,000 feet above the sea, with frequent gaps, through which numerous rivers flow to the northwest. Still further to the southeast, about fifty miles in North Carolina, is the unbroken chain of the Blue Ridge, over six thousand feet high. On the northwestern side of the Valley is the level-topped Cumberland mountain plateau, sixty miles wide, with its southeastern side next to the Valley of East Tennessee. For a distance of 130 miles from Sale Creek (thirty miles above Chattanooga) to Cumberland Gap, it is tilted up or folded back against the horizontally stratified Cumberland mountains. This uplifted edge is called Walden's Ridge, and is the southeastern limit of the great Appalachian coal field which runs entirely across the State, from northeast to southwest, with an elevation of 2,000 feet, and an average of sixty miles wide by one hundred long, making a coal field of nearly 6,000 square miles, or 3,840,000 acres; exceeding by 454,000 acres the entire coal area of Great Britain, including England, Scotland, Wales and Ireland.

The Valley of East Tennessee is corrugated throughout its entire length with a number of low ridges running parallel to each other N. E. and S. W. with the Valley. The rivers from the valley of Western North Carolina, at the base of the Blue Ridge, cut through the Unaka chain, and through the numberless ridges of the Valley, until they unite in the Tennessee river, at the base of the Cumberland coal field, following which to the southern limit of the State at Chattanooga, the last named river suddenly turns its course and hews its way

through the Cumberland chain to the northwest. Here, in the heart of the great Valley of the Mississippi, it offers its clear, deep current to bear the commerce of 15,000 miles of navigable waters back through 800 miles of cotton and corn fields, through five great states, to its mountains of coal and iron, veins of copper, placers of gold and hills of marble, in a climate like Northern Italy; adding with its branches 1,800 other miles of navigable waters to the wonderful network of great rivers that form the national highways for the products of more than half the states of this Union, and bearing a tonnage greater than that of any nation of Europe.

This wonderful Valley of East Tennessee is lowest near the base of the Cumberland mountain, containing the coal fields on its northwest side. All its streams head in North Carolina and Western Virginia, and drain northwest into the Tennessee, each river forming a natural highway down stream to the coal fields. Nearly every ridge in the Valley contains minerals of some kind, the cuts through which the rivers flow forming natural openings to the veins of iron ore, which enterop in nearly every ridge, whilst the great Alleghany chain is ribbed and seamed with veins of iron ore of nearly every known variety. From the same range are taken large quantities of copper at Ducktown, whilst all along its northern base runs a great, broad belt of roofing slate and most beautiful black marble intersected with snow-white veins. Along the base of the Cumberland range runs entirely through the State, a low range or ridge of about 200 feet altitude above drainage, containing invariably two veins of red fossiliferous iron ore, varying in thickness from three to ten feet, cropping out through the crest of the ridge on its southern slope, and dipping at an angle of about forty-five degrees to the northwest. It is supposed to extend under the coal field; at all events, it crops out at precisely the same geological horizon on the opposite side of Walden's Ridge, in Sequatchie Valley and in Elk Valley opposite Knoxville, localities 100 miles apart, and each ten miles from the place of disappearance of the ore at the south-east base of the mountain. The coal in Walden's Ridge is a dry, semi-bituminous or rather semi-anthracite, working raw in the blast furnace, and requiring at Rockwood about two and three-fourths of a ton of coal to smelt one ton of pig-metal. The ore averages a yield of sixty per cent. of iron, and the sub-carboniferous limestones furnish ample and excellent fluxing material, requiring twenty to twenty-five per cent. of flux. Nowhere along this long line of 160 miles is it more than half a mile from the iron ore to the coal beds, while the massive limestones are invaria-

bly between them the entire distance. The coal at Rockwood is very much disturbed, varying from one to over one hundred feet in thickness. Our No. 1 furnace has been in blast most of the time for over four years, making a fine quantity of pig-iron for rails with only one kind of ore. No. 2 furnace, of forty tons capacity, will be put to work early in the spring, when we will turn out, with both furnaces, seventy-five tons of pig-iron per day.\* At the base of the Unaka chain, on the south side of the Valley, is a wide chain of high knobs, in many of which are wonderful beds of the finest brown Hematite iron ore, some of which contain maganese. In the Unaka chain are inexhaustable *veins* of brown Hematite, and in the high mountains of the Blue Ridge are large veins and lodes of magnetic iron ores. All these must go with the rivers to the coal fields on the northwest side of the great Valley, for this reason—that it requires one ton and a half of good iron ore to make one ton of pig-iron, and it takes about three tons of coal to reduce it, and three to four more tons of coal to convert and finish it into bar-iron; thus using seven tons of coal to produce one ton of merchantable iron, and one-third of a ton of limestone, making in all seven tons and a half of fuel and flux. These are found contiguous to large and persistent beds of iron ore, only requiring a mixture of one half of the brown Hematite and Magnetic ores to make merchantable iron, fit for any use in arts and commerce, and giving the advantage to manufacturers located near the coal in proportion to the greater tonnage of fuel and flux used, to the vastly lesser weights and freight of ores required to produce one ton of iron; in other words, saving in the production of pig-iron one-half the transportation, and in bar or plate iron or nails, nearly 500 per cent. This is the advantage enjoyed by the manufacturers on the northwest side of the Valley over those located on the southeast side, where is plenty of ores and no coal. Thus is insured to the northwest side of the Valley, along the proposed route of the Cincinnati Southern Railroad, a continuous line of works and a dense producing population. A few words might be added, giving a geological outline of a cross section of this Valley and its mountains on either side. Commencing in North Carolina, with the range of the Blue Ridge, an enormous Eozoic upheaval ribbed with iron ores; thence northwest crossing granite formations to the metamorphic rocks of the Smoky or Unaka chain, walling long veins of copper and iron ores; thence through great beds of roofing slate, across the Silurian ridges of the broad Valley, to the single lines of Devonian shales at the base of

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\* No. 2 is low, (January, 1874,) in operation, and turns out an average of 30 tons per day, though as high as forty and a half tons have been the result of twenty-four hours work.

the Cumberland. In the steep wall of this mountain you cross three workable veins of finest coal, cropping out above drainage, and reach the level top of the coal fields, having in less than one hundred miles passed from the lowest primitive rocks across the Metamorphic, Silurian, Devonian and Carboniferous formations. These turned up on edge show all the wonderful provisions of nature in minerals, ready for the hand of man, deposited and hidden in the past ages, but unsealed and opened by the Creator's engineers and contractors—the earthquakes of the past and rivers of the present—and asking in mute eloquence for the mind and hand of man to take from their abundance and make them useful. These ranges and valleys are in a climate unequalled in salubrity and average comfort of temperature—the driving storms of the great plains of the Northwest being shut off by the continuous Chain of the Cumberland mountain, and the raging gales of the Atlantic seaboard stopped short of our valleys by the range of the Blue Ridge and Unakas. These causes render this high mountain-walled Valley not only more temperate in winter, but much cooler in summer than any valley south of the great lakes or east of the Pacific coast and free from malaria, while the great number of medicinal springs of almost every known property or variety, makes our valleys a favorite resort for persons seeking either health or pleasure.

I have written these disjointed papers in a great hurry, being unable either to copy or correct, and send them as crude ores to be refined by workers in words, hoping they may direct more capable persons to call just attention to our enormous resources, I having, pioneer-like, but “blazed out” the road.

I am earnestly yours,

J. T. WILDER.

Appended please find a copy from our books of the workings of our furnace for the past two months:

*Monthly Report of Rockwood Furnace for the Month ending Saturday,  
December 26th, 1872.*

Material, etc.	No.	Pounds.	
Ore charged.....	2,144,000		\$2,835 86
Coke “ .....	891,200		2,005 20
Coal “ .....	1,339,200		1,101 80
Limestone.....	552,700		304 59
Labor.....			1 170 15
Salaries.....			400 00
Material from Store.....			303 37
Blacksmithing.....			118 56
Foundry Castings.....			98 03
Total.....			<u>\$8,337 55</u>

Produce, 590 tons No. 1 mill iron ; cost, \$14.13 per ton. Ore yielding 62 40-100 per cent.

*Report of Rockwood Furnace for the Month ending Saturday, January —, 1873.*

Material, etc.	No. Pounds.	
Ore charged.....	2,145,500	\$3,194 80
Coke.....	1,408,800	3,169 80
Coal charged.....	1,636,600	1,405 77
Limestone.....	601,800	331 61
Labor.....		1,486 10
Salaries.....		580 00
Materials from Store.....		127 95
Blacksmithing.....		68 15
Foundry castings.....		98 03
Total .....		\$10,433 38

Product, 655 tons No. 1 mill iron ; cost, \$15.92 per ton. Ore yielding 62 78-100 per cent. W. F. SANKS—for D. E. REES, Agent.  
J. T. WILDER, Superintendent.

#### REMARKS.

Ores are charged at \$3 per ton, and actually cost by contract \$2 per ton. All allowances are made to cover any possible waste or cost of extra handling.

The cost for January is unusual, owing to the greater amount of coke used in that month, to reduce the amount of stock of coke on hand. Ore yielded for the time quoted above 62 59-100, and an average of 2.715 tons of coal used for each ton of iron produced.

J. T. WILDER.

We may add here that the heaviest collection of ores which were seen at the Vienna Exhibition, in 1873, came from Tennessee, and was under the charge of General Wilder. The collection was honored with a premium, though it arrived very late.

*A list of Furnaces in East Tennessee, with the kinds of fuel and ore used, and the average yield per month.*

County.	Name of Furnace.	Fuel.	Blast.	Kind of Ore.	Average yield per month	Remarks.
Roane.	Rockwood, No. 1.	Coke & Coal.	Hot.	Red Hematite.	576	Blown out for re- In blast. [pairs.
"	Rockwood, No. 2.	" "	"	" "	900	
"	Oakdale.	" "	"	" "	900	"
Clairborne.	Cumb. Gap I. W.	Charcoal.	Cold.	" "	105	"
Greene.	N. Y. E. T. I. Co.	"	"	Bro'n Hematite	200	"
"	Unaka.	"	"	" "	300	"
Washington.	Bradley.	"	"	" "	200	"
Johnson.	Bu-hnong.	"	"	" "	100	"
Carter.	Knoxville Car Co	"	"	" "	200	"

Showing a monthly yield of 3,481 tons per month.

These furnaces have seldom been run to their full capacity.

A company called the Rhea Iron Company, will erect during the present year, in Rhea county, twelve miles below Rockwood, a furnace with a capacity of thirty tons per day. It is understood that this company has 5,000 acres of fine coal and mineral lands. The name of the place is Greenwood.

#### THE IRON ORE OF THE CUMBERLAND TABLE LAND.

The ore found in this region lies interstratified with the shale, sandstone and coal of the Coal Measures. It is called *clay iron-stone*, and is an argillaceous carbonate of iron. It occurs mostly in nodules, but sometimes in layers, and is co-extensive with the coal fields. The low per cent. of pure iron found in it, rarely over thirty per cent., usually twenty, and its comparative scarcity, have caused it to be neglected by our producers of iron. In England the largest quantity of iron is made from this ore, and doubtless the time will come when the ironstones of Tennessee will be smelted in our furnaces. This, for iron ore, is the least valuable of our iron belts. It covers over 5,000 square miles.

#### THE WESTERN IRON BELT.

A line drawn from Clarksville, Tennessee, to Florence, Alabama, would pass through the center of the Western Iron Belt. It is about fifty miles wide, and extends through the State, often overleaping the Tennessee River, passing into Kentucky and reaching to the Ohio River. It embraces an area of more than 5,400 square miles. It includes all or parts of the following counties: Lawrence, Wayne, Hardin, Lewis, Perry, Decatur, Hickman, Humphreys, Benton, Dickson, Montgomery, Houston and Stewart. On the eastern side of the Central Basin, at the foot of the Cumberland Table Land, is the counterpart of this Western Iron Belt. It embraces the counties of Warren, White, Putnam, Overton and Van Buren.

Could one be elevated so as to have in view the whole of this part of Tennessee, he would see no such mountains as presented themselves in the eastern part of the State, but, reaching north in Kentucky, and south into Alabama, would be seen an elevated plateau country, covered for the most part with forest trees, though showing some cultivated areas, and here and there a town. In sight to the east and bounding the

plateau on that side would lie the depressed and fertile *Central Basin*, holding the capital and many towns, while, to the west, would lie across the State, and bounding the elevated area in that direction, the narrow broken valley of the Tennessee River.

It would be seen, furthermore, that this plateau country is not a little cut and dissected by the valleys of rivers and creeks. Duck River runs through it in a serpentine course, with gleaming brightness, from east to west. The Cumberland River, with its valley, cuts it completely if we include its Kentucky extension. Buffalo River and valley lie wholly within it. Besides these, very many creeks with narrow valleys curve its edges and fringe it with multitudes of ridges and spurs. This cutting has in some parts of the area resulted in the formation of rolling lands, especially along the larger streams. There is presented along the Cumberland River, for example, at intervals, a border of such land several miles wide.

The rocks underlying the plateau region are limestone, more or less charged with flint-masses (chert,) and fine siliceous and clayey impurities. They belong to the two lower divisions of the Carboniferous system, which are known to geologists as the *Siliceous Group* and the *Lithostrotion Bed*, which are described in this report as the Barren Group, and the Coral or St. Louis Limestone. The whole country has been undergoing a leaching process for ages. The purer limestone matter has been dissolved and carried away, while the chert, siliceous material and clay have been left behind. The rocks now are generally covered with a very considerable depth of such residual debris.

The Iron Belt may be considered as coinciding, for the most part, with this area. To it, however, must be added certain hilly tracts on the west side of the Tennessee in Decatur and Benton. Over this whole region more or less ore occurs. But only at *certain centers* is it found in sufficient quantity to be made available. These centers present accumulations of ore, and are for that reason called "banks." The ore, like that occurring for the most part in the Eastern Iron Belt, is *Limonite*, sometimes called, as we have said, Brown Hematite. The banks, too, though the kind and the position of the rocks, the topography of the country, and other circumstances, make some difference, resemble those of the Eastern Belt. They have generally a high position, being located, with few exceptions, on the tops or edges of the plateau ridges. To appreciate their geological relations, it must be borne in mind that these ridges are capped with the leached remains, the debris,



of the rocks of the Siliceous Group, these remains consisting of angular fragments of half-decomposed, and often bleached, chert and sandstones imbedded in clay, with which is sometimes sand. To this is very frequently added water-worn gravel. The bed of debris is from a few feet to 100 feet in depth, and in it as a matrix the iron ore has, at the centers mentioned, accumulated and formed the banks. It may be added that some localities do not abound in chert; a few afford ore in red clay alone.

The banks vary greatly in the richness of ores and in their extent. Some of them cover whole square miles, while others occupy only an acre or two. Oftentimes the ore is intermixed with hard cemented cherty masses, and yields but a poor return from the furnace. Again it is comparatively free from impurities, yields, when worked, from forty to fifty-five per cent. The lumps, as taken from the beds, are of various sizes, from a few inches to a yard in thickness, and in all possible shapes. In Wayne county, near the Wayne Furnace, at the depth of thirty or forty feet beneath the crests of the ridges, large masses are found so strongly cemented as to require the use of the drill and blasting powder to raise them. Of the quantity of material removed from the best banks, one-third is ore. The cost for digging and delivering to the furnaces is two dollars per ton.

It would be impossible in this chapter to give a description of all the banks that have been worked in this region. In Hickman county there are at least twenty which have been examined, each affording a sufficient supply of ore to run a furnace. Indeed, it has been asserted that the quantity of ore in this county is equal to that of Iron Mountain, Missouri. The supply is also very great in Stewart and Dickson counties. The iron deposits in Lewis, Lawrence and Wayne are extensive, and underlie much of hill lands in these counties. Decatur and Benton counties, in West Tennessee, though more limited in the extent of their deposits, have some banks of great richness. Indeed, it may truly be said of this whole region, that it is a wide field of undeveloped wealth, and capable of sustaining establishments enough to supply the world with iron for a century.

There were in the Western Iron Belt, before the war, thirty-five furnaces, four bloomeries, and thirteen refineries, the latter having about fifty-nine fires. Of the furnaces, Stewart county had the greatest number; Montgomery came next; then Dickson and Decatur, each having two; and finally Hardin, Wayne, Lawrence, and Perry with one each.

There are now in operation, or were for the year 1873, eleven furnaces\* in this Western Belt. The names and average monthly productions are given in the following table:

Name.	County.	Blast.	Capacity $\frac{1}{2}$ Month.
Brownsport Furnace .....	Decatur.....	Hot....	540 tons.
Wayne Furnace.....	Wayne.....	Hot....	540 tons.
Napier's Furnace.....	Lewis.....	Cold....	270 tons.
Cumberland Furnace.....	Dickson .. .	Hot....	360 tons.
Veron Furnace.....	Dickson.....	Cold....	240 tons.
Vernon Furnace.....	Montgomery.....	Hot....	360 tons.
Dover Furnace.....	Stewart .....	Cold....	300 tons.
Rough-and-Ready Furnace....	Stewart.....	Hot....	300 tons.
Bear Spring Furnace .....	Stewart.....	Cold....	360 tons.
Clark Furnace.....	Stewart.....	Hot....	510 tons.
LaGrange Furnace.....	Stewart.....	Hot. . .	450 tons.

Aggregating monthly 4,230 tons; add that of the furnaces in East Tennessee, 3,481, and we have for the monthly product in the State, 7,711 tons. [For more minute descriptions of the banks, furnaces, details of the cost of manufacturing iron, see descriptions of Stewart, Wayne and Lewis counties in this volume.]

The fuel used in all the western region is charcoal, and the ore Limonite or Brown Hematite. Wood for its manufacture is plentiful and cheap. The quality of iron is better than that made of stone coal, being used extensively for bar and boiler plate, as well as for car wheels, axles, &c. Mr. George T. Lewis, who before the war was extensively engaged in the iron interests of this region, says: "The Cumberland Tennessee iron has become celebrated for its toughness and strength, and has maintained its superiority for nearly forty years in competition with Swedish iron. Though there have been many casualties by the explosion of boilers upon the western and southern steamboats, resulting in the loss of thousands of lives, yet not one boiler made of this iron has ever exploded."

Now, as to the present cost of making this iron, there is a very great diversity of opinion, even among those engaged in its manufacture. Mr. Lewis thinks the cost of making cold-blast charcoal metal in Pennsylvania, Ohio and Indiana, is \$40 per ton, while the same may be made in the Western Iron Region for less than \$30. Stone coal pig-metal, according to the same authority, costs, when made in Pittsburg, \$30.76 per ton. A better grade, he says, can be made at points

\* Lanra Furnace is located in Kentucky, but most of the property lies in Stewart County.

on the Memphis, Clarksville and Louisville Railroad, at a cost of \$20.25 per ton, viz. :

2½ tons ore, at \$2.....	\$5 00
80 bushels coke, at 10 cents.....	8 00
¼ ton limestone, at \$1.....	25
Superintendence and labor per ton.....	4 00
Interest on investment.....	80
Incidentals, per ton.....	1 00
Repairs, &c. ....	1 20
Total cost per ton.....	\$20 25

Mr. Lewis' statements, as to the cheapness with which iron can be manufactured in the Western Iron Belt, having been doubted by men holding prominent positions in the government, we have sought other sources of information from the most responsible makers in this region.

The following is a *bona fide* transcript from the books of a company that is extensively engaged in the manufacture of this metal. It is for the year 1871—the furnace not running through the whole period of 1872 or '73 :

*Operation of ————— Furnace for the Year 1871.*

Number cords of wood chopped.....	16,176
Bushels of charcoal used.....	643,400
Number tons of iron made,.....	4,110
Number of days blowing.....	296
Average tons per day for 296 days.....	13 6-7
Number tons of ore received.....	10,905
Average cost of ore per ton.....	\$2.00
Number tons of ore to ton of pig-iron.....	2½
Number bushels of coal used.....	639,400
Number bushels of coal to ton of pig-iron.....	155½
Average cost of coal per bushel.....	7¾c.
Number pounds of limestone to ton of pig-iron.....	612
Cost of limestone to ton.....	50c.
Whole amount of daily labor and salaries for the year.....	\$26,469.49
Average cost of ton of pig-iron for labor and salaries.....	6.44
Extra per ton for hearths, sand, interest, &c.....	1.33

From this statement it is easy to sum up the cost of a ton of pig-iron, thus :

155 bushels of coal, at 7¾ cents.....	\$12 04
2½ tons of ore, at \$2.....	4 66
Labor and salary.....	6 44
Lime.....	50
Incidentals.....	1 33

Cost of ton charcoal (hot-blast) iron.....\$24 97

Substantially the same cost appears on the books for 1872 and 1873.

The details, as given from a *cold-blast* charcoal furnace, in Stewart county, for 1873, are :

170 bushels charcoal, at 8 cents.....	\$13 60
2 tons ore, at \$2.50.....	5 00
Labor and salary.....	6 44
Lime.....	50
Incidentals.....	1 33
	<hr/>
Cost of ton charcoal (cold-blast).....	\$26 87

If the number of days in the year in which the furnace is idle were deducted, it would reduce the price of iron 20 per cent. per ton on the item of salaries and labor. The estimate is further reduced by the profits from goods supplied to hands. About three-fourths of the labor employed is paid in goods, upon which a profit of 35 per cent. is realized.

#### ADVANTAGES OF TENNESSEE FOR MAKING IRON.

1. *Cheapness of Ore.* As compared with Hanging Rock, Ohio, and other points north of the Ohio River, it is striking, as the following figures will show. They are made for the year 1871 :

Cost of ore to ton of pig-iron in the Western Iron Belt.....	\$4 66
Cost of ore in the Dyestone Belt.....	2 00
Cost of ore at Hanging Rock, Ohio.....	7 50
Cost of ore at Pittsburg.....	12 67

2. *Cheapness of Fuel.* In the Western Iron Belt charcoal costs per bushel  $7\frac{3}{4}$  cents; at Hanging Rock, 10 cents—making a difference in cost of ton of iron of \$3.50.

The difference is still greater between the cost of fuel at Rockwood and Pittsburg, where stone coal is used.

3. *Days of Blowing.* This is very marked, when the averages of the furnaces in the Western Iron Belt and those at Hanging Rock are contrasted. Timber is so scarce in Ohio that it is difficult to lay in a sufficient stock of charcoal to get a blast to exceed 2,500 or 3,000 tons. In the Western Iron Region the timber is abundant and convenient, as also in the Eastern Iron Belt.

4. *Taxes on property are lower.* In Tennessee, the amount paid for taxes on a furnace that will make 5,000 tons annually, is known to be \$450. In Ohio, a furnace with the same capacity pays \$1,200 taxes.

## DISADVANTAGES OF TENNESSEE.

1. *Want of transportation.* This, in all the iron regions of the State, except those portions contiguous to the Tennessee and Cumberland Rivers, is a great drawback to the iron interests. It takes seven dollars per ton to transport the pig iron from Napier's Furnace to the railroad, four dollars per ton to get it to Tennessee River from Wayne Furnace, and from two to three dollars from other furnaces not convenient to railroads or navigable rivers.

2. *Difference in price of labor.* Labor is twenty-five per cent. higher in Tennessee, and not so efficient.

With all these drawbacks, Tennessee can still make charcoal iron from six to seven dollars cheaper than it can be made in Ohio, Indiana or Pennsylvania, and stone-coal iron from ten to fifteen dollars less cost per ton.

The subjoined tables will show the cost of making iron in Pennsylvania, for the years 1850 to 1873 inclusive. The first table gives the cost of the iron (stone-coal, hot blast,) on the furnace bank per ton of 2,240 pounds, as follows:\*

YEARS.	PRICE PER TON.	YEARS.	PRICE PER TON.	YEARS.	PRICE PER TON.
1850.....	\$14 25	1858.....	\$17 73	1866.....	\$27 88
1851.....	13 30	1859.....	16 14	1867.....	27 88
1852.....	14 34	1860.....	16 85	1868.....	26 00
1853.....	14 38	1861.....	16 61	1869.....	26 83
1854.....	16 00	1862.....	16 11	1870.....	30 04
1855.....	18 87	1863.....	16 53	1871.....	29 65
1856.....	18 05	1864.....	20 97	1872.....	30 58
1857.....	17 04	1865.....	32 21	1873.....	32 33

The second embraces the several items of which these sums are made up, and the progressive increase in the price of each. We give these at several periods, before and after the war:

COST OF.	1850.	1855.	1860.	1864.	1866.	1869.	1871.	1873.
Ore.....	\$ 5 75	\$ 7 51	\$ 7 45	\$ 9 12	\$12 19	\$11 86	\$12 67	\$13 30
Coal.....	3 70	4 63	3 49	5 41	7 55	7 41	8 59	7 15
Limestone.....	93	1 26	1 21	1 93	2 65	2 14	2 08	1 97
Labor.....	2 22	2 85	1 87	2 85	3 46	3 46	3 54	3 79
Interest, etc.....	1 68	2 62	2 83	1 66	2 03	1 96	2 77	2 76

\*These figures were furnished by James M. Swank, of Philadelphia, Secretary of the American Iron and Steel Association.

It may be well here to point out the danger which threatens our western iron fields by the inattention or neglect of our law-makers. The timber supply, while abundant at present, is being consumed at the rate of 6,000 acres annually. In the neighborhood of old furnaces, it has been cut down for a distance of three or four miles, and used in the making of charcoal. Sprouts put up every year, but the annual fires which sweep over the old "coalings" with devastating fury, destroy them. No new timber is taking the place of the old. Barren, sightless old fields, covered with broomsedge, meet the eye on every hand. How to protect the young timber in the iron region, is a question that should seriously engage the attention of our Legislature, for it will not be a question of iron ore in the future, but of timber. A due regard for the rights of posterity, if not for the present occupants of this region, should be manifested in the enactments of stringent laws against all persons guilty of wantonly setting the leaves on fire. Were the young timber protected, it would grow as fast as consumed. Estimating that 500 acres are used annually, by each furnace with a capacity of twelve tons daily, twenty-five square miles, or 16,000 acres would support a furnace perpetually, on the supposition that the trees will grow in thirty years large enough to be used for coal. In some situations that have been protected by roads and streams from fires, the timber on the land has been cut down a second time, after the lapse of twenty-five years, from the first cutting. It is a crime against the material interests of the State, and destructive of one of the finest iron regions in America, to permit the custom of firing the woods to continue. It is a relic of barbarism, inherited from savages, and should be stopped by the infliction of pains and penalties.

In the preparation of this chapter, much assistance has been derived directly from the State Geologist, Dr. Safford, under whose eye the proof-sheets have passed, and all the details collected, submitted and criticised. Nothing has been admitted but what we have abundant evidence to be true.

## CHAPTER XV.

## COPPER.

The copper region of Tennessee lies in Polk county, in the south-east corner of the State. It is in an elevated mountain basin, not less than 2,000 feet above the sea, and 1,000 feet above the great Valley of East Tennessee. This basin contains about forty square miles. On the south-west, at a distance of a few miles, looms up the dome-like crest of Frog Mountain, and from this, trending north-easterly, is one of the ranges of the Unakas. Towards the east and south-east, are the towering peaks of the North Carolina chain, while southward, running into Georgia, the scenery is more subdued. The surface of this valley is made up of hills and ridges, with gneissoid rocks and metamorphic slates showing themselves here and there, the area presenting a wild and rugged character. To add to this wildness, the country is denuded of timber, much of it having been consumed in the making of charcoal, and large quantities have been destroyed by the fumes from the smelting furnaces, which, charged with sulphurous acid, wither and deaden all vegetation by their poisonous contact.

Through the southern part of the mining district flows the Ocoee River, which, rising among the ridges of Georgia, takes a north-westerly course gently and quietly through the copper valley, as if gathering its force for the fearful plunges through the deep gorges and narrow ravines of the Unaka Range. For twelve or fifteen miles after passing the copper valley, the confined stream, fretted with huge masses of stone, is white with roaring cascades and plaited currents, while, rising almost perpendicularly above, are frowning and winding cliffs, walling in the river, and forming altogether one of the wildest

and one of the most romantic scenes in the south. Along this stream, and near the water's edge, a wagon road has been cut out of the cliffs, and forms the only means of transportation from the mines to the railroad.

The Copper Valley is intersected by numerous small tributaries of the Ocoee, which cut deep ravines, between which are the rounded gneissoid hills before referred to. The strata dip at high angles to the south-east, and their outcrops have a north-easterly and south-westerly direction. The ore deposits are in lenticular masses or belts, lying in the valley, these belts being separated by intervening rocks. Though the walls of the ore are often not well defined, the ore blending and gradually disappearing with the containing rocks, the veins or belts of ore are plainly marked. The deposits are in three belts. From the outcrop downwards, four distinct zones or stories are passed through. These several zones are thus described in a report made by the Union Consolidated Company, in 1866 :

"1. Upper part of the 'vein,' consisting of 'gossan,' i. e., sandy, porous, massive or reniform ore, mixed with streaks of reddish-brown slate. In this zone, and especially in its lower portion, occur malachite, azurite, cuprite, in grains, masses, and threads, and native copper in foliated and dendritic forms. Cuprite, (the red oxyd of copper,) and the so-called black oxyd, become more and more abundant, and gradually form

"2. The second zone, the transition to which occupies, generally, not more than ten feet on the dip of the vein. This may be called the zone of the black copper ores. It branches upward, somewhat into the gossan. It varies in depth from two to eight feet, and appears to follow with its upper limit, the contour of the surface above. In it are found layers, nodules and pockets of cuprite, and granular admixtures of iron and copper pyrites. This division is abruptly cut off below by

"3. The third zone—that of iron pyrites, and pyrrhotite (magnetic pyrites,) containing but little disseminated copper pyrites, and, on the other hand, a large proportion of tremolite and actinolite, of radial, fibrous structure, and wine-yellow to brown color. The disseminated copper pyrites grows more abundant in depth, until it forms

"4. The fourth zone—that of copper pyrites. In the center of the deposit this mineral is almost pure and solid, containing some thirty per cent. of copper. Towards the walls, where it is mixed with

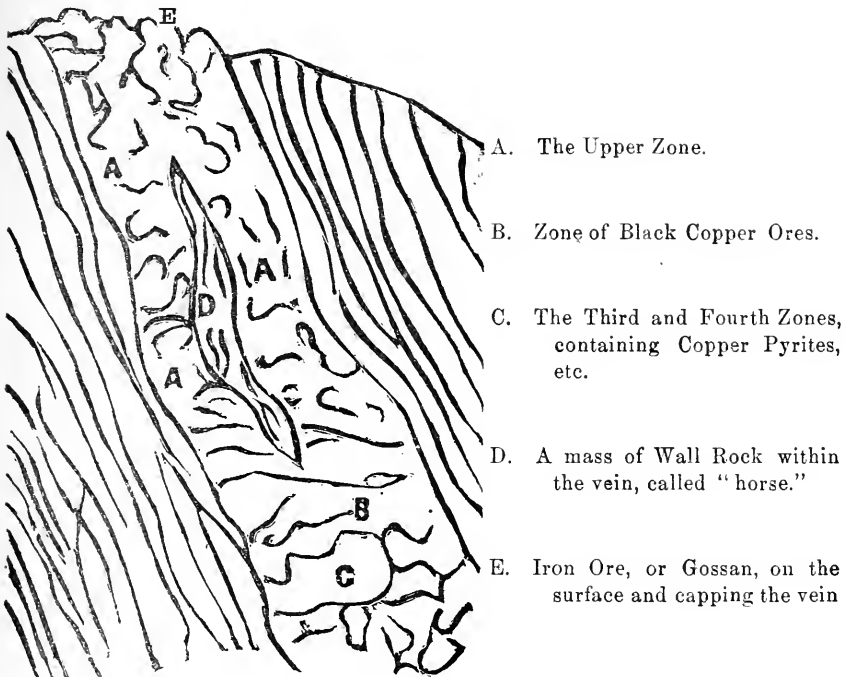


pyrrhotite, iron pyrites, tremolite, and actinolite, the average contents of copper in the whole mass is 8-10 per cent."

The third and fourth zones above are hardly distinguishable, and may be thrown together.

The "gossan" spoken of is limonite iron ore, which caps the tops of all the veins, but owing to its admixture with foreign ingredients, it makes a "red short" iron, almost or nearly worthless.

The following diagram will illustrate the dip of the strata and the included vein with its several zones.



For a great while, the mining operations were confined to the black and red copper ores, but subsequently the yellow copper ores, of which the region is capable of furnishing large quantities, were smelted with satisfactory profits. The lodes of this ore vary greatly in richness, some of the ore containing six per cent. of copper, but much of it not more than two or three per cent. The low grade ores are crushed before smelting, and by a somewhat complicated chemical process the pure copper extracted.

There are now operating at Ducktown two large companies. The Union Consolidated Company, of Tennessee, and the Burra Burra Copper Company. The Union Consolidated Company has the following mining properties :

The East Tennessee.....	480 acres.
“ Mary’s .....	160 “
“ Isabella.....	240 “
“ Callaway.....	320 “
“ Maria .....	80 “
“ McCoy.....	140 “
“ Buena Vista.....	240 “
“ Johnson.....	315 “
“ Beaver.....	40 “
“ Cherokee.....	320 “
“ Ocoee.....	240 “
<hr/>	
Total comprised in the original consolidation.....	2,575 acres.
Since acquired, mainly for timber.....	2,676 “
<hr/>	
Making a total of.....	5,251 “

It employs in its operations two steam engines of eighty horse-power and four water wheels of sixty-nine horse-power. It has sixteen furnaces, and employs 562 men and eighty children and youths. The amount of wages paid is \$200,000 annually. It consumed in its operations for 1872, 16,298 cords of wood, costing \$48,894. The production of ingot copper for the same year was 1,466,847 pounds, worth \$308,038. The ores are mined from the company’s own lands.

The following machinery was added to the improvements during the fiscal year ending in June, 1873 :

Diamond Drill.....	Cost	\$4,205 48
Engine Lathe.....	“	888 25
Hoisting Engine.....	“	4,584 92
Rotating Calciner.....	“	210 69
Machine Drills, Air Compressor, Boilers, &c.....	“	9,103 69
		<hr/>
		\$19,023 03.

The whole value of the property of this company is \$474,549.30.

We learn from the report of the company that the openings at the Mary’s Mine, which were commenced about two years since, have developed a strong and paying lode, and this mine now furnishes a fair proportion of the ore production. Instructions have been given for

the erection of dressing works, and the building of a three feet railway thence to the smelting works, upon the completion of which, the company will obtain a marked increase of production from this mine.

The diamond drill has been doing good service in determining locations for shafts at the East Tennessee Mine. More recently, it has been testing the vein at the Isabella Mine, and at last accounts had reached a depth of 308 feet, the drill hole still in the vein. At various parts of the vein good specimens of ore have been obtained from the core, and the indications are favorable to an important addition to the productive workings. In the opening of this mine, other holes will be bored at different angles, more fully testing the productiveness of the vein; but it is now pretty well established that it is not less than 200 feet in width, at the point being tested. For further information, we here insert the letters of Capt. John Tonkin, of the East Tennessee, and Capt. E. Mueller, of the Mary's Mine, to the Superintendent, on the 1st of June, 1873, showing the condition of the mines at that time:

EAST TENNESSEE MINE, June 1, 1873.

*J. E. Raht, Esq., Agent, Cleveland, Tenn.:*

DEAR SIR—In last month most of our stoping was confined to the slate vein below the thirty fathom level, which has not yielded as much roast pile ore as I expected; the vein is getting much wider as we go down, and the ore more scattered through the vein.

I commenced stoping a few days ago on the main vein south-west of Thomas Shaft, thirty fathom level; this stope, to all appearance now, will yield a large quantity of ore.

I have also commenced to-day the stope below the forty fathom level, north-east of Thomas Shaft.

I have discontinued work in the stope on the slate vein until further orders. I have also discontinued work at the stope below the twenty fathom level south-west; we have a large vein there which contains a good deal of copper, but is so much mixed with slate that I doubt if it can be made available with our present mode of selecting out the ore by hand labor. For the last few days I have been sending ore to the roast piles pretty fast, and expect to be able to do so this month.

Macaulay Shaft was sunk in last month eleven feet nine inches, and the shaft secured with all necessary timbering. Tonkin Shaft, sunk

fourteen feet, taken out some rich ore from the shaft to-day, and, so far as can be seen, looks very favorable.

Cross-cut at fifty fathom level driven nine feet six inches. South-west drift forty fathom level, on the slate vein, driven twelve feet nine inches—copper and slate. South-west drift thirty fathom level, driven three feet. This drift looks well for copper.

North-east drift, twenty fathom level, driven fifteen feet; copper and slate looking favorable. South-west drift, between ten and twenty fathom levels, driven four feet three inches. No copper.

Cross-cut at Number 2 Shaft, driven nine feet six inches. Winze north-east of Number 2 Shaft in ten fathom level, sunk ten feet. The winze does not look as well for copper at the bottom. I have suspended work there, had to use the hands in the stope.

Cross-cut south-east of Allen Shaft driven ten feet. North-east of Patterson Shaft, a cross-cut was driven twenty-eight feet three inches, and intersects the northern vein, and a drift driven on the vein twenty-nine feet nine inches. The vein, so far, is small, with only traces of copper occasionally.

Truly Yours,

JOHN TONKIN.

MARY MINE, June 1, 1873.

*Mr. J. E. Raht, Superintendent, Cleveland, Tenn.:*

DEAR SIR—The south-west drift from bottom of Henneman Shaft was continued nine feet six inches during last month, most of the drift stands in mudic. Some good copper ore.

The cross-cut from Henneman Shaft was advanced twelve feet, mostly in gneiss slate. Some hornblend and quartz.

From the winze on Stillwell adit towards Henneman Shaft, about fourteen cubic fathom of vein was stoped, containing a fair proportion of yellow ore. The stope looks more promising now than before.

Most Respectfully,

E. MUELLER.

From these evidences this company is led to expect a considerable increase in the production, particularly during the present year (1874). The shipments for the year ending June, 1873, were 2,267,863 pounds of fine copper, which was sold at good prices.

The following statement will show the production of ingot copper by this company in each year since the resumption of work in the fall of 1865:

From fall of 1865 to June 1, 1866.....	257,304 pounds net.
“ June 1, 1866 “ “ 1867.....	632,377 “ “
“ “ 1867 “ “ 1868.....	1,013,883 “ “
“ “ 1868 “ “ 1869.....	1,006,146 “ “
“ “ 1869 “ “ 1870.....	1,466,847 “ “
“ “ 1870 “ “ 1871.....	1,441,941 “ “
“ “ 1871 “ “ 1872.....	1,390,511 “ “
“ “ 1872 “ “ 1873.....	1,267,863 “ “
Total.....	8,476,872 “ “

The following table will show the prices realized during the same period, in gross and net, with charges and expenses, as averaged through each year:

COPPER FORWARDED.	GROSS PRICE.		NET PRICE.		CHARGES AND EXPENSES.	
	¢	lb.	¢	lb.	¢	lb.
From fall of 1865, to June 1, 1866 .....	33.78	¢ lb.	30.22	¢ lb.	3.56	¢ lb.
From June 1, 1866, to June 1, 1867.....	27.03	“	24.71	“	2.29	“
From June 1, 1867, to June 1, 1868.. ....	23.72	“	21.72	“	2.00	“
From June 1, 1868, to June 1, 1869.. ....	23.80	“	21.82	“	1.98	“
From June 1, 1869, to June 1, 1870 .....	20.95	“	19.22	“	1.73	“
From June 1, 1870, to June 1, 1871.....	21.12	“	19.39	“	1.73	“
From June 1, 1871, to June 1, 1872 .....	28.02	“	26.05	“	1.97	“
From June 1, 1872, to June 1, 1873.....	33(?)	“	30.	“		

The Burra Burra Company has two steam engines, of eighty horse-power, and one waterwheel, of four horse-power. It ran nine furnaces in 1872, and employed one hundred and fifty-eight men and eight children, paying out for wages \$60,000. It also consumed 10,192 cords of wood, costing \$30,576, and produced, of ingot copper, 917,329 pounds, valued at \$192,639. The ore is obtained from the lands owned by the company.

The whole amount of copper made in the copper region is wagoned to Cleveland, a distance of forty miles, and shipped by the East Tennessee, Virginia and Georgia Railroad.

The effect of the working of these mines upon the wealth of the county has been very great. In 1849 the total gross tax collected in the county, was \$513.45, and the land was valued at \$266,607. Ten

years thereafter, in 1859, the county paid a tax of \$4,539.67, and the land was valued at \$2,240,420. In 1869 the revenue from that county amounted to \$8,874.28.

## HISTORY.

The history of the development of these mines is invested with peculiar interest, and though often published, will not fail to be pleasing to the general reader, inasmuch as it is marked by exhibitions of indomitable industry, perseverance and will.

It is related of the commissioners who were appointed to run the dividing line between North Carolina and Tennessee, that when they reached a point in their course south-west, just above the Hiwassee River, they became greatly fatigued in climbing the steep, rocky, rough sides of the Unakas, through dense and tangled masses of mountain laurel, and were exceedingly anxious to finish their disagreeable task, whereupon one of them suggested that they run a due south line from their position to Georgia, which was finally agreed upon, and the line was so run. This circumstance robbed North Carolina of the copper region, and gave it to Tennessee; for had they continued the line in the direction in which they began, this small triangle would have been left to the mother State.

In the year 1843 while Mr. Semmons was prospecting for gold, at which time there was considerable excitement in regard to the gold found on Coqua Creek, he thought he perceived indications of that valuable metal at a point where the Hiwassee mine is located. Vigorously using his pan, he collected an abundance of yellowish particles which he took for gold; but they proved to be red copper ore. He abandoned the region with disgust. Subsequently Mr. Grant discovered several rich specimens of native copper. The black oxide of copper was afterwards found, and samples shipped to New York, but the report on them was unfavorable. The value of the black oxide was made known to the company by Mr. Webber, a German, in 1847, and securing a lease, he mined and shipped to the Revere Smelting Works, near Boston, ninety casks of ore. This was divided into three lots—one of which proved to be worth 32.5 per cent.; another 14.5 per cent., and the third was thrown aside as worthless. Webber suspended operations, and gave up his lease. The property was leased to a second person, and no further attention was given to it until 1850. The year

previous, however, Mr. John Caldwell came to Duektown scouting for copper, and found several tons in a cabin, ten feet square, on the property now known as the Hiwassee. He says:

“I found the country unexplored—the school section, now worth a million of dollars, attracting little or no attention. Sat down in the woods for three hours, to mature a plan to control and open the section. I owned, at the time, one twenty dollar bill. After three hours’ reflection, resolved to call a meeting of the citizens of the township, and make a speech explanatory of the value of the school section, and of the importance of leasing it for mining purposes. Told the people that as soon as the mines could be opened, their condition would be improved, and that civilization, intelligence, comfort and wealth, would be the inevitable results. At the conclusion of this remark, a speaker arose in the crowd, and informed me that a large portion of the inhabitants had come here to get away from civilization, and if it followed them, they would run again.

“After the speech was made, drew up a memorial to the Legislature, praying the passage of a law authorizing the commissioners to give a mining lease on the school section. The memorial was signed by a majority of the citizens, and on personal application, the law was passed, and under it, the lease was taken.

“In May, 1850, commenced mining in the woods. In the same year sunk two shafts, and obtained copper from both of them. The excavations made did not exceed twelve feet—at that depth the copper being found. Commenced mining at the Hiwassee Mine in 1851, in connection with S. Congdon, the agent of the Tennessee Mining Company. Built a double cabin, and taught Sabbath-school in the kitchen end of the establishment, aided by young Mr. Walter Congdon.”

This gentleman also conceived and carried out the idea of making a wagon road down the Ocoee, instead of packing the copper ore out of the mountains on mules. To this end he labored assiduously. Destitute of means to accomplish his purpose, he, by speeches, succeeded in enlisting public sentiment in its favor. “Going,” he says, “to a Methodist camp-meeting, I obtained permission to make a road speech in the recess of Divine service. The speech over, we took up a collection, principally on a credit, and payable in trade. This, however, served the purpose; and on the 6th of October, 1851, the work was commenced. On the first day, three hands worked; on the second, two; and the third, worked *alone*—public opinion, strong and power-

ful, being against the enterprise. On the fourth day, hired a dozen Cherokees.

“Thus began one of the most important projects in the State, which was consummated in two years, at an expense of about \$22,000. The Tennessee Company came early to help in the enterprise, but the Hiwassee held back till fourteen miles of the road were passable for wagons. At the close of the first year, Robert McCampbell was employed as the engineer of the road, after which I again turned my attention to mining.”

A narrow gauge railroad is now projected along the same route from Ducktown to Cleveland. The board of directors of the Union Consolidated Mining Company, who have the building of the road in charge, are determined to push forward the work as rapidly as means can be assured, without embarrassment to their mining operations. They propose to furnish \$12,500 per month after the work shall have been commenced, and to take three-fourths of the stock. The financial pressure of 1873 has probably retarded operations in this particular, but such a road is of vital importance to the welfare of the mining interests of Ducktown.

But to return. A consolidation of some of the most effective mines was made in 1858, and is now owned by the Union Consolidated Company, which, under the masterly superintendence of Julius E. Raht, has attained a degree of prosperity rarely equalled.

Refining works were erected in 1860 by the various companies in common. The copper produced is of excellent quality, and in ready demand. A copper rolling mill and wire works were erected at Cleveland, but were destroyed during the civil war.

A village of some three thousand inhabitants has sprung up in what was a barren, sterile region prior to 1850, and no part of the State shows a greater industrial activity than the neighborhood of Ducktown. The farmers have a ready market at home for all their supplies, at good prices, and a manifest improvement has taken place in the social and domestic life of the inhabitants. Churches and schools prevail, and educational advantages are highly appreciated and sought after.



## CHAPTER XVI.

## OTHER MINERALS.

Having in the three preceding chapters, treated of the coal, iron and copper of the State, its most abundant and most valuable minerals, we propose in this, to speak of such others as may be of interest or importance. It is observable, that while some states have more copper, others more iron, and some more coal, &c., no one probably has such a great variety of mineral wealth and in workable quantities. Tennessee, indeed, may be compared to a grand museum, in which nature has gathered a great diversity of rocks, soils, plants, minerals, physical features and climatic influences, all classified and ready at hand, for such purposes as they may be suited. We shall include in the term mineral, marble, gypsum, barytes, cement rocks, building stone, clays, &c., and endeavor to point out the quantity, quality, and locality of each, and give such other information as may be of practical benefit.

## MARBLE.

The marble of Tennessee has gained, by its beautifully variegated appearance and fine polishing qualities, a richly deserved fame throughout the United States. There are found in the State several varieties, among which may be mentioned the black, grey, magnesian, fawn-colored, red variegated, conglomerate, and breccia. One or more of these varieties are met with in every division of the State. By marble, is meant any limestone that takes a good polish, and looks well after it is polished.

The black marble, sometimes beautifully streaked with veins of white calcite, is found in Washington, Greene, McMinn, Polk, Sevier,

and, indeed, in many of the counties in East Tennessee, where the limestone has been fissured in local flexures. It is quite compact, having a great specific gravity, and takes a fine polish. This marble was used to form the bases of the columns in the senate chamber of the capitol at Nashville. That, with white reticulated veins, would make handsome mantles.

The gray and red variegated marbles occur in inexhaustible quantities in several counties of East Tennessee. The two are usually associated, the one running into the other. The counties, however, which have furnished the largest supplies, are Knox and Hawkins. The gray, which is coralline, sparry, whitish, and often variegated with pink or reddish spots, rests usually upon a blue limestone. It weighs 180 pounds to the cubic foot, and is freer from "dries," or porous sponge-like cavities, or unconsolidated material than that of deeper color. A quarry was opened in 1871, and is now being worked at the confluence of the French Broad and Holston Rivers. This marble spreads over an area of many square miles, and is several hundred feet thick. It forms the building stone of the custom house in Knoxville, and the quality of it is justly regarded as among the finest in the State. A polished slab shines with glowing brilliancy, and the small pinkish spots that are sprinkled over its surface, give it a delicacy and richness of tint that is surpassingly beautiful. Unpolished, the pink spots do not appear. As employed in the custom house in "drove" work, it has a grayish white appearance, and is mistaken by many for the ordinary light-colored uncrystallized limestone.

In the bed, this marble does not appear disposed in regular strata, but is found in great boulder-shaped masses, twenty-five or thirty feet across, sometimes sharpened to a point, and again worn down into bowl-like cavities. No gunpowder is used in the quarry. The blocks are all separated by the use of the drill and forcing wedges. Thirty men are regularly employed at this place, and the force will be increased as the excellence of the marble becomes known. Already has a demand been created in St. Louis for it, and blocks are sold in that market at from three to six dollars per cubic foot, for mantles, moldings, &c.

Since the completion of the stone work of the Custom House, a company has been organized, W. Patrick, President, with a sufficient capital to carry on the business successfully. The stone is sawed into slabs at the quarry by steam, and transported in flatboats, a distance of four and a half miles to Knoxville, whence it is shipped by railroad to

various points. There are about eighty saws kept constantly at work. Two engines are employed; one for sawing, and the other for derrick work. Boats are brought up within ten feet of the saws, and very little labor is required to transfer the slabs from the one to the other. The following are the prices at which the slabs are sold, delivered on the cars at Knoxville:

$\frac{7}{8}$ inch slabs, superficial,.....	\$ 38 per foot.
1 inch slabs, superficial,.....	42 "
1 $\frac{1}{4}$ inch slabs, superficial,.....	53 "
1 $\frac{1}{2}$ inch slabs, superficial,.....	64 "
2 inch slabs, superficial,.....	82 "
3 inch slabs, superficial,.....	1 10 "
4 inch slabs, superficial,.....	1 45 "
5 inch slabs, superficial,.....	1 80 "
6 inch slabs, superficial,.....	2 15 "
7 inch slabs, superficial,.....	2 50 "
8 inch slabs, superficial,.....	2 85 "

The above cut to size, ten per cent. added.

Rough blocks, 20 cubic feet and under,.....	\$3 00 per foot.
Rough blocks, from 20 to 40 cubic feet,.....	3 50 "
Rough blocks, from 40 to 60 cubic feet, .....	4 00 "
Rough blocks, from 60 to 80 cubic feet,.....	5 00 "
Rough blocks, from 80 to 100 cubic feet,.....	6 00 "
Monuments blocks sawed to size,.....	6 50 "

All spires measured at base.

Marble taken from the quarries around Knoxville, worked into tombstones, show no signs of crumbling after exposure to the weather for fifty years.

A large quarry has been opened on the farm of Rolfe S. Saunders, seven miles north-east of Knoxville, on the banks of the Holston River, and near the East Tennessee, Virginia and Georgia Railroad. Mention of this quarry was made by Judge Haywood, in his History of Tennessee. It forms a perpendicular bluff over one hundred feet above the water's edge, several hundred yards in width and many miles in length. A few miles west, the same varieties appear on the farm of Horace Foster.

Col. John Williams, near the city of Knoxville, has a valuable quarry of this same gray variety. The bed at this point, is 380 feet in thickness, and divided into three distinct layers. Commencing at the bottom and ascending, there is

1. Variegated with grey and red, with a slight flesh-colored appearance..... 55 feet.
2. Grayish white, slightly tinted, though not perceptible in an unpolished state..... 95 feet.
3. Redder, especially near the surface..... 230 feet.

The second portion of this section furnishes the most valuable marble. It is said to have no superior in the State as building stone.

Two miles north of Knoxville, and near the East Tennessee and Virginia Railroad, is the quarry from which most of the marble used in the State capitol, at Nashville, was taken. It is known as Sloan's Quarry. This marble is more highly variegated than that taken from the quarry at the mouth of the French Broad. It has a deeper red, and is of such rare and exquisite beauty as to arrest the attention of the most unobservant. It was used in the state capitol of Ohio for ornamental work. The quarry was opened in 1852, and this, with the one in Hawkins county, has given character to that peculiar species of marble known as East Tennessee marble.

A short distance east of Athens, in McMinn county, is a fine bed of grayish marble. It bears a high polish, and is highly esteemed for its beauty.

But the Hawkins County Marble is the best known, both on account of the length of time it has been worked, and because it was in that county that the General Government opened a quarry for the ornamentation of the capitol at Washington. This marble is highly variegated, and differs from that taken from Sloan's Quarry, only in being more delicately shaded, and not being of such a deep reddish tint. The history of the opening and working of the marble quarries in Hawkins county is thus detailed by Dr. Safford in his Geological report:

"In April, 1838, the 'Rogersville Marble Company' was formed, by gentlemen in and near Rogersville, for the purpose of 'sawing marble, and establishing a marble factory in the vicinity of Rogersville.' Orville Rice, Esq., was elected President, and S. D. Mitchell, Secretary. The company operated to a limited extent for several years, erected a mill, and sold several thousand dollars' worth of marble annually, which was mostly distributed in Tennessee.

"In 1844 the company sold out to Mr. Rice, who, on a moderate scale, has perseveringly and successfully carried on the business ever since.

"Mr. Rice sent a block of the 'light mottled strawberry variety' to the Washington monument. This was called the '*Hawkins County Block*,' and bears the inscription, '*From Hawkins County, Tennessee.*' Another block of one of the best varieties, was sent by act of the Legislature, which was called the '*State Block.*'

“These blocks attracted the attention of the building committee of the national capitol, who, although they had numerous specimens from all parts of the Union before them, decided in favor of the East Tennessee marble.

“An agent was soon after sent by them to ascertain whether or not it could be obtained in quantity, who, when on the ground, had no difficulty in satisfying himself as to that point.

“As the result of these circumstances, an extensive quarry, affording an excellent material, was opened at a point about nine miles south-west of Rogersville, where the Holston River intersects the marble range. The rock here is, in good part, massive, and several hundred feet in width. The location of the quarry is excellent, and admits of the easy transportation of the blocks to the boats. Many thousand cubic feet of marble were sent off. It was taken down the river, and then by railroad to Charleston or Savannah, where it was shipped for Washington.

“A good use has been made of this marble in the capitol at Washington. The balustrades and columns of the stairs leading up to the House and Senate galleries, the walls of the Marble Room, and other parts of the building, are of Tennessee marble. It doubtless forms half the ornamental marble there.”

This marble is also used in the money-room of the treasury building in Washington, and it shows its superior beauty when contrasted, as it is, with the marbles from other states.

The marble in Hawkins county lies west and south-west of Rogersville. It is found on the south-west side of a belt of Trenton and Nashville limestones, and runs for a distance of sixteen or seventeen miles. In thickness, it varies from fifty to several hundred feet. The quarry which the Government opened lies on the Holston River, near the south-west end of this belt.

There are quarries of this same marble near Loudon, in Loudon county, and also near Sweetwater.

The variegated red marble is also found in many of the counties west of the Cumberland Table Land. One, of a brownish red, is met with on the waters of Elk River, in Franklin county, in considerable quantities; the gray is also found in the same county; both have been worked to some extent. A gray marble, crinoidal in structure and dotted with red, also occurs in Maury county, at the Oil Spring on

Lieper's Creek. Some of the marble at this place has a ground work of gray, with fleecy clouds of red and green. It is susceptible of a high polish, and would make handsome mantles, table tops, and pannel work. The bed is ten feet in thickness, and extends for a considerable distance.

An extensive bed occurs on Elk River, and some of the tributaries of Elk in Lincoln county, specimens of which exhibit all the characteristic beauty of the red variegated East Tennessee marble. Quarries in that county are now worked to some extent.

In Henry county, a mile or two from Mammoth Springs, on Big Sandy, and four miles from Springville Station, on the Memphis and Louisville Railroad, is a bed of red marble, mottled, and susceptible of a very high polish. It is similar in character to the East Tennessee marble, and has been used for monuments, tombstones, etc. It is a handsome variety and greatly admired.

On Birdsong Creek, in Benton county, there is also marble of similar character. It is inexhaustible in quantity, and has been quarried to a considerable extent. These beds in Henry and Benton counties are best known as supplying material for lime, they being the last outcrops of limestone in the State going west.

In the Western Valley of the Tennessee, there are also other deposits of red marble. The finest presentation is probably in the counties of Perry, Decatur, Wayne and Hardin. Much of it lies immediately upon the Tennessee River. Near Clifton is an extensive bed. The piers of the bridge at Danville, where the Memphis, Louisville and Great Southern Railroad crosses the Tennessee River, are built of grayish marble from Decatur county, found ten miles below Perryville. The thickness of the stratum is ten feet; it is inferior in beauty and fineness, but not in solidity, to the Hawkins county marble.

On Shoal Creek, in Lawrence County, eighteen miles south of Lawrenceburg, and extending on both sides of the creek for a distance of fifteen miles, is a bed forty feet in thickness, of fawn-colored or brownish red marble, with fleecy clouds of green. It bears a very fine polish, and is beautiful in the delicateness and softness of its coloring. Other strata, in the same locality, are of an intermingling red, green and white colors. Some of it, with a brownish ground, is covered with deep red spots, which shade away until the ruddiness is lost in the common ground.

It is free from "dries," very solid and compact, and is pronounced by competent judges to be as valuable as any in the State. But for lack of railroad conveniences, it would soon attract the attention which its delicate beauty would warrant. Farmers build chimneys of it, and a furnace-stack built in 1833, by Mr. Vanleer, of the same material, is still standing in an undamaged condition.

A short distance below Manchester, a bluish or dove-colored marble appears in considerable abundance, forming the bed of Bark Camp Fork of Duck River. The late Dr. Troost expressed a high admiration for its subdued beauty and its fine quality. In Wilson, Davidson and other counties, a dove-colored marble is met with, which is worked up into grave-stones and for other purposes.

In Rutherford county, a bed of marble occurs of a pale yellowish color, with serpentine veins of red and dots of black. This bed has not been traced, and specimens have only been polished for paper weights and as objects of curiosity. It bears a fine polish, but is not so handsome as some other varieties.

There is also in the southern part of the East Tennessee Valley, and especially in that portion east of the Holston, a light gray fine-grained rock, variegated with brownish red clouds, which is worked as a marble, though its appearance is greatly inferior to those mentioned above. It is known as magnesian marble. Some of it does not weather well, being reduced by exposure to shaly material. Some of the best occurs near Chattanooga.

The Breccia limestones on the Little Tennessee River, south of Chilhowee Mountain, sometimes supply a beautiful marble. The angular fragments, which make up the rock, are often of different colors, and when polished present a surface of checkered and varied beauty, resembling mosaic work. This marble occurs in Greene, Cocke and Sevier. It is not much worked on account of the hardness of some of the angular fragments.

The conglomerate marble, differing from the last only in the shape or configuration of the imbedded gravel, being in this rounded and not angular, is found in the same region. They have the same style of beauty when polished.

Doubtless there are many other places in which marble has been found, but the great abundance of it in every part of the State makes it an object of but little interest, unless it has some superiority in the elegance or beauty of its appearance.

## ROOFING SLATES.

Though slate is met with in every division of the State, very little of it, comparatively, is fit for roofing purposes, being charged with pyrites to such a degree as to undergo decomposition by exposure. The presence of pyrites causes it to crumble into small fragments in a few years. There is, however, in what is known as the Ocoee group, strata of pale, greenish slate, semi-taleose, and free of pyrites. This slate splits easily into thin plates with smooth surfaces, and though never having been used for such, would doubtless be valuable for roofing purposes. It is met with in Polk, McMinn, Monroe, Sevier, Blount and Cocke counties. Slates of various shades might be quarried in different localities in these counties—light and dark green, dark purple, reddish and violet.

## MILLSTONE GRIT.

Several beds of millstone grit have been found in the State. Perhaps the most noteworthy is that in Claiborne county, at Big Spring, on the road leading from Morristown to Tazewell. The rock is a flinty mass, filled with cellular cavities. The manufacture of millstones at this point was carried on as a business before the war, and the demand for them increased as their excellence became known. Many millers regarded them as equal in every particular to the French buhr. The hard gnessoid rock near Taylorsville, in Johnson county, has been used for millstones. Those made of this rock are inferior to the last mentioned, and are unsuited for the grinding of wheat, though they answer tolerably well for corn. The syenitic granite in Carter county is more highly esteemed for grinding both wheat and corn. The conglomerates of the Coal Measures, made up of hard, flinty material, honey-combed in structure, have frequently been wrought into millstones. In Trousdale county, a few miles north of Hartsville, is a stratum of silicified shells several feet in thickness, that has been used for the same purpose. This mass, when exposed to the disintegrating influences of the weather, is leached of its calcareous matter, leaving it filled with innumerable small cavities. It was formerly extensively manufactured into millstones. Some of them have been used for forty years and are still preferred to new ones for the grinding of corn. This quarry belongs to the upper part of the Nashville forma-



tion, is quite extensive, and might be made very valuable if worked.

Near Manchester, in Coffee county, a conglomerate is met with that answers a very good purpose for millstones. Some of it has all the characteristics of the true buhrstone, being hard, gritty, and consisting of silicious pebbles that have been cemented into a flinty mass. Wherever exposed, it has a cellular structure. The same stone appears in Lewis, Macon and other counties, and indeed in many localities in the Sub-carboniferous formation.

### HYDRAULIC ROCKS.

These rocks abound in many of the counties in the State, and most especially in Hardin, Wayne, Perry, Decatur, Warren, and Montgomery, and in many of the counties of East Tennessee, especially in Knox and McMinn. Mills for grinding the stone after burning were in operation in Hardin, Montgomery, Warren and Knox before the war. The quality of the cement is excellent. Arrangements for manufacturing it on an extensive scale in Hardin county, above Clifton, had been perfected before the war, and the cement bore well all the tests to which it was subjected.

Dr. Safford says of it:

“The cement manufactured is of lighter color than the Louisville article, and of good quality. In 1861, Mr. Pillow sent me a barrel, of that first manufactured, for trial. The barrel was put away in my cellar, and, owing to the troubles which soon came upon us, was left there without being opened. In the meantime, during a very rainy season, water rose in the cellar, and the cement got thoroughly wet. It soon hardened, the hoops and staves fell away, and the cement was left in a solid cylindrical mass—a good cast of the barrel which held it. I have also seen, in the Tennessee River, barrel-shaped masses of the hardened cement, from lots originally lost by the sinking of steamboats.”

Mr. Saulpaw, a practical mason, who has taken many large contracts for the building of bridge piers, says it is the best cement in the United States.

The mill for the manufacture of cement at McMinnville, in Warren county, has suspended.

In Knox county, cement is made of the brown calcareous shale, which

is found to be a good material for this purpose. The value of this shale for the making of cement was first discovered by Mr. Estabrook, a man of sagacity, energy and public spirit.

The quantity of material in the State from which hydraulic cement may be made, and its accessibility to market, together with the constant and increasing demand for this article, will doubtless attract attention to this unoccupied field of industry. Tennessee could supply the whole southern market with cement at cheaper rates than any other state. It speaks badly for the enterprise of our citizens, that while thousands of barrels are every year used in building cisterns, and in underground stone or brick work, nine-tenths of it should be brought from neighboring states, although the material in the State suitable for its manufacture is inexhaustible in quantity, superior in quality, and accessible to market.

#### BUILDING STONE OTHER THAN MARBLE.

In every portion of the State, except in the Tertiary and Quarterary formations of West Tennessee, building stone is convenient and plentiful; though differing widely in its weathering capacity, color and structure, every neighborhood, and oftentimes every farm, has its quarry. The rock most used for building purposes is limestone, on account of its prevalence, compactness and good workable qualities, though the marbles, sandstones and granites are brought into requisition for the same purposes, where they are abundant and convenient.

The limestones differ greatly in their color and durability. Some strata are laminated, others compact; some are oolitic, consisting of minute concretionary spherules, resembling the roe of fish, others granular and crystalline. Many of them make valuable building material, while others crumble down or exfoliate by exposure. Some have impurities, as magnesia, sand, clay; others are almost pure carbonate of lime. Most of the limestones have been formed from shells and corals, ground up by disintegrating agencies, and afterwards consolidated. When these shells or corals are found comparatively unbroken in the structure of the limestone, it is not so compact or homogeneous, and will not resist in the same degree the erosive action of frosts or rains.

The State capitol is built of a laminated limestone, that shows its sedimentary character in the numerous horizontal bands arranged in

laminae. It is, in reality, a consolidated bed of calcareous sand. It has a bluish gray color, streaked with lines more or less dark. In the round columns, they appear as lines or bands. It is not a durable stone, and the selection of it for the building of the state-house was unfortunate, as many of the stones in that building have begun to exfoliate or shale off where exposed.

A most beautiful limestone for building, forms one of the ridges in Houston county, a short distance from Arlington, the county seat. It is compact and massive, and lies in huge blocks, with vertical seams. The stratum must be at least fifty feet in thickness. When dressed, it has a creamy or subdued whitish color, with sparkling, crystalline particles. When first quarried, it works with ease, but hardens by time. It stands weathering, and is almost destitute of fossil remains. It is much used in Memphis as capstones, and brings, in that market, a high price.

Dove-colored limestones are found all over the Central Basin. Their neutral color makes them a favorite stone for the foundation of dwelling-houses.

Four miles south-west of Nashville, occurs a bed of light-colored limestone, good grain, easily worked, and very durable. It forms some of the most magnificent fronts to the store-houses and other buildings in Nashville. The stratum is four or more feet in thickness, and is known as the Bosley stone.

A rock very much of the same character is found in Bell's Bend, probably the same stratum as that mentioned above, which has been extensively used, and some of it, several years ago, was taken to Memphis. The owners have made extensive preparation for quarrying this stone, a railroad having been built to convey it to the Cumberland River. The oolitic limestone of the Cumberland Table Land is an excellent building stone, on account of its light color, grain and durability. It occurs on the slopes of the Table Land. A light-colored sandstone, from the top of this Table Land, has been used for building purposes. It is compact, hard and durable. One front in Nashville has been constructed of it.

There are localities where a soft sandstone occurs, especially in the counties of Dickson, Lawrence, Wayne, Perry, and Hickman. This rock is much used for building chimneys. When first quarried it is soft, easily cut with an axe into desirable shapes, but hardens by exposure.

In East Tennessee, near the North Carolina line, are places that would supply a good granite for building; both gray and reddish varieties occur, the latter somewhat resembling the Scotch granite.

In the Central Basin, the surface, glady limestones, as well as the better rocks from quarries, are utilized in the building of fences. All the best farms of Davidson, Maury and Rutherford counties have more or less stone fencing. Many of them have no other for outside boundaries. The prevalence of this limestone rock in Middle and East Tennessee renders the farmers, in a measure, independent of the timber supply for enclosures. Flagstones for pavements can be obtained in several localities in the Central Basin. Much of the iron limestones are in thin sheets, ripplemarked, and answer a good purpose for flagstones. This has, to some extent, been used for curbing and paving in Knoxville and other towns in East Tennessee. Flags of sandstone occur in Morgan county. Roofing slates are also used for flags.

A red ferruginous sandstone, occurring in isolated masses on high points in West Tennessee, often in fantastic shapes, most usually in great cubic blocks, is much used in that region as foundations for buildings. It belongs to the Orange Sand formation, and supplies a want in that division of the State, owing to the scarcity of building stone. A curious specimen of this sandstone occurs at Hollow Rock Station, on the St. Louis division of the Nashville and Chattanooga Railroad. It is a huge, lonely boulder, without any other rock in the vicinity, and is pierced by a large cavity.

#### POTTER'S CLAY.

This clay results from the decomposition of granites and shales. When the clay is red or yellow, it denotes the presence of the oxide of iron; when white, its absence. Potter's clay has a peculiar unctious feel, and has the valuable property of resisting heat without cracking. Considerable deposits of white clay are found in East Tennessee, on the Knoxville and Ohio Railroad, and in the vicinity of the lower Tennessee River, in the counties of Hickman, Perry and Wayne; also in Montgomery and Houston counties. Some of this clay has been worked up into stone-ware. There are numerous establishments in the State for the manufacture of Potter's ware, and quite large ones in Memphis, Nashville and Knoxville. The wares are sometimes colored

with oxide of manganese. Kaolin, a clay derived directly from granite, is found in Carter county.

#### FIRE-CLAY.

A useful variety is met with in Stewart county, at the heads of several of the smaller valleys. The Memphis and Louisville Railroad also cuts through extensive beds in Houston county. Upon the erection of the Cumberland Iron Works, on the Cumberland River, fire-brick at an enormous expense were brought from Liverpool. In prospecting for iron ore, a bed of grayish-colored earth was found near the "Morgan Bank," underlying a bed of gravel. This earth was tested, and the bricks made of it were found to be equal to those brought from Liverpool. This bed of clay has been worked to the depth of six feet without reaching the bottom. Much of it has been shipped to various points. Fire-clay is also found in the Coal Measures, always, we believe, immediately underlying a seam of coal. It results from the decomposition of the siliceo-argillaceous underlying shale, and its plasticity and impervious nature, when collected in a bed, prevents it from being carried away by infiltration.

#### GOLD.

Hopes were entertained for many years that this precious metal would be found in paying quantities. The first gold was discovered in the State on Coca Creek, in Monroe county, in 1831. The discovery produced an intense excitement. The farmer left his plow, the woodman his axe, the hunter his gun, the shoemaker his last, and hurried to this newly found El Dorado. Over a space eight or ten miles long and two or three wide, the accumulations in low places and in the beds of streams, were "panned" with a commendable industry. But no very rich deposits were ever found. The highest average per day was about two dollars, and this average fell, until gold digging in Tennessee was abandoned as a profitless business. A company for the purpose of working the Coca Creek Mines has been formed since the war; what success it has met with we are not informed. The following table, taken from Safford's Geology, will show the amount of Tennessee gold that has been deposited in the United States Mint. It will be observed, that the largest quantity for any one

year did not much exceed \$7,000. The two most prosperous years were 1833 and 1848.

YEARS.	VALUE.	YEARS.	VALUE.	YEARS.	VALUE.
1831.....	\$1,000	1839.....	\$ 300	1847.....	\$2,511
1832.....	1,000	1840.....	104	1848.....	7,161
1833.....	7,000	1841.....	1,212	1849.....	5,180
1834.....	3,000	1842.....		1850.....	1,507
1835.....	100	1843.....	2,788	1851.....	2,377
1836.....	300	1844.....	2,240	1852.....	750
1837.....		1845.....	3,202	1853.....	149
1838.....	1,500	1846.....	2,642	1854.....	
Total.....					\$46,023

Since 1854, the quantity of gold dust deposited from Tennessee has probably been so small as to be unworthy of mention.

#### LEAD.

Though this metal has been found in various localities in East and Middle Tennessee, no sufficient quantity has been met with, except at one place, to justify the erection of an establishment for its reduction. The veins or pockets have proved unreliable. Among the most promising veins is the Caldwell Mine in Union county. Besides this, are the Jackson Mines in Bompass Cove, Washington county, the Carter and Montgomery Mines in Monroe, and the Hambright Mine in Bradley. The Hambright Mine was first opened in 1851. The Confederate government worked it in 1861-2-3, employing 100 men, and spent \$25,000 in erecting works. The lead is in pockets, each pocket yielding from a half ton to a ton. In regard to the Caldwell Mine, Dr. Safford, who visited it in 1867, says:

“Of all that I have seen, there is but one that I regard as promising, and that is the *Caldwell Mine* on Powell's River. This is in Union county, at a point on the river between Tazewell and Jacksboro', and about sixteen miles from the former place. The vein fills a nearly vertical fissure, about twenty inches wide, in nearly horizontal rocks. It can be traced for nearly a mile. At the time of my visit, very little had been done towards its development, but its character, in one place on the surface, could be distinctly seen. The galenite, associated with blende and some pyrite, occurs in several sheets, with an aggregate thickness

of about five inches. The sheets are separated by a gray vein-stone. There is reason to believe that the character of the lode will improve further down."

South of Tazewell, in Claiborne county, a vein of lead ore crosses the road leading from Morristown to Cumberland Gap, and has been traced for several miles. Large specimens have been picked up, but no abundance has been developed.

### ZINC ORES.

There are two ores of zinc easily worked, the *smithsonite* and *calamine*. These occur at a number of localities in considerable deposits, especially in Claiborne, Union, and Jefferson counties.

A large establishment for the manufacture of white oxide of zinc for paint, was once in operation at Mossy Creek, in Jefferson county. Since the war it has been suffered to go to decay, although it is understood that the lack of ore, in workable quantities, was not the cause of its failure.

The zinc ores are probably in greatest abundance in Union county. Near Powell's River, the Stiner belt of zinc exists. It is fifty or sixty feet wide, and is marked by the absence of trees. Dr. Safford, who traced the vein in 1865, for a considerable distance, in an east-northeasterly direction, says, that at the time of his visit, six or seven pits had been dug and a large quantity of ore thrown out. Some of this was taken down the river, but the most of it has been lying on the ground ever since. So far as could be seen, the ore, *smithsonite* and *calamine*, occurs, with here and there buttons and small masses of galenite, and occasionally of blende, with much siliceous matter, in irregular "veins," or in a network of veins. The veins *apparently* run vertically into the rocks, are from a few inches to several feet in thickness, and with the enclosed matter make up the zone described. The rocks of the vicinity are dark and blue magnesian limestones, of the lower part of Knox Dolomite. Some of them are oolitic, and a few thin beds of Knox variegated shale are met with. The strata, in general, are approximately horizontal. The masses of ore thrown out are rough, heavy, and generally more or less open.

The lead and zinc ores are often associated, and with proper means of transportation, the working of the latter, no doubt, would prove

remunerative, and add to our mining industry. The assays of the best lead ores, (*galenite or sulphuret of lead*), show that in 100 parts there is of

Lead.....	86.6
Sulphur.....	13.4
	<hr/>
	100.0

Of the zinc ores, smithsonite (*carbonate of zinc*), contains

<i>Oxide of zinc</i> .....	64.8
<i>Carbonic acid</i> .....	35.2
	<hr/>
	100.0

Calamine, or *silicate of zinc*, has

Oxide of zinc.....	67.5
Silica.....	25.0
Water.....	7.5
	<hr/>
	100 0

Zinc blende, (*sphalerite or sulphuret of zinc*) and cerussite, (*carbonate of lead*) occur at many of the localities mentioned above, but they are of limited importance. They are only mentioned as showing the great variety of our mineral deposits.

#### BLACK OXIDE OF MANGANESE.

This ore is nearly always associated with iron, especially in the banks of the eastern and western iron regions. Though valuable in many of the arts, it has been used only to a limited extent in Tennessee. Small quantities are mixed with the iron ores in Greene county, which serve to fit the iron for making some kinds of steel. This mineral is distinguishable from iron ore by the earthy black color of its powder. It sometimes resembles magnetic iron ore, but differs from it in not being attractable by the magnet. Like iron, it is found in small masses all over the State.

#### IRON PYRITES.

This mineral also exists everywhere in the State, and inasmuch as it has a yellow color and metallic lustre, it often excites hopes of boundless wealth. Scarcely a week passes that the State Geologist does not receive a package of this mineral from persons who believe they have



discovered gold beds of marvelous promise. It is valueless unless when occurring in large quantities, when it may be utilized in the manufacture of sulphur and sulphuric acid. It can be distinguished from gold in several ways.

1. By its hardness. It strikes fire with steel as readily as flint, and from this circumstance it derives its name—pyrites meaning fire-stone. Gold, on the contrary, is soft and easily cut, and of course will not strike fire with anything.

2. It makes a *black* mark on a piece of unglazed porcelain, or on the clean surface of a whetstone, while gold always gives a golden yellow metallic streak.

3. If coarsely pulverized and roasted on a shovel to a low red heat it takes fire and burns, giving off the fumes of burning sulphur, while gold, under the same conditions, would remain unaffected.

We have been induced to give these tests in order that persons may apply the tests themselves.

A large quantity of this mineral is found associated with the copper at Ducktown. It also occurs in a considerable bed in Greene county, south of Greeneville two miles; in Moore and Perry, and indeed everywhere in the Black Shale formation.

#### COPPERAS.

The mineral which has just been described, when it occurs mixed with shales, very often in sheltered places, decomposes in such a way as to give incrustations or deposits of impure copperas. The black shale which crops out on the margin of the Highland Rim, is capped by siliceous, flinty layers. Exposure to the atmosphere disintegrates the shales and leaves circular, cavernous spaces, often called "rock houses," with great overhanging rocky ceilings. Sometimes these are called copperas caves, and one near Manchester, described in the article on Coffee county, is of picturesque beauty. There are hundreds of these rock houses, in which it is common to meet with heaps and specimens of copperas. This crude copperas is used for domestic purposes, such as dyeing, etc., by persons living in the vicinity.

During the conflict between the states, tons of copperas were made from the debris thrown out from the copper mines at Ducktown, this debris consisting in great part of iron pyrites.

The manufacture of copperas could be carried on to considerable extent in Tennessee, but the low price of that article presents very few inducements at present to engage in its manufacture.

#### HEAVY SPAR OR BARYTES.

A white, heavy mineral, used for making cheap paints, and takes the place of white lead to some extent. It is found in Middle and East Tennessee. It is mined in Greene, Washington, Jefferson, and some other counties. It is found usually associated with lead, constituting the gangue of that mineral. It occurs in all the limestone counties of the State, but rarely in workable quantities.

In 1840, while Col. R. C. Morris was prospecting for lead in McMinn county, he discovered an extensive bed of it near the mouth of Mouse Creek, on the west side of the point of the ridge running down between Hiwassee River and the creek, opposite the point from where the lead mine was opened. He penetrated the bed for twenty feet. The deposit is very rich and heavy. The amount mined annually in the State is 1,040,177 pounds. The following are the shipments from the several stations on the East Tennessee, Virginia and Georgia Railroad for the year ending June 30, 1873:

Fullen's.....	455,663	pounds.
Greeneville.....	125,498	"
Midway.....	184,847	"
Morristown.....	197,835	"
Sweetwater.....	76,334	"
Total.....	1,040,177	"

#### GYP SUM.

An extensive bed of gypsum would be very desirable as furnishing material for land-plaster, and it has been industriously sought for, but as yet no such happy discovery has been made. Nevertheless, gypsum, in cabinet specimens, has been gathered in many points, both in East and Middle Tennessee. Small crystals have been observed in great quantities in the soils east of Bays Mountain; in many of the lead veins, and in iron pots or geodes of iron ore of the Western Iron region. It takes the form of dazzling incrustations in numerous caves, which often assume the form of snowy rosettes and icy vegetation. The most noted of these caves is Gray's cave, in the northern part of

Sumner county. On the floor of this cavern are fine specimens of crystallized gypsum, or selenite. Some of the limestone rocks of the Cumberland Table Land are loaded with balls of granular gypsum, a true alabaster. Many of these balls are four or five inches in diameter; or even larger.

#### COMMON SALT.

Twenty-five or thirty years ago, salt, to some extent, was made in the State, especially in Overton, White and Anderson counties. The wells, however, failed to hold out, or the water became too weak to justify further operations, in the face of the competition from other quarters. Perhaps the most important locality is at Winter's Gap, in Anderson county, where salt was manufactured for many years. A diagram showing the relative position of this well, is given in the chapter on coal. During the petroleum excitement, many wells bored in search of that oil, yielded salt water, from which a fair percentage of salt might have been manufactured. On Obey River, furnaces were erected and the manufacture of salt begun. The want of transportation probably caused an abandonment of the works. A number of artesian sulphur wells, among others, those in Nashville, in Henry and Hardin counties, were bored in search of brine. The manufacture of salt has not proved thus far a profitable industry.

#### SALTPETER.

In 1812-14, a large amount of saltpeter was manufactured in this State, and small quantities during the late civil conflict. The nitrous earth is found in caves. These caves are numerous all over Middle and East Tennessee. They are found in limestone regions.

#### PETROLEUM.

Petroleum has been found at various points in the State. In Overton county there are many places where this oil oozes from the surface. Spring Creek, in that county, has given the fairest promise of a remunerative return. Ten thousand barrels of oil have been obtained from the wells in that vicinity, but the price of transportation made the business unprofitable. On Eagle Creek, in the same county, oil was obtained. On Jones' Creek, in Dickson county, some oil has been found at various times, amounting in all probably to 200 barrels.

The depth to which the boring was carried in Overton county, was less than 100 feet. On Jones Creek, oil was found at the depth of 132 feet. Deeper borings failed to increase the yield.

#### LIGNITE.

This may be termed a half-formed coal, and is intermediate in character between the true coal and a mass of dead vegetable matter. In appearance it sometimes looks like the true coal, but it has rarely the deep lustrous black of that mineral. It is very often of a brown color, light and sometimes spongy. It does not ignite readily, or burn freely, though it is often used for fuel, burning when dry, something like rotten wood, and emitting an empyreumatic odor. In structure it varies considerably, sometimes showing woody fibre and then approaching in aspect the mineral coal. For commercial purposes, its value increases as it approximates the latter in appearance. Sometimes it is scarcely distinguishable, except during combustion, when it emits the peculiar odor mentioned and burns with a smothered flame, leaving a large residuum. Extensive beds of lignite are found in many of the counties in West Tennessee, and especially in those counties in which are the escarpments that overlook the valley-plain of the Mississippi. Fair presentations are to be found in Dyer, Lauderdale, Tipton and Shelby. The beds, sometimes overlying each other, vary in thickness from a few inches to four and five feet. A fine bed, four feet thick, is seen at Old River, in Tipton county. At this place are three strata of lignite, with many more thin seams. These beds do not spread out laterally very far, but usually thin out and appear to have been formed from beds of accumulated vegetable matter, either the former growth of swamps, or of drifted material.

At Raleigh, the old county seat of Shelby county, situated on Wolf River, a mine was opened in the winter of 1855-6, and the lignite was used as fuel in a hotel at that place. It is said to have been a tolerably good substitute for coal, but in its burning and heating properties, it was far inferior to that article. Attempts were made also to generate steam in a neighboring saw-mill with it, with not very satisfactory results. Blacksmiths have employed it in their forges when nothing better could be obtained. In very dry seasons, when set on fire, it will burn for weeks in the beds. The lignite, like peat, in order to be used as a fuel, must be mined in the summer or fall and suffered to dry thoroughly.

Some interesting adventures in reference to this article have occurred, among others may be mentioned the formation of a joint stock company, a few years anterior to the war, for the purpose of mining coal near Old Fulton, in Lauderdale county. It was believed by the projectors of this company that a real coal mine existed, and great were the expectations created. Excitement ran high all along the Mississippi River. The advice of eminent geologists was disregarded for the superior knowledge of "practical miners." Great preparations were made and considerable sums of money expended in getting out a huge pile, which, to the eyes of the "practical miners," was the representative of vast wealth. But this, like all other ill-advised schemes, proved illusory, and the company dissolved without finding a sale for their precious products.

In many other counties, in the digging of wells, lignite has been met with, and its black appearance when damp has given existence to rumors about the discovery of coal in West Tennessee. In Carter county, also, a limited bed of lignite has been met with, not far from Elizabethton. Into this bed pits were sunk and the mineral used for a short time.

We wish to say here, once for all, that no true coal has ever been discovered or is likely to be discovered in the State, except within the limits of the Cumberland Table Land, or its outliers, the thousand and one reports to the contrary notwithstanding. In this, as in many other particulars, the negative results of geological surveys have their value, inasmuch as they save immense expenditures of labor and capital in pursuit of chimerical enterprises. So far as Tennessee is concerned, the Coal Formation is distinctly defined, and outside of it true coal is not to be expected. Lignite also has its geological horizon, and belongs to much more recent formations, such as the Tertiary, and more modern deposits. In the future cycles of chemical change, embracing many ages, lignite may be transmuted into coal, but, as yet, it bears the same relation to that article that the sprout does to the old Irish oak, that lies imbedded in the peat-beds or morasses of the Emerald Isle.

Another ignis-fatuus that bewilders the unscientific mind and decoys many into the infatuations of delusive hope, is the black shale. Because this material is heavily saturated with an inflammable oil, and therefore ignites and burns, and because its structure is that of a shale or slate, it is thought to be an unerring indication of coal, if not coal itself. In hundreds of places in the State this slate has been dug

into in search of coal, money and time wasted, and hopes blasted. If this report should effect no other good than that of deterring persons from engaging in such adventures and illusory speculations, it will have saved a great deal to the people of the State. For more than twenty years men of more than ordinary intelligence have been deceived by the black shale and lignite, and we have scarcely visited a county in which indications of coal are not reported—always hearing of it, but never seeing it, except in its proper geological positions. These errors are akin to those spoken of under the head of iron pyrites.

#### ALUM.

Alum is found in the same situations as copperas—in the “rock houses” of Middle Tennessee. The black shale could be profitably used in the manufacture of this salt. It also occurs in the sheltered places of the Unaka Mountains.

#### EPSOM SALTS.

In limestone caves, the rocks of which contain magnesia, epsom salts are by no means a rare mineral. This material is found also in many of the saltpeter caves. In some of these it was gathered by the barrel during the war. A noted locality for this salt is Alum Cave in Sevier county.

#### BLUESTONE (*Sulphate of Copper*).

This is found at Ducktown in large quantities. Beautiful masses have been met with in the mines. The water flowing out of the drifts is impregnated with this salt. It is not, however, separated as sulphate of copper, but is converted into metallic copper by being brought into contact with iron. A great deal of copper is thus separated every year from this salt.

#### MINERAL WATERS.

Tennessee may challenge comparison with any portion of the United States in the number, variety, excellence, and medicinal value of its mineral waters. They occur upon the lofty peaks of the Unakas, and break out in groups from the bases of the long ridges of the Eastern Valley. The Cumberland Table Land is crowned with spark-

ling chalybeate springs, and beautified by some of the loveliest scenery in America. The Highland Rim sends forth sulphurous and chalybeate springs too numerous to mention, and even West Tennessee, from Kentucky to Mississippi, pours forth great volumes of mineral waters from the deep strata that lie beneath the level surface.

There are many of these springs that have a reputation co-extensive with the Union, on account of their curative properties. It cannot be doubted that the pure air, magnificent scenery, cooling breezes, and other healthful influences, will make these watering places favorite summer resorts for all the states lying in a lower latitude. Especially do we refer to those places in East Tennessee and on the Cumberland Table Land, many of which are handsomely improved, and offer accommodations equal to the best. During the past summer they were crowded with persons fleeing from cholera, and the miasmata which infest lower districts. Swarms of visitors from Atlanta, Macon, Savannah, Charleston, New Orleans, Mobile, as well as from Memphis, Nashville and Chattanooga, sought these airy retreats, where blankets are in request during the hottest nights of summer. Not even the spring region of Virginia or of New York can surpass that of Tennessee, in the splendor of the climate, the delightful coolness of the atmosphere, the wildness and picturesqueness of the scenery, or the health-giving properties of the water.

## CHAPTER XVII.

## TRANSPORTATION—RIVERS.

The State of Tennessee is abundantly supplied with navigable streams. The Mississippi River, always navigable, rolls its turbid current along the western limit; and the Tennessee and Cumberland, with their tributaries, drain more than three-fourths of the entire surface of the State. Of the tributaries of the Mississippi, the Forked Deer and its tributaries (Obion River and South Forked Deer), the Big Hatchie and Wolf River are the largest and most important. The Forked Deer is navigable for steamboats, at times, as far up as Dyersburg, the county seat of Dyer county, and some have gone as far as Jackson. Big Hatchie is also navigable for several miles, though the amount of shipping done on this stream is quite small, considering the fertility of the region through which it flows. These confluent of the Mississippi pass through a region remarkable for the fertility of its soil, and its capability of subsisting a dense population. These streams have sluggish currents and earthy banks, and oftentimes rise in fearful floods over the level country through which they flow. Most of the streams of West Tennessee, by their course, denote a warped surface of the country. Flowing, for the most part, in a north-westerly direction until they reach a point within fifteen miles of the Mississippi River, they then turn nearly at right angles, flow south-west, and empty into the Mississippi, generally where that river makes a convex curve. But little, if anything, has been done by the Government to improve the navigation of these streams, and, indeed, little can be done, except to keep the channels cleared of snags and driftwood, and the banks free from overhanging trees. In the year 1838, the Legislature appropriated \$93,000 for the improvement of the Obion, Forked Deer and Big Hatchie.



## TENNESSEE RIVER.

This is the largest tributary of the Ohio, and so far as volume of water and length are concerned, it is as much entitled to be called the main stream as the Ohio. It is, in many respects, a remarkable stream. It drains an area of 41,000 square miles, and its total length, from the source of its longest confluent to the mouth is 1,100 miles. Its fall within that distance is 2,000 feet, and its average width 1,500 feet. Rising in the south-west portion of Virginia, and bearing the name of Holston until its union with the Clinch, near Kingston, in Roane county, it sweeps down the Valley of East Tennessee in a rapid current until it passes Chattanooga, a short distance below which it breaks through Walden's Ridge in tumultuous whirls, by a series of bends, into the Sequatchie Valley, where the current grows less turbulent, flowing quietly down this valley for a distance of sixty miles, and at Guntersville, Alabama, takes a direction nearly west by north. Between Lauderdale and Lawrence counties, in Alabama, 330 miles below Knoxville, it spreads in a broad, shallow expansion called Muscle Shoals, flowing over flint and limestone rocks for twenty miles, forming an almost insurmountable barrier to navigation, yet affording the very finest water privileges. On the Mississippi line, at Chickasaw, it turns north-west, and forms the boundary line between Alabama and Mississippi; and after a circuit of 300 miles in Alabama, re-enters Tennessee, flowing north, and emptying into the Ohio River at Paducah, Kentucky, 800 miles from the union of the Clinch and Holston rivers.

Regarding the Holston as the Tennessee, its principal tributaries from the north are the Clinch, Sequatchie, Paint Rock, Flint, Elk and Duck rivers, and Shoal and other creeks; from the south the Watauga, French Broad, Little Tennessee, and Hiwassee, and Big Sandy from the west. Many of these tributaries, especially the Clinch, French Broad and Hiwassee, are navigable for considerable distances, and during the spring freshets, large quantities of produce are transported down these streams on flat and keel-boats to Chattanooga and other points.

Muscle Shoals practically divide the Tennessee River into two distinct navigable streams. But for this single obstacle an easy, cheap and desirable water communication could be had between the south-eastern states and the vast fertile region watered by the tributaries of

the Mississippi. Its value, as a highway of commerce, early commanded the attention of our statesmen, who saw that, by removing the obstructions which the Muscle Shoals presented, the means would be secured of rapidly developing the population, wealth and resources of one of the finest agricultural and mineral regions on the continent.

Accordingly, (we condense from the able report of Major McFarland) the Board of Internal Improvement, as early as 1828, was directed by an act of Congress, approved the same year, May 23, to make an examination of the Muscle Shoals, with a view to opening them to navigation, and to submit a plan and estimate therefor, which plan and estimate were submitted December 18, 1830, and were approved by the President in March following.

The salient features of this project were the formation of three basins, by the construction of dams across the river, one below Brown's Ferry, one below Elk River Shoals, and one below Campbell's Ferry, and their connection with each other, and with the deep water at Florence, by a canal along the northern shore.

The construction of these basins was rendered necessary by the provision of the act of Congress, that the scheme should provide for bringing the southern shore of the river into direct water-communication with the canal, which it was well understood would, if built, have to pass the shoals on their northern side.

To carry out the scheme of improvement presented by the board, which also related to the construction of certain works at Colbert's Shoals below Florence, Congress appropriated four hundred thousand acres of the public lands lying within the State of Alabama, which were to be sold and the proceeds applied to the construction of the works recommended by the board; and the execution of the work was confided to the State of Alabama, with the single condition that the work should be begun at the deep water, near Florence, and carried up the river as far as the funds available would permit.

The funds accruing from this source, however, being manifestly inadequate to the completion of the work as designed by the board, the commissioners of the State of Alabama, who had the work in charge, deemed it best to apply them to the construction of that section of the proposed canal which was to connect the deep water at Lamb's Ferry with the deep water at Campbell's Ferry; and upon their application, Congress removed the restriction which it had placed upon them in respect to beginning the work at Florence, and gave them the author-

ity asked for to enable them to construct this middle section of the canal first; and the board of internal improvement was ordered to re-examine the question in relation to this proposed change in its scheme, and to report a modified plan and estimate accordingly.

Their report bears date March 25, 1831, and in it they state that it is "a plan not presented or approved by this board." And they further add, in relation to it, "that it will overcome about fourteen miles and six-eighths of the impediments of the river; but after passing these, a boat cannot go farther for want of the improvements to pass over the impediments above and below." The work, however, was begun that year, 1831. In July, 1836, water was first let into the canal, which a few months later was thrown open to navigation—its lower terminus being in the eddy of Campbell's Ferry (now Bainbridge Ferry), and the upper terminus being about three miles below the Lamb's Ferry eddy, the funds not being sufficient to admit of the completion of the work to the eddy itself, where, however, it was eventually carried under a small additional appropriation.

The width of the canal, as finished, varied from sixty to seventy feet at the water-surface, with a depth of six feet, and lock chambers thirty-two feet wide by one hundred and twenty feet between miter-sills, with an average lift of five feet.

The work, so far as done, was well done, and the canal was, for a time, extensively used; but the very objection to the scheme, urged by the board of internal improvements in their modified report of March 25, 1831, found constant verification in the fact that boats which had passed through the canal were stopped commonly by the Elk River Shoals above, or the Little Muscle Shoals below; so that often scores of vessels lay idly at one obstruction or the other, waiting for a rise in the river to enable them to pass.

In a letter dated May 14, 1838, Mr. Thomas Williams, the chief engineer of the canal, says:

"A great quantity of cotton has passed through the Muscle Shoals Canal, but for some weeks past, the unusual lowness of the water has completely suspended navigation; not that there is any difficulty in passing through the canal itself, but the water on the shoals above and below it (Elk River and the Little Muscle Shoals), is so shallow as to prevent boats from getting into it. There were, a few days ago, about seventy large flatboats, loaded with cotton (all of which had passed through the canal), lying at Campbell's Ferry, waiting for a rise in the

river to carry them over the Little Muscle Shoals. Many more are detained by the shoals above the canal. The steamer *Holston*, of more than one hundred tons burden, and intended for the upper Tennessee trade, passed up the canal sometime ago, but I am told is detained by shoals above the canal."

These difficulties, together with the failure of all attempts to obtain further appropriations, either from Congress or from the Legislature of the State of Alabama, to maintain and extend the canal—a failure due, no doubt, in a great measure, to the financial distress of 1837, and the years immediately succeeding—gradually caused its abandonment. The lockgates rotted and fell to pieces, leaks occurred, the dams across the creeks became broken and disintegrated, quantities of sediment washed into the bed of the canal, and now, over forty years since the work was begun, tow-paths, banks, and bed alike of this great work, which cost the country nearly \$700,000, are overgrown with trees and heavy masses of shrubbery, while glimpses only of the fine masonry of its seventeen locks are to be caught here and there through the occasional openings of the dense growth which envelops them.

Major McFarland is of opinion, that the scheme proposed by the board of internal improvement, in 1831, for the passage of Muscle Shoals, cannot be improved upon, and the work now remaining to be done, in order to carry it out, is to put the old canal in good condition, to construct the canals around Elk River Shoals and Little Muscle Shoals, together with the basins proposed for connecting them with the south shore. He estimates the entire cost to be from \$2,128,500 to \$3,676,000, varying according to the width and depth of the canal, and width and length of lock chambers. The latter amount is the estimate for the trunk of a canal one hundred feet wide at the surface, six feet deep, and with lock chambers sixty feet wide by 300 feet between mitre-sills. The following are the itemized necessary improvements, with cost, at the three points named, with the canal of the dimensions already constructed between Lamb's and Campbell's ferries, which is sixty to seventy feet wide at water surface, and six feet deep; lock chambers thirty-two by one hundred and twenty feet between mitre-sills:

ELK RIVER SHOALS.

9 miles of canal-trunk, at \$40,000 per mile.....	\$360,000	
3 locks, 8½ feet lift, at \$50,000 each.....	150,000	
2 guard-locks, at \$40,000 each.....	80,000	
2 crib-dams across the Tennessee, at \$75,000.....	150,000	
		\$740,000

Brought forward..... \$ 746,000

**BIG MUSCLE SHOALS.**

1 guard-lock.....	40,000	
Repair of 17 locks, at \$10,000 each.....	170,000	
Repair of 15 miles of canal-trunk, at \$25,000 per mile.....	375,000	
Dams and culverts.....	50,000	
		630,000

**LITTLE MUSCLE SHOALS.**

6½ miles of canal-trunk, at \$40,000 per mile.....	260,000	
3 locks, 7½ feet lift, at \$50,000 each.....	150,000	
2 guard-locks, at \$40,000 each.....	80,000	
1 crib-dam across the Tennessee.....	75,000	
		565,000

1,935,000

Contingencies, to provide against leakage, accidents, construction of  
coffer-dams, pumping, &c., 10 per cent..... 193,500

Aggregate cost..... 2,128,500

The whole distance and fall from Brown's Ferry to Florence, between which points are the obstructions named above, are as follows:

	DISTANCE.	FALL.
	<i>Miles.</i>	<i>Feet.</i>
From Brown's Ferry to head of Elk River Shoals, (deep).....	2.6	1.7
Elk River Shoals.....	8.6	21.1
Lamb's Ferry pool, (deep).....	6.3	5.4
Big Muscle Shoals.....	14.4	82.1
Campbell's, or Bainbridge, Ferry pool, (deep).....	1.25	1.9
Little Muscle Shoals.....	5.35	22.0
<b>Total.....</b>	<b>38.5</b>	<b>134.2</b>

From Florence, Alabama, to Paducah, Kentucky, at its mouth, a distance of 260 miles, the Tennessee River is navigable for the largest steamers, and the same may be said of the river between Muscle Shoals and Chattanooga, a distance of 200 miles. A rise that will give from four to five feet on the Muscle Shoals, will give forty feet at Chattanooga, and twenty feet at Florence, and enable large vessels to pass to Knoxville, 200 miles above Chattanooga, and renders the Holston, French Broad, and Little Tennessee, navigable for a considerable distance further.

Major McFarland, in his report, says the Tennessee has more water than the Ohio, with a permanent bed, broad, deep, and beautiful, with

no obstructions except of rocky reefs, with little or no sandy gravel, which prevents the formation of shifting bars that obstruct the navigation of most of the western rivers.

Some thirty years ago, slight improvements were made by the Government on the river between Chattanooga and Knoxville. These were temporary, however, and no good effects are now derived from them to navigation. The failure to overcome the principal obstruction to the navigation of the river, the Muscle Shoals, together with the rapid construction of railroads, caused the project of Tennessee River improvements to be neglected for twenty years, and it was not again revived until the increasing commercial interests of the country through which it flows, could no longer be ignored. In the year 1868, the Government resumed the work. Appropriations were made in that year, also in 1869-70 and 71, amounting in the aggregate to about \$180,000. The work was done by contract, but it proved to be so slow and unsatisfactory, that the Government, in 1872, abandoned the contract system, and has since conducted it by hired labor. Under this latter system, the work has been rapid and effective.

Under the present condition of improvement, the river, for convenience, may be divided into four sections:

1. The Upper Tennessee River improvement, comprising all the river above Chattanooga.
2. The middle division, lying between Chattanooga and Muscle Shoals.
3. The Muscle Shoals.
4. The Lower Tennessee River, or that lying below Muscle Shoals.

The divisions are entirely arbitrary, but they serve to give an idea of the location of the work.

On the upper division, work has been prosecuted vigorously during the past two years; it extended from Chattanooga to Loudon, a distance of 160 miles, and comprised work on fifteen obstructions. During this time \$85,000 have been expended on this part of the work. The work on these obstructions may be said to be about two-thirds finished.

With regard to the effects so far upon navigation, only two of the improvements are complete—at White's Creek and at head of Half Moon Island; results at those places have met the most sanguine expectations. At the other points the work is unfinished, and only partially accomplishes what it is expected it will effect; but the experience of the past proves that almost all of the difficulties to navigation on

this part of the river can be removed by a moderate expenditure of money.

One of the immediate effects of the improvement at White's Creek, was to prolong the navigable season at least a month, since this obstruction was the first to suspend navigation.

Immediately below Chattanooga are a series of shoals known as the mountain obstructions, and by the names of Ross Towhead, Tumbling Shoals, Suck, Pot, Skillet, and several others. The most formidable was the Suck. A large amount of work has been done at that place. As this mountain portion of the river will not be used to any extent for commercial purposes until the lower river is open to navigation, no immediate importance is attached to the improvement of these mountain obstructions. The policy of the United States engineer officers in charge of this improvement, is to do work which will benefit commerce immediately, and as the appropriations of Congress become more liberal, a general improvement of the river will be undertaken.

The improvement of the Tennessee above Chattanooga particularly recommends itself to Government aid, from the fact, that it is the only portion of the river on which the coal and iron deposits are found in such vast quantities and richness, and which must depend upon water transportation for successful development.

The object of all the Tennessee River improvements above Muscle Shoals, is to obtain a minimum depth of three feet in the channel at low water. This condition of the navigation would exist only about three months in the year, or what is known as low-water season. In the low-water season of 1873, with the exception of a few weeks, communication by river between Chattanooga and Rockwood Landing, the present most important point on the river between Chattanooga and Kingston, was uninterrupted. With a favorable season in 1874, the work begun at several obstructions will be finished, thus ensuring certain and safe water communication between the above points.

No improvements have been begun on the second division, or that lying between Muscle Shoals and the mountain near Chattanooga. It is in proportion to its length, however, more susceptible of improvement than any other portion of the river.

At Muscle Shoals the Government has made accurate and elaborate surveys and estimates in the past two years for a canal, the only practicable mode of avoiding these shoals. As soon as sufficient means are at the command of the Government officer in charge of this work to

justify its commencement, it will be begun. The important relation which this great project sustains to the whole country, has been too often discussed to bear repetition; suffice it to say, that it would open to the west an immense area of mineral land in West Virginia, North Carolina, East Tennessee, Georgia and Alabama, that would quite revolutionize the manufacturing industries of the west and south.

On the lower division of the Tennessee River, work has vigorously progressed at Colbert Shoals, the chief of the lower obstructions. This improvement is completed and is entirely successful. With the improvement of Big Bend Shoals, and some obstructions of minor importance, constant communication between Florence and Paducah will be secured.

The Tennessee River improvement no longer drags its weary length along, but it is a *live* enterprise, rapidly attaining useful results. During the summer and fall of 1873, five hundred laborers were on the rolls, five times the force that was ever employed before on the river at one time. This fortunate change in the tide of its affairs, is due to the energy and distinguished abilities of Major Walter McFarland, whose plans and conceptions embrace the hydrographic system of almost half a continent, and of which the Tennessee River improvement forms only a component part.

The amounts appropriated by the Government since the war for the improvement of this river may be classified as follows:

Amount for river above Muscle Shoals.....	\$180,000
“ “ “ at “ “ .....	50,000
“ “ “ below “ “ .....	80,000
Total.....	<u>\$310,000</u>

The amount appropriated for improvement at Muscle Shoals was considered by the officer in charge as so inadequate that nothing has been done at that point. The yearly increasing trade of the river will no doubt, in a short time, have its effect upon Congress in securing an appropriation sufficiently large to unite this dissevered stream. The prosperity of the whole East Tennessee Valley, the development of the rich coal fields and iron regions of that portion of the State, as well as of a large section of Alabama, depend in a great measure upon making the Tennessee River navigable from Knoxville to Paducah, Kentucky. A thousand barges loaded with coal, pig-iron, staves, hoop-poles, cotton, tobacco, dried fruit, potatoes, lumber, etc., would annually float



down this great river, but for the obstruction of the Muscle Shoals. As it is, the amount of business done is considerable.

. THE TRADE OF THE TENNESSEE RIVER.

The amount of produce shipped from the river above to Chattanooga, by careful investigation, is found to be as follows for the year 1873:

Corn.....	609,266 bushels.
Oats.....	121,404 "
Potatoes.....	3,000 "
Wheat.....	116,023 "
Coal, (present product).....	240,000 "
Hay.....	1,763,568 pounds
Pig Iron.....	22,077 tons
Maple Sugar.....	30,000 pounds
Bacon.....	1,717,058 "
Blackberries, (dried).....	5,000 "
Other dried fruits.....	300,861 "
Saw Logs, 10,500; board measure.....	2,100,000 feet

Quantity and trade rapidly increasing.

Besides these articles, there are transported from the river above, immense quantities of produce to Knoxville and Loudon, from as high up as Lee county, Virginia. As many as two hundred and fifty flat-boats annually come out of the Clinch, Powell's, French Broad, Holston, Nolichucky, Watauga, Hiwassee, Little Tennessee, Poplar Creek, and other tributaries of the Tennessee. Five steamboats run regularly between Kingston and Chattanooga, and two others are employed above in the trade, and if the water was deepened, would extend their trips to Knoxville and to points above.

Between Chattanooga and the Muscle Shoals, the trade is very limited. Below the Muscle Shoals, from Florence to the Kentucky line the following reliable statistics of the trade have been collected. Many other articles doubtless escaped notice :

Cotton.....	10,000 bales
Staves.....	1,635,000
Pig Iron.....	16,500 tons
Pine Lumber.....	5,000,000 feet
Poplar Lumber.....	1,000,000 "
Peanuts.....	300,000 bushels
Eggs.....	200,000 dozen
Leather.....	500,000 pounds
Tan Bark.....	1,000 cords.

Hoop-poles, shingles, fish, etc., are shipped in considerable quantities. The market value of the articles shipped out of the lower Tennessee is not less than \$2,500,000, while those from the upper Tennessee are worth \$2,375,000, aggregating for the whole trade of the Tennessee, \$4,875,000 annually. Were the obstructions to navigation removed, this trade would be quadrupled in four years. St. Louis, New Orleans, Cincinnati, Louisville and all other points on the Mississippi and its tributaries, would be in water communication with the great Valley of East Tennessee, and heavy products could be transported at greatly reduced rates. It is earnestly hoped that the attention of Congress may be directed towards the improvement of the navigation of this river—a river that flows through four states, and washes the boundary of the fifth—a river upon whose shores are found lands as fertile as those of the Nile—a river that almost dashes its waves for a distance of 150 miles against the great coal fields of the Appalachian chain, and in whose confining ridges and hills, for a distance of 400 miles, are found immense deposits of as good iron ore and as beautiful marble as can be found within the boundaries of the Government. For thirty years the development of this rough wealth has been retarded for want of cheap transportation. For thirty years the genius of enterprise has been paralyzed by the tardy action of the Government. Five millions of dollars would be no unreasonable appropriation to make to attain an end so fruitful of magnificent results and so advantageous to the whole country. Let this river, so beautiful in its majestic flow, be made tributary to the wealth of the country, and bear upon its broad bosom the products of the soil, the mine and the manufactory. The great north-west needs it to transport its surplus grain and bacon to the cotton growing sections of the south; the south, in its impoverished condition, needs it to secure its supplies at reduced rates. The whole country needs it for the stimulating effects it will exert upon its industry, development and material progress and prosperity.

#### CUMBERLAND RIVER.

This river, whose commercial importance is far greater than that of any other in the State, and upon whose banks is found a larger number of flourishing towns, takes its rise in the Cumberland Table Land, very near its eastern margin, its branches spreading out like the fibrous roots of a tree, many of the head springs of which are within a mile or two of some of the tributaries of the Tennessee River, separated from

them, in fact, by a single ridge. These various small streams, which have their sources upon the eastern elevated margin of the Table Land, unite and re-unite, forming the main Cumberland. More than half of these take their rise in Kentucky, and the remainder in Tennessee, the latter making the Big South Fork, down which flat-boats occasionally descend. This stream unites with the Cumberland in Pulaski county, Kentucky, just after leaving the limits of the Table Land. A short distance from the point of union, the river turns and flows to the southwest, entering the State of Tennessee in Clay county, passing through Jackson and Smith. In Smith it assumes a north-westerly direction, flowing through the rich lands of Trousdale, forms the boundary line between Wilson and Sumner, turns again to the south-west, passes on through Davidson county, and at Nashville again resumes its north-westerly direction through Cheatham, Montgomery and Stewart counties, approaching within a few miles of the Tennessee River at the State line, and finally debouches into the Ohio River, on nearly the same parallel of latitude in which some of its main branches take their rise. Its entire length is about 650 miles, and what is remarkable, 595 of these can be made navigable, and of the navigable part, 304 miles are in the State of Tennessee.

From the full and able report of Col. S. T. Abert, who has in charge the improvements of the Cumberland, and who made, in 1871, a survey of the river, we glean some interesting and valuable information pertaining to this stream. The slope of the river varies considerably in different parts of its course, as is seen by the subjoined table, and produces a corresponding variation in range, between high and low water.

Locality.	Distance in miles.	Height above mean tide at Mobile.	Descent or difference of level.	Slope per mile of the water surface.
Foot of the Falls, in Whitley Co., Ky.....	.....	770.70	.....	.....
Laurel River.....	10	685.70	85.	8.5
Head of Smith's Shoals.....	24	651.70	31.	1.42
Foot of Smith's Shoals.....	9	597.70	54.	6.00
Point Burnside.....	2	597.00	0.7	0.35
State Line.....	129	502.50	94.5	0.73
Nashville.....	229	365.00	137.50	0.60
Mouth of the river.....	192	286.00	79.	0.41
Total.....	595	.....	481.5	.....

At the Falls, the river is precipitated over conglomerate with a vertical fall of sixty-three feet. The range between high and low water

at Point Burnside, is 65.5 feet. At Nashville, the high water of February, 1847, was 52.9; of March, 1867, 50.3 feet. An ordinary rise of 33.8 feet at Nashville, is equivalent to fifteen feet at the foot of Smith's Shoals, and to five feet at the head, which is called a coal-boat tide, the stage of water at which the coal barges are just able to pass the rapids. At Gower's Island, the range is 41.6 feet; at Harpeth Shoals, forty miles from Nashville, it is 39.3 feet; below Davis' Ripple it is 55.8; at Clarksville, sixty-five miles from Nashville, it is 56.3; at the Tennessee Rolling Mills, 145 miles from Nashville, the high water of March 14, 1863, was 53.8; of March 14, 1867, 55.2. At the mouth of the river, 192 miles from Nashville, and 552 miles from Point Burnside, the range is 51 feet. As the great floods occur generally in February and March, before the crops are planted, the destruction from high water is not as great as takes place upon the Arkansas, the Red River, and the Mississippi, where the bottoms are less elevated, and where the greatest floods often occur in June and July.

From the Falls to Point Burnside the river flows in a narrow gorge which it has excavated out of subcarboniferous sandstone, conglomerate, and cavernous limestone, at a depth of 300 to 400 feet below the highland plateau. The river in this distance varies from 100 to 650 feet in width, but the gorge is more uniform, increasing gradually from 500 to 700 feet. In this part of its course the river is approachable by roads, which are exceedingly rough, resembling irregular flights of stone steps, hardly practicable on horseback, but exhibiting at every turn, as they descend the sides of the bluffs, wild and picturesque cliffs of rock. At Point Burnside the gorge widens, and bottoms appear of sufficient extent to be cultivable. The river continues to flow through a rocky bed with bluffs of limestone, and with a valley varying from one-half to one mile wide, as far as Carthage, where the valley extends upon the south side into the Central Basin. The river follows the northern edge of the Highland Rim, until it leaves the Basin and re-enters the highlands about fourteen miles below Nashville. It continues to flow through the intersecting ridges and valleys of the Highland Rim, with bottoms about a mile wide and gradually increasing in length and encroaching on the bluffs of siliceous limestone, until it enters the upheaved sandstone and coal of Livingston county, at its mouth. In the latter part of its course its width varies from 500 to 700 feet, and its banks, when composed of alluvium, begin to exhibit evidences of change, which shows itself in the bars.

Before entering on a more minute description, the course of the river may, for convenience, be divided in three general divisions:

The first division extends from the great falls of the Cumberland to Point Burnside, a distance of forty-five miles.

The second division extends from Point Burnside to Nashville, a distance of 358 miles.

The third division extends from Nashville to the mouth of the river, a distance of 192 miles.

#### FIRST DIVISION.

Through the first section of this division from the Falls to Laurel River, the river flows between cliffs of conglomerate and sandstone, sometimes rising in bold escarpments 300 and 400 feet. The top of the bluffs is the extension of the Cumberland Table Land into Kentucky. The course of the river in this section is obstructed by large masses of conglomerate rock, which have rolled down from the bluffs above. The river between the foot of the Falls and Laurel River is very rapid, the descent being 85 feet to the mile. From Laurel River to Smith's Shoals, a distance of twenty-four miles, the descent is 1.3 feet per mile.

The elevation of the bluffs is not so great as in the previous section, between Laurel and the Falls, but the country is equally broken near the river by ridges and ravines, shut in by vertical walls of sandstone or conglomerate. The ravines, on account of their depth and narrowness, might be compared to canyons. The tops of the tall hemlocks reach to the feet of the traveler as he rides along the brink. The sides of the ravines are clothed with the dark-green foliage of the ivy and laurel, mingled with cedar and arborvitæ. The bluffs upon the river are similarly adorned, and overhang the water at many points for thirty feet or more. At one point a creek, which disappears at some distance from the river in the plateau above, enters near the surface of the water with a volume sufficient to turn a small grist-mill. Rockcastle River enters about three or four miles below Laurel, and although the veins of coal appear near the surface of the water at this point, it cannot be profitably mined on account of the shoals. About ten miles below Laurel, the coal bed is about 250 feet above low water, and here a deep channel affords facilities for building and loading the coal barges.

Below the mouth of Rockcastle River, the Cumberland is divided

into a succession of pools and rapids; the pools vary in depth from four to six feet at low water. One or two of them are from twenty to thirty feet deep. At the shallow points, six inches may be found at low water. The bars are composed of rocky debris and large gravel, resting on a rock bottom. The work on this section will consist in removing several bars and fish-dams and blasting detached rock and projecting masses. The obstructions to descending navigation are small in comparison with those which occur at Smith's Shoals, which come next in order.

*Smith's Shoals.* The name of Smith's Shoals, or the Great Shoals, has been applied to a succession of rapids, caused by the descent of the river over ledges of shaly limestone, and designated successively Shadowen Shoal, White Cliff Ripple, Long Shoal, and Smith's Shoal. These shoals are the most dangerous obstacles to descending navigation, and before the channel had been improved, as many as ten to twelve coal boats have been lost out of forty, which attempted to descend during a freshet. Since that period a large amount of rock has been removed from the channel, and the loss of coal boats does not exceed three annually. The entire length of the shoals is nine miles, and the aggregate descent fifty-four feet, or at the rate of six feet per mile. As the river below the shoals has a very moderate descent, a rise of three and a half feet at the foot is equivalent to one foot rise at the head of the shoals. When, therefore, the river is high enough for boats to run the rapids, the slope is reduced to about forty-four feet, or to nearly five feet per mile.

Shadowen Shoal, the first of the series, is formed of horizontal ledges of limestone, fractured and seamed by the current, over which the water flows with a depth varying little from three inches, when the river is about one foot above low water. Here the river expands from a width of 400 to 700 feet, and continues nearly the same width throughout the length of the shoal. The length of Shadowen is two miles, and the descent ten feet, or at the rate of five feet per mile.

A vertical cliff of limestone, two to three hundred feet in height, gives the name to White Cliff Ripple, which is three miles below the first. It is about one-fourth of a mile long, with a descent of 2.5 feet, or at the rate of ten feet per mile. The width of the river is about 600 feet. It resembles the first.

Long Shoal is separated from the last by a pool, three-quarters of a mile in length. It has the same bottom as the others, but varies in width from 600 to 660 feet. It is one mile and seven-tenths in length,

and has a descent of twenty-one feet, or at the rate of nearly thirteen feet per mile, but at one point there is a vertical fall of two and a half feet. The contraction of the water-way, the rapid descent, and the sudden turn to the left which occurs at this point, make the passage more dangerous than at any other part of the shoals. Three lateral dams have been built in this bend. All of them enter the river nearly perpendicular to the current, and two of them are provided with flank walls. The stones on the upper one have been scattered by the floods. These dams were not intended to influence the low-water stage, and their utility, on account of their position, is doubtful at high water.

Smith's Shoals are about one-fourth of a mile lower down. In length they are three-fourths of a mile plus 478 feet, and have a descent of fifteen feet, or at the rate of 17.6 feet per mile. Three lateral dams, or wing-dams, have been built in this bend, two from the right bank and one from the left. The upper dam on the right and the dam on the left have flank extensions. In these shoals there is a vertical descent of about two feet, but the danger is not as great as in the Long Shoal. Some of the dams were constructed by the United States and part by the State of Kentucky, at different times, and quite a large amount of rock has been removed from the channel. The rock excavation has been of undoubted benefit, but the utility of the dams has been questioned. While increasing the depth of water, they have, it is said, at the same time increased the turbulence of the current, and the coal boats are sometimes sunk by the waves which dash over the sides.

A canal would afford a secure transit both for ascending and descending boats in ordinary stages of the river, and would cost about \$1,500,000. A slack-water navigation, by means of locks and dams, would be equally efficient, but not so durable. It would cost about \$900,000, or about \$15,000 per foot rise for sixty-six feet, which, with four or five dams, would give at low water about three feet of water in each lock.

A descending navigation is practicable by the latter method in this part of the river. The coal boats receive their loads during the fall months, and are tied up to wait for the winter floods. Upon the appearance of a sufficient "tide" they start in rapid succession.

Throughout the length of Smith's Shoals the bluffs, between 300 and 400 feet in height, are conspicuously escarped; the escarpment is sometimes on the right, sometimes on the left, but always opposed to the direction of the current. The rock, when not stained by oxide of

iron, or pink lichen, is of a light-gray color. The debris at the bottom affords a foothold for trees, and the bluff on the opposite side is partially concealed by trees and clinging shrubbery. Two narrow strips of bottom, one at the foot, and the other about one-half a mile below the shoals, are cultivated. From the foot of the shoals to Point Burnside, a distance of two miles, and a descent of seven-tenths of a foot, or at the rate of 3.5 feet per mile, completes the first division. The removal of some logs is sufficient to make this distance safe for steamboats.

Before commencing the description of the next division, a few words may be given to the Great South Fork of the Cumberland, which enters at this point. This branch is regarded by some persons as of sufficient importance to dispute precedence with the main stream.

*The Great South Fork.* This fork has been surveyed under the authority of the State of Kentucky. The following statement of distances and descent is taken from the report of that survey: From Little Jumps, a narrow rocky gorge, to the mouth of the river, the distance is about thirty miles, and the descent at the rate of two and a half feet per mile. The width varies from fifty to 200 feet, except at Messer's and Sloan's Shoals, where the width varies from 200 to 400 feet. In this distance are two rocky bars and two shoals composed of ledges of rock, which have just been named. The descent of these shoals is about fifteen feet to the mile. This part of the Fork could be improved by lateral dams and excavation, for the sum of \$10,000. But the best coal is found above Little Jumps and between Little and Big Jumps, a distance of fourteen miles, and here the obstacles are very formidable. At Big Jumps, the channel is filled with large rocks for a distance of 400 feet. The descent of the river between these two points varies from seven to fourteen feet. The channel is narrow, and its course so crooked that a loaded boat could hardly descend at high water with safety. At one point during low water the river disappears, and, sinking into a subterranean channel, reappears two miles below. Here, where improvement would be most costly, the best veins of coal are found. The work above mentioned is not included in the estimate for improving the Cumberland.

#### SECOND DIVISION.

From Point Burnside to Nashville, the head of low-water steam navigation, the distance is 358 miles, and the descent 232 feet.



The line of the proposed railroad from Cincinnati to Chattanooga crosses the river at the head of this division, and ascending the ridge east of the South Fork, attains the highland plateau, upon which, with an imperceptible descent, it extends to the state line of Georgia. From Point Burnside to the dividing line between Kentucky and Tennessee, the distance is 129 miles, and the descent ninety-four feet, or at the rate of 0.73 of a foot to the mile. In this section, in ordinary high stages of the river, steamboats encounter difficulties at nineteen or twenty points, consisting of rocky ledges, gravel-bars, and snags or logs, and overhanging trees. At low water the pools become nearly level, the bars more numerous, and the descent is transferred to the shoals and rapids. At this stage an improvement of the natural channel by contraction and excavation is impracticable. When the river is from six to eight feet above low water this method may be applied with advantage.

For the first forty-five miles between the South Fork and Creelsborough, many shoals and bars are observable. The descent in this distance is 0.74 of a foot per mile, and the width of the river varies from 350 to 400 feet. A gravel-bar at Fishing Creek, and a rocky channel at Cowan's Shoals, offer but little impediment.

The first point which requires attention is found at Forbush's Bar. The channel near the left shore is swift for about 1,600 feet, with rocky rapids at the head and foot. A reef below deflects the channel to the right. Some rock excavation to distribute the descent, and a dam, is required at this point.

The names of the principal shoals as far as Carthage, are Hamon's Shoals, Lilly or Wolf Island, Wild Goose Shoals, Waltin Shoals, Seantlin Island, Sampson's Island, Cub Creek, Indian Creek, and Sand Shoal, at all of which either dams or excavations are necessary.

From Carthage to Nashville, a distance of about 103 miles, many bars are revealed at low water. The following bars are named in the order of their occurrence: Carthage Island, Foster's Island, Goose Creek Island, Wiltey Island, Bartlett's Creek, Donaldson's Horseford, Beck's Ripple, and several others of unknown names.

The width of the river from the State line to Nashville varies from 550 to 600 feet, and its average rate of descent is 0.59 of a foot to the mile, or about seven and one-twelfth inches. The bottoms vary in width from one-half to a mile, and are highly productive. At Carthage, the bottoms expand on the south side into the Great Central Basin, one

of the natural divisions of the State, and one unsurpassed for its rural beauty, and for its fertility of soil. This remarkable Basin, says Col. Abert in his report, is 120 miles long and fifty to sixty miles wide, and extends longitudinally in a south-west direction. It lies wholly in the State of Tennessee, and contains the most flourishing cities and some of the most fertile lands in the State. Its surface resting on Silurian limestone, is undulating with isolated ridges or small hills, which rise occasionally to the level of the summit of the surrounding highlands. It is difficult to conceive of this Basin as the result of erosion and aqueous denudation, but no other cause has left such unmistakable evidences of its action. Throughout the entire area of the cavernous limestone its operation is conspicuous. The conglomerate which covers the limestone and forms the surface of the Table Land, possesses extreme compactness and strength, and at the falls of the Cumberland has for ages resisted the action of rapid currents. After the water had once penetrated this rock, and reached the limestone, the caverns of the latter must have supplied subterranean reservoirs for the accumulation of the water.

Before the water was able to find vent, the increasing hydrostatic pressure must have been proportionate to the subterranean area, multiplied into the height of a column, which, in the Table Land, must have varied from 400 to 600 feet. This enormous pressure would have been sufficient to have rent asunder the rock, and to have opened channels for powerful currents. Evidences of this action are not confined to the Central Basin, but are co-extensive with the conglomerate and underlying cavernous limestone. It may not only be observed in the canyon-like ravines, the rock-bridge of Rockcastle River, the subterranean channel of the South Fork, the deep gorge-like valleys of the Cumberland and its tributaries, but also in the course of the Tennessee after it enters the same formation, and it is equally conspicuous in the denudation, down to the Lower Silurian, which characterizes the southern border of the blue-grass region of Kentucky.

The strata of the Basin, composed of Lower Silurian, pass below the bed of the river below Harpeth Shoals. This dip controls the course of the river in its efforts to flow to the north-west, but the south-west direction of the greater part of its course may have been determined by the surface of the superincumbent siliceous rock through which it must have cut its way before reaching the Silurian limestone. The course of the tributaries is also controlled by this formation. All

these streams have a general north-west direction. Caney Fork is worthy of note, because of the deep and rocky gorge, and a vertical fall of ninety feet, by which the river descends from the Highland Rim and enters the Basin.

### THIRD DIVISION.

From Nashville to the mouth of the river the distance, as determined by reconnaissances of Col. Abert, is about 192 miles; the descent by railroad level is seventy-nine feet, or at the rate of 0.41 of a foot per mile.

The obstructions in this division consist of rocky ledges in the upper part, and of brittle ferruginous conglomerate of gravel and sand in the lower. There are also snags and logs which should be removed.

By far the most serious obstruction to navigation in this division are the Harpeth Shoals, a succession of rocky ledges and gravel bars, severally known as the Flaxpatch, Harpeth Island, Sycamore Creek, Harpeth River Bar, and Reed's Reef. The entire length is 4.3 miles; the total descent 11.59 feet; the average slope per mile 2.17 feet, and the maximum slope 7.81 feet, which is near the lower part of the island. The shoals are probably formed by the increased dip of the strata and the increased hardness of the rocks. The work executed by the Government in 1834 has increased the depth of the water, but the lateral dams constructed at that time are greatly in want of repairs. Openings have been made in them by fishermen, to secure a passage for their canoes, and a large amount of water escapes behind the dams.

The following shoals in this division require improvement: Davis' Ripple, Palmyra Island, Elk Creek, Dover Island, Upper Gatlin Shoals, Line Island, Race Track Shoals, Shelby's Island, and Ingram's Shoals.

The character of obstructions, according to Col. Abert, may be classified as follows:

1. Overhanging trees in the upper part of the river, and some logs and snags in the lower.
2. Horizontal ledges of rock, revealed at low water, at points where the river passes from a higher to a lower level.
3. Bars composed of the debris of the bluffs and of the bed of the river and of heavy gravel.

4. Bars composed of a horizontal layer of ferruginous conglomerate of sand and gravel, found in the lower part of the river.
5. Wrecks of barges and old cribs.

The ledges of rock and bars of rocky debris become so numerous above Nashville at low water, that any attempt to improve navigation at this stage, by contracting the channel or by excavating the bed, is impracticable. The river from Nashville to Point Burnside is navigable for steamboats at a stage varying from six to eight feet, and from Poplar Mountain "tows" drawing six feet water can make regular trips when the river is ten feet above low water. Any improvement of the natural channel must facilitate navigation at these stages.

Low water, according to pilots, is the stage which permits the passage of the smaller steamers, drawing one foot without freight. This may be called steamboat low water, and is one foot above the ordinary low water of summer. From the mouth of the river to Nashville, navigation is practicable at from one foot to one foot and a half above low water; from thence to Carthage four feet is necessary; thence to Burksville, five feet; thence to Point Burnside, six to eight feet. In this division the period of navigation is usually six months. Five months, with a depth of from eight to ten feet, are counted on by the pilots of the Poplar Mountain coal trade for their tows of six-foot draught. Above Point Burnside, a flood of 15.7 feet at the foot of the shoals, and 4.5 feet at the head, and 16.8 at the point where the coal boats receive their loads, are requisite for the safe descent of the coal barges from the coal mines of Pulaski county. This stage of water is equivalent to thirty-three and a half feet at Nashville. The coal barges which make the trip unassisted by the steamers are compelled to wait for the flood. If the river at this point could be so improved that the barges might take advantage of intermediate floods of less elevation, the shipment of coal would be largely increased.

It is evident, therefore, that the improvement of the bed of the stream may be made efficient by adapting this method to the changing conditions of the river at different stages and in different sections. On account of the variation of the descent, depth, and navigable period in different parts of the river, a uniform standard of navigation is impracticable. The navigable period of each section can, however, be prolonged, and many of the difficulties and dangers which obstruct navigation can be removed.

The estimated cost of improving the Cumberland River from Point Burnside, the head of navigation, to the mouth, is \$452,664, of which amount the first division will require \$40,116; the second division, \$163,727, and the third division, \$248,821. This estimate is based upon the supposition that the work be done by the Government. If done by the contract system, at least twenty per cent. should be added to this amount. The improvement of Harpeth Shoals alone will require \$51,000.

But these figures refer to the improvement of the natural channel by the contraction of the water-way, and by the removal of rocks and gravel bars from the channel. This method, by abating certain difficulties and dangers, does not materially prolong the navigable season. To effect this, another system must be employed.

Slackwater navigation, by means of locks and dams, is now favorably known as a means of river improvement. Authority has been asked for making a survey of the Cumberland for this object. In the absence of data, a probable opinion may be formed and an approximate estimate can be made, based on known facts.

From Laurel River, in Kentucky, to Nashville, is about 350 miles. Through the entire distance, the river flows over a rock bottom and for the most part between rocky bluffs, alternating with bottom lands. The average fall from the South Fork is about seven-tenths of a foot per mile, or less than the Monongahela navigation. Smith's Shoals, the greatest obstruction above the South Fork, have an average descent of six feet per mile. These are easily surmounted by locks and dams, which pool the water for one and three-quarter miles. About thirty dams would be required for the entire distance, giving pools of an average length of fifteen miles. The Cumberland presents less difficulties than have been successfully overcome upon other rivers.

The entire cost of the improvement, which would secure five feet of water during the low-water season and afford navigation for ten months of the year, would not be more than \$4,500,000, or less than one-half of the value of the present trade of the river.

It would possess a rare advantage for profitable investment, by reason of the fact that it would be without rival by rail or water transportation. But one road is likely to cross, and none can ever be constructed along the course of the valley, jagged with such rugged and precipitous spurs of limestone, capped with siliceous rock. The profits of the trade of the valley will therefore fall undivided to the im-

provement, the entire valley will share its benefits, while to the cities must accrue the lion's share. There is probably no improvement which would bring such an accession of wealth to Nashville as this of locking and damming the Cumberland. How far the Government will aid the States interested, it is impossible to say, but the question is one of such importance that its merits should be at once thoroughly canvassed, and the successful accomplishment of this scheme would place the great coal fields of Kentucky, as it were, at the very doors of Nashville and the country below. Cheap coal has become, in a measure, the creator of wealth and the basis of manufacturing industry. With the Cumberland locked and dammed, coal could be delivered at all points along the river within the State from Celina to Line Port, at from eight to twelve cents per bushel. The great iron region below Nashville would be developed to a degree impossible with charcoal only, while the towns and cities upon its banks would become the seats of innumerable manufacturing enterprises, of ceaseless life and industrial activity. Nashville, then, being practically surrounded on three sides by accessible coal fields, would become the Pittsburg, and Clarksville the Scranton, of the State. The heavy forests on the Cumberland, that now sigh in loneliness and uselessness to the touch of the breeze, would contribute valuable woods to the mechanic and artisan, and the vast sum paid by our farmers for implements, kept at home to be paid out in turn to them for food and supplies, thus adding to their wealth by giving them a home market for their products and by procuring their utensils at cheaper rates. The merchant, the manufacturer, the mechanic, the farmer, are all interested in such a scheme. Cheap coal means wealth, intelligence, greatness, and in no way can it be so surely cheapened as by the improvement of the upper Cumberland in the manner suggested. Tennessee should stretch out her Briarean arms and gather into her lap the native wealth around her. In this way will her cities grow in extent, in grandeur, in beauty, in opulence and in commercial supremacy.

The eastern coal fields of Kentucky form part of the great Appalachian coal fields of America, and embrace 8,900 square miles. They embrace a larger extent of territory than the coal fields of France, Spain and Belgium united, and exceed those of Great Britain by 800 square miles. That portion of the eastern coal fields of Kentucky, that can be made tributary to the wealth of Tennessee, is near the head of navigation, and extends from Clinton county to the eastern border of Pulaski county, a distance of ninety-five miles.

## COAL OF THE UPPER CUMBERLAND IN KENTUCKY.

The coal of this region, according to Col. Abert, belongs, with few exceptions, to the Sub-conglomerate or Lower Coal Measures, and like the coal of Arkansas, of the same horizon, is remarkable for its excellence and extent. The two latter instances have corrected the erroneous opinion formerly entertained of this formation, and have established the inapplicability of the distinction between the productive and barren Coal Measures, which possess a local propriety when applied to the coal fields of England and Pennsylvania.

When the first grate was erected in Nashville, in 1831, says Col. Abert, the consumption was not 1,000 bushels. From 1836 to 1860, coal by the boat-load, was from fifteen to twenty-five cents per bushel; by retail, from twenty to fifty cents. It is now about twenty-five cents per bushel, of eighty pounds to the bushel, or seven dollars a ton. The demand, on account of the obstructions to navigation, has always largely exceeded the ability to supply the market. The mines are held chiefly by private owners, who limit their operations in order to supply the demand at the close of the winter, at which time only they are able to reach Nashville. The result is, the Pittsburgh coal, after descending the Ohio for 900 miles, is able to reascend the Cumberland for 200 miles, and to compete in market with the Cumberland coal, of superior character, which has to descend the river about 400 miles, not quite one-half the distance. In 1860 it was estimated that 1,000,000 bushels, or 35,714 tons, would be required to supply Nashville and the mills in the vicinity. This amount is now divided between different sources of supply, viz: Pittsburgh, the Cumberland River coal, the coal mines in western Kentucky, on the St. Louis and South Eastern Railroad, and the Sewanee coal, from the Upper Coal Measures of the plateau in Grundy county, twenty-four miles north of the Alabama line. The latter coal comes by rail to Nashville, a distance of about 106 miles. It is evident from these facts, that if it was practicable to circumvent the Great Shoals, and to improve the navigation of the Cumberland between Rowena and Nashville, the coal from the upper river could be sold in Nashville in much larger quantities and at much lower rates. The larger investment of capital in mining operations, stimulated by the facilities of reaching market, would lead to so great an increase in mining operations, that not only would the supply be sufficient for Nashville and the Cumberland River, but the Cumberland coal would be enabled to compete with the Pitts-

burgh and Ohio River coals upon the lower Ohio and Mississippi Rivers.

In the present condition of the river the coal boats are obliged to wait for a "coal-tide." This stage is equivalent to 33.5 feet at Nashville, fourteen to fifteen feet at the foot of the shoals, four to five feet at the head, and sixteen and one-half feet at the coal banks. At this stage barges drawing four feet may pass the rapids without much danger.

There are many tides of from eight to ten feet, which, in the unimproved condition of the river, are not available for descending navigation. The barges cost from \$150 to \$200, and carry from 6,000 to 8,000 bushels, or from 215 to 286 tons.

The district bordering on the South Fork has, on account of obstructions of the shoals, and large masses of conglomerate which block the channel, contributed but a small amount to the trade of the river. About seventeen miles from the mouth of the river a three-foot vein was opened and worked for a short time. Between Big Sinking Creek and Little South Fork, about twenty-five miles from the mouth of the river, another vein, about forty-six inches thick, was opened and subsequently abandoned. This vein is about 160 feet above the limestone, and over it twenty to thirty feet of shale, forming the top of the ridge. This coal is sulphurous. About half a mile above the Little Jumps much better coal is found, at Dick's banks, at an elevation of 350 feet above the creek. This vein is forty-six inches thick and of excellent quality. The coal in the vicinity and above this point is abundant, and of the same quality as the upper banks of Pulaski county, but is naturally excluded from market by the obstructions to navigation in the South Fork.

Between Smith's Shoals, or the South Fork and Indian Creek, the landing of the Poplar Mountain Coal Company, below Rowena, fifty-eight miles from Point Burnside, coal has been mined in small quantities at several points. With the exception of the tops of isolated ridges, the entire area belongs to the so-called unproductive, or Lower Coal Measures, below the "farewell" conglomerate.

The mines near Rowena have largely contributed to the river trade, and the company are preparing to extend their operations. The vein is three and a half feet thick, and is about 900 feet above low water of the Cumberland, and therefore 1,357 feet above tide, or 480 feet above the main coal vein of the Pulaski Banks. But the



difficulties of navigation limit the quantity brought to market. Mining costs three and one-half cents, transportation one and three-fourths cents, or five and one-half cents per bushel at the landing. The demand largely exceeds the ability to supply. The round trip to Nashville and back again to Indian Creek, requires six days, when not delayed by fogs. A rise of ten feet at the coal landing is necessary for a "tow," drawing six feet of water, and carrying from 35,000 to 42,000 bushels, to pass down with safety. The dangers consist in narrow and crooked channels and rocky obstructions. If the facilities of navigation were increased, a much larger amount of coal could be handled, with the same outlay. As in all other operations, the gross profit depends not upon the increased value of the unit of measure, but in the increased quality of the commodity. One towboat, and the machinery now on hand, could bring to Nashville four times the quantity now handled. It is evident that the mines only await a more accessible market in order to become largely remunerative.

From Harpeth Shoals to its mouth, the Cumberland River passes through the great Western Iron Belt. The brown hematite is met with on both sides of the river, but mostly on the southern side. This ore, before the war, supplied about twenty furnaces, and the tensile strength and ductility of the metal produced, equalled the Swedish iron, and surpassed that made in any portion of the United States. At a point near Palmyra, the ore is found in the bed of the river, and extends on both sides for a considerable distance. From this point, ore has been shipped since the war to Pennsylvania and other places.

Besides the furnaces mentioned, which made annually 30,000 tons of pig iron, there were, before the war, a number of bloomaries, and the Cumberland iron works, and Tennessee rolling mills, turning out iron to the value of \$1,680,000; capital invested \$1,216,000; hands employed 3,500. The Cumberland iron works were destroyed during the war. The Tennessee rolling mills and nine furnaces are still in operation upon the river, with an annual capacity of 32,000 tons. The Tennessee rolling mills turn out an excellent quality of cold-blast charcoal iron, admirably suited for engineering and mechanical purposes.

These furnaces and mills being remote from railroads, are totally dependent on the stage of the water for transportation. Trade is depressed from this cause. Large orders remain unfilled, or are given to other parties, on account of the delay caused by the difficulty of navigating at low water. The present consumption of coal, in and along the borders of the Gulf of Mexico, amounts to 2,000,000 tons annu-

ally. The increasing number of steamships is creating a much larger demand for this article, and the application of iron in ship-building is causing a corresponding extension of the manufacture of this useful metal. The increasing demand for these minerals keeps pace together, and both of them are found in large quantities in the states of Alabama, Tennessee, and Georgia. These states have the advantage of being five hundred to one thousand miles nearer to the Gulf than Pittsburgh, and since they produce an equal, if not finer quality of coal and iron, they are destined to play an important part in the development of the trade of the Gulf of Mexico and the Caribbean Sea.

No fairer agricultural region is found in the United States than that through which this river flows, from Carthage to Smithland, a distance of 295 miles. It is the great grain-growing and tobacco-growing district of Tennessee. The great Central Basin which this river traverses, as before remarked, is remarkable for the exuberant fertility of its soil. It is the blue-grass region of the State, the seat of the capitol, and the home of an industrious, cultivated, moral and enlightened population. Before the construction of the net work of railroads that now converge at Nashville, about twenty steamboats were kept busy in transporting the products of the soil to the seaboard cities; and even now, with six railroads, nine are demanded below Nashville and five above to carry out the bulkier products.

#### THE TRADE OF THE CUMBERLAND.

To Mr. C. H. Arthur, of Nashville, and Capt. F. P. Gracy, of Clarksville, we are indebted for the following information in regard to the trade of this river:

##### EXPORTS AND IMPORTS OF NASHVILLE BY RIVER.

	<i>Exports by River.</i>	<i>Receipts at Nashville.</i>
Cotton.....	3,785 bales.	447 bales.
Tobacco.....	5,487 hhds.	7,523 hhds.
Corn.....	196,000 bushels.	1,368,000 bushels.
Oats.....	2,680 bushels.	97,450 bushels.
Wheat.....	1,080 bushels.	54,968 bushels.
Flour.....	10,483 barrels.	13,275 barrels.
Salt.....	7,340 barrels.	65,461 barrels.

In addition to this produce, the boats plying the Cumberland carry to and from Nashville over ten thousand tons of miscellaneous freight, such as sugar, coffee, soda, hardware, tinware, dry goods, clothing, etc.; 15,000,000 feet of saw-logs are annually floated from the river above

to Nashville, and probably half as much more to points below. The entire supplies for the upper Cumberland, a distance of over 400 miles, for the entire year, have to be laid in during the navigable season, which usually embraces the months of December, January, February, March, April, and May. The navigation of the upper Cumberland is suspended after the 1st of June.

Coal, to the amount of 350,000 bushels, and sometimes running as high as 500,000 bushels, is annually brought down from the mines in Kentucky to Nashville, and to points below. Five good boats are kept busy in the upper river trade during the boating season, and nine below, besides several towboats that make special trips when the river is high, bringing Pittsburgh coal and salt. These boats are often started to points on the river, but are forced, in consequence of the uncertainty of the water, to some other market.

Upon the Cumberland, below Nashville, are nine furnaces now in operation, which, however, are not run to their full capacity. They are as follows:

NAME.	OWNER.	ANNUAL PRODUCT.
Cumberland Furnace.....	J. P. Druillard & Co.	3,000 tons.
Mt. Vernon Furnace.....	Sechler, McCullough & Co.	1,500 tons.
Rough and Ready Furnace.....	O. Hartlock Supt	3,000 tons.
Dover Furnace.....	Woods, Yeatman & Co.	} 3,000 tons.
Bear Spring Furnace.....	Woods, Yeatman & Co.	
Laura Furnace.....	J. S. McNichols & Co.	2,000 tons.
Trigg Furnace.....	D. Hillman & Co.	} 6,000 tons.
Center Furnace.....	D. Hillman & Co.	
Empire Furnace.....	D. Hillman & Co.	

The quantity of iron will be greatly increased hereafter, as some of the furnaces have just commenced operations. Besides these, D. Hillman & Co. have an extensive rolling mill, and all the iron has to be freighted out by river. The iron made on the Cumberland River finds a ready market at Evansville, New Albany, Louisville, Jeffersonville, Cincinnati, Newport, Portsmouth, Pittsburgh, and Cleveland.

There are annually shipped out of the river, from points below Nashville, besides iron, large quantities of tobacco, flour, staves, and many articles, such as lumber, shingles, boards, hoop-poles, wheat, and oats, shipped from landings, of which no statistics are kept. To sum up the value of the exports and imports of this river, they will amount to little less than \$10,000,000, which might be increased to double that

amount if the river navigation could be made reliable. Mr. Gracy, in concluding his communication, says:

“The lands along this river are decreasing in value daily, also the productions. If there were two feet of water, at lowest stage in the year, the increase in values and productions would, in taxes alone, pay the entire outlay in ten years.”

#### AMOUNT GIVEN BY GOVERNMENT.

While the Government of the United States has been liberal in its appropriations to many rivers north of the Ohio, the amount given for the improvement of the Cumberland has been characterized by a parsimony as unwise as it was unpatriotic. During Jackson's administration, and through his influence, about \$90,000 were expended in the construction of rip-rap dams, and in deepening the channel of the stream. Nothing more was done until 1871, when, by recommendation of the chief of engineers, \$70,000 were appropriated, and an engineer placed in charge. About \$50,000 of this have been expended on improvements. Five times this appropriation would not be too large, considering the value of the river in a commercial point of view. With eighteen or twenty towns on, or dependent upon, the river for supplies, with immense coal fields lying on its upper waters, and vast iron fields on its lower portion, and with a supply of water lasting only six months, which might be increased to ten, it becomes an important duty that a correct representation of the value of this stream, and the necessity for its improvement be brought to the minds of our national lawmakers. The estimate made by Col. Abert for its improvement, from Point Burnside to its mouth, is less than half a million of dollars, while the benefits that would accrue to commerce, and to the manufacturing interests, by reason of its improvement, would amount to many millions of dollars annually.

In the preparation of this article on the Cumberland, many of the facts have been derived directly from Col. S. T. Abert, the engineer in charge, or from his exhaustive report. His valuable suggestions deserve the special attention of our congressmen.

## CHAPTER XVIII.

## TRANSPORTATION—RAILROADS.

Of all the agencies which modern civilization has brought to bear upon the development of the natural advantages and resources of a country, railroads are by far the most powerful. By their rapid, safe, and cheap transfer of the products of the soil, manufactories and mines, they equalize prices, and put those who are remote from market, almost on the same footing with those in close proximity, thereby stimulating production, spreading population, stirring up enterprise, and by affording facilities for intercommunication, enlightening, civilizing and refining the great mass of population. That they bring in their train certain evils, is not to be denied, but the great good which they accomplish outweighs by far the accompanying evils. Before their invention, population gathered about the great river valleys, or on the shores of lakes or oceans; and inland situations were uninhabited except by wild beasts and savages. But for railroads, the greater portion of the interior of the American continent, must have remained a wilderness, untamed by civilization, and affording no outlet to the great human wave, which, for three centuries, was dammed up by the Alleghanies. Breaking over this, it flowed along navigable rivers until the iron road made the prairies navigable, and spread the current of human intelligence, refinement and civilization from the Atlantic shore to the sparkling waves of the Pacific.

## EARLY RAILROAD PROJECTS IN THE STATE.

The progress of railroad construction in the United States, from the opening of the Granite Railroad at Quincy, Massachusetts, in 1827, to the commencement of 1874, is shown in the following statement:

YEAR.	MILES OPEN.	YEARLY INCREASE.	YEAR.	MILES OPEN.	YEARLY INCREASE.	YEARS.	MILES OPEN.	YEARLY INCREASE
1827.....	3		1843.....	4,174	297	1859.....	26,755	1,665
1828.....	3		1844.....	4,311	137	1860.....	28,771	2,016
1829.....	28	25	1845.....	4,522	211	1861.....	30,593	1,822
1830.....	41	13	1846.....	4,870	348	1862.....	31,769	1,176
1831.....	54	13	1847.....	5,336	466	1863.....	32,471	702
1832.....	131	77	1848.....	5,682	346	1864.....	33,860	1,389
1833.....	576	445	1849.....	6,350	668	1865.....	32,442	582
1834.....	762	186	1850.....	7,475	1,125	1866.....	35,351	909
1835.....	918	156	1851.....	8,589	1,114	1867.....	36,896	1,545
1836.....	1,102	184	1852.....	11,027	2,438	1868.....	38,822	1,926
1837.....	1,431	329	1853.....	13,497	2,470	1869.....	42,272	3,450
1838.....	1,843	412	1854.....	15,672	2,175	1870.....	48,860	6,588
1839.....	2,220	477	1855.....	17,398	1,726	1871.....	55,535	6,675
1840.....	2,797	577	1856.....	19,251	1,853	1872.....	62,647	7,112
1841.....	3,319	522	1857.....	22,625	3,374	1873.....	69,158	6,511
1842.....	3,877	558	1858.....	25,090	2,465	1874.....	74,403	5,245

These roads were built at a cost of \$3,326,413 09, or at an average cost of \$48,740 per mile.

The history of railroad enterprises in the State of Tennessee is one of singular interest, exemplifying the immense impetus which can be given in a particular direction, by the persistent and long continued efforts of a few men.

The movement towards awakening public interest in that direction, occurred as early as the year 1835. Col. Robert Y. Hayne, of South Carolina, whose famous debate with Daniel Webster on the Foote resolutions gave him a world-wide reputation, visited Nashville in that year, and delivered an address in Vauxhall Garden, which, as it was in advocacy of the doctrine of nullification, was received with great disapprobation by the union-loving citizens of that city, the public sentiment of which had been moulded, and, in a great measure, directed by the hero of the Hermitage. During the same year Col. Hayne again visited the city, and advocated in a speech, powerful for its argument, the construction of a railway from Memphis to Knoxville, and from the latter place to Charleston, South Carolina, so as to connect the seaboard with the Mississippi River, the great inland route of navigation. The plan failed, probably on account of the obnoxious character of its advocate, but the effort served to direct attention to railroad enterprises.

A second effort was made two years afterward in the Legislature, by William Armour, representative from Shelby, to unite the Mississippi with the seaboard, by constructing a line from Memphis to Nashville,

thence to Knoxville, and on through to the Atlantic Ocean. He succeeded in enlisting many in its favor, but the great financial crash of that year rendered a successful movement in that direction impossible. Public enterprise was killed. Stagnation brooded over every class of business, and it was with difficulty that money enough could be collected to carry on the State government. Produce of all kinds fell in price to a point hitherto unknown. The price of cotton in the Nashville market was about seven cents per pound, and tobacco, when shipped to New Orleans, often brought the planter in debt.

Notwithstanding the financial embarrassments of the country, there were a few men who cherished the project of opening an outlet to the Atlantic by a line of railroads, and who were regarded by the great mass of people as visionaries. Among these may be mentioned Dr. James Overton, a man of far-reaching sagacity, undaunted resolution, and unquestionable genius. In a contest for legislative honors, he advocated the building of a railroad from Nashville to Chattanooga, to connect with the Western Atlantic. This was in 1843, and Chattanooga at that period was a mere shipping station, in a wild section hemmed in by rugged mountains, but lately abandoned by the Indians, and in every respect unpromising. But the keen foresight of Dr. Overton had pointed out Chattanooga as the grand focus to which must converge the lines of traffic from the southern states, and that by opening communication with that point, Nashville would command a large trade from the cotton-growing districts of Georgia and Alabama. But the people did not so regard it, and his scheme was looked upon as the delusive dream of a visionary fanatic. He was defeated, and was nicknamed "Old Chattanooga," a cognomen which he retained to the period of his death—in life, a name of ridicule, depreciation, mockery; in death, one of crowning honor, pointing out the wisdom, the sagacity, and the almost prophetic foresight of him who bore it.

Though the labors of Overton were fruitless in practical results, he sowed seeds that were soon to germinate and bring forth an abundant harvest. About the year 1845, the depression in business circles which had continued so long began to be relieved. The growing trade of Nashville made other outlets than the Cumberland River a necessity. Other portions of the State began to show signs of an awakened interest in the subject of railroads, doubtless stimulated in some degree by the action of Georgia, in chartering a road to run from Augusta to Chattanooga. The subject was brought before the Legislature, and, under the pressure of influential citizens of Nashville, it passed an act

on the 11th of December, 1845, to incorporate "a railroad from Nashville, on the Cumberland River, to Chattanooga, on the Tennessee River," and by the 17th section of that act authorized "any state, or citizen, corporation, or company, to subscribe for, and hold stock in said company, with all the rights and subject to all the liabilities of any of the stockholders."

The act was amended by the Legislature on the 9th of December, 1847, in which provision was made that the town of Nashville, through its Mayor and Aldermen, be authorized to subscribe \$500,000, and was also further authorized to raise money on loan, by pledging the faith of the corporation, by pledging a portion of its taxes, by mortgage or otherwise, to an amount not exceeding what might be demanded for the calls upon the stock, and that the loan might be created for such a length of time, and payable in such manner as the Mayor and Aldermen might deem best. The Mayor and Aldermen were also authorized, should they deem such a course best, to issue the bonds of the corporation, provided the bonds so issued should be in sums not less than \$500 each, and that they should not be at any greater rate of interest than six per cent. per annum, and should not be payable at a greater distance of time than thirty years.

These measures were resisted by the minority, and were characterized as iniquitous, visionary and unconstitutional. A bill was filed in chancery to enjoin the subscription to the road, or the issuing of bonds by the corporation. On appeal, it was taken to the Supreme Court, and finally decided at the December term, 1848, the opinion being delivered by Judge Turley. This opinion, able in its arguments and irresistible in its conclusions, decided that the Legislature of Tennessee had the constitutional power to authorize the corporation of Nashville to take stock in the Nashville and Chattanooga Railroad; that the making of this road was a legitimate corporate purpose of the corporation, and that it was legally authorized to pay for its subscription to the stock of said road in either of the modes pointed out by the act of 1847.

It was about the time the charter was obtained that Vernon K. Stevenson, a merchant, unknown to fame, undertook to canvass the city and create a public sentiment in favor of the enterprise. He entered upon his work with a zeal and an energy that foreshadowed success. He visited every house, the high and the low, the rich and the poor, not even neglecting the parlious, where vice reigns rampant,



and secured the signatures of fully two-thirds of the population in favor of the subscription. Godfrey M. Fogg, who was one of his most earnest and efficient co-laborers, and who was acting at the time as chairman of the city finance committee, had the honor of first signing his name in assent of the proposition. For two years Mr. Stevenson canvassed this question, often repelled, but never discouraged; often perplexed, but never in despair; hopeful, constant, persistent, working in season and out of season, until he at last succeeded in accomplishing his purpose, that of moulding the public sentiment in favor of building the road. Acting under the authority of the Legislature, the city readily voted \$500,000, to be expended in the construction of the road. This appropriation being secured, Mr. Stevenson, in the winter of 1847-8, visited Charleston, South Carolina, for the purpose of soliciting aid from that city. At first the opposition to his scheme was violent, and in advocating it, he even had to endure the irritation of ridicule, it being considered presumptuous in the people of Tennessee to ask for an appropriation from a state, not contiguous, in aid of an internal improvement from which they would derive no immediate benefit. Undaunted by the manifestations of opposition, he had the tact to secure a large attendance of the citizens in a public meeting, which meeting was continued for several evenings, and, though no orator, his plain, practical, luminous statements, enforced as they were with earnestness, directness and candor, wrought conviction in the minds of a majority of the citizens, and before leaving the city he obtained an appropriation of \$500,000. The success which he had attained in the accomplishment of his cherished design, inspired him with renewed energy. Stopping at Augusta, he secured from the Georgia Railroad and Banking Company \$250,000, and from the corporation of Murfreesboro \$30,000, which enabled him, with the private subscriptions that were afterwards received, and the aid which the State rendered by endorsing the company's bonds, to enter upon the work of construction.

Nor must we omit to mention the great service rendered by James C. Jones, ex-Governor of the State. He canvassed many counties in aid of the enterprise and secured a large subscription. His popular oratory and fervid eloquence won many friends for the road, and awakened enthusiasm all along the route.

In the month of January, 1848, the company was organized, and Mr. Stevenson was elected president, and continued in that position until the breaking out of the civil war. His arduous and long-con-

tinued labors in the interest of the Nashville and Chattanooga Railroad have secured for him the title of the father of the railway system in Tennessee. The work upon the road was begun shortly after the organization of the company, but it was not opened for business until 1854, though the portion from Nashville to Bridgeport, on the Tennessee River, was put in operation in May, 1853, which, with the aid of steamboats, opened communication with Chattanooga.

Such was the inception and progress of this great work, and we have dwelt upon it because it was the first railroad that was completed in the State, and which to-day has no superior, whether we consider the excellence of the road-bed, the efficiency of its officers, the quantity and quality of its rolling stock, and the thoroughness with which all the details necessary to the successful management of a road are carried out. Life is not endangered by parsimony, nor freight lost or damaged by carelessness.

Simultaneously with the building of the Nashville and Chattanooga Railroad, was the Memphis and Charleston, which formed a junction with the former at Stevenson, Alabama. We have diligently sought for information in regard to the history of the construction of this road, being anxious to show the difficulties encountered in the first building of railroads in each division of the State, but have found nothing satisfactory. Edmond Pendleton Gains, nearly half a century ago, made a railroad speech in Memphis, and advocated the construction of a road on the line of the Memphis and Charleston road, so as to connect the waters of the Mississippi with the Atlantic. The Lagrange and Memphis Railroad, chartered in 1835, was graded many years before the Memphis and Charleston was built, but owing to some financial difficulties, the road-bed was abandoned. The Memphis and Charleston was chartered February 2, 1846, the charter authorizing a capital stock of \$800,000, and under the persevering labors of ex-Gov. James C. Jones, who was the first president, Col. Sam Tate, Joseph Lenow, Minor Meriwether and others, was brought to a successful completion in 1857.

The East Tennessee and Georgia Railroad was chartered as the Hiwassee Railroad, as early as 1836, the charter having been procured through the influence of General James H. Reagan, a representative from McMinn county. The charter required that stock amounting to \$600,000 should be subscribed within two years. On the 4th of July, 1836, a railroad convention, composed of delegates from all the north-

western states, from Maryland, and all the southern states, met in Knoxville. Robert Y. Hayne, of South Carolina, was made president. The convention adopted a route from Cincinnati or Louisville, through Cumberland Gap, up the French Broad River and on to Charleston, South Carolina. The route adopted was not satisfactory to the delegates from Georgia and lower East Tennessee. The delegates from McMinn county, one of whom was J. Nixon Vandyke, brought to the notice of the Georgia delegation, the Hiwassee charter, and upon a conference, it was agreed that the McMinn delegation should go home, open books and secure subscriptions, while the members from Georgia should procure a charter from their State and meet at the State line. It was confidently expected that the cars would be running from Knoxville, through Georgia to Charleston, before the work would commence on the Cumberland Gap, Blue Ridge and Charleston route. In this the delegates were not mistaken, as time has shown, but more than twenty years intervened from the adjournment of that convention before the whistle of the locomotive was heard along the route agreed upon by the McMinn and Georgia delegation.

The delegates from McMinn, upon their return home, set immediately to work. Books were opened. It was believed that the Hiwassee road would be built within two years. But it was a new thing; the people did not understand it; the taking of stock advanced slowly, and to prevent the forfeiture of the charter, six gentlemen of McMinn county, viz., General Nathaniel Smith, Onslow G. Murrell, Ashbury M. Coffey, James H. Tyffe, Alexander D. Keys, and T. Nixon Vandyke, agreed to subscribe, each, \$100,000. When the outside subscription books came in, it was found that the stock taken amounted to about \$120,000, so that the subscription of these six gentlemen had to be scaled down to \$80,000 each. These six agreed, among themselves, to permit no organization (for they held the controlling power) until they could distribute their stock to those who would take it, so that each stockholder could pay the calls without embarrassment. By persevering efforts, the stock was so distributed within a year. An organization was effected after this, and Solomon P. Jacobs elected president, and Ashbury M. Coffey, secretary and treasurer. A call of one dollar on the share was made and promptly met. J. C. Trautwine, of Philadelphia, was engaged as chief engineer. The road was located and ground was broken two miles west of Athens, in 1837, being the first liek ever made in the State in the construction of a railroad. The road was graded for a double track from the State line to Loudon,

with the exception of a few intervening gaps, and the bridge over the Hiwassee River built.

Meantime, it was ascertained that \$600,000 were insufficient to build the road, and upon application to the Legislature, the State agreed to subscribe stock to the amount of \$650,000, to be paid upon call, as the individual stockholders paid, in five per cent. State bonds. This was in 1837. The financial embarrassments which fell upon the country that year, compelled a suspension, and the company was forced to execute a deed of trust, in which the trustees were authorized to sell the road and pay the debts *pro rata*. Thereupon the State filed a bill enjoining the trustees from acting under the deed, and sought to annul the charter. The suit was carried to the Supreme Court, and finally decided against the State. The debts were about \$130,000, and the amount due by the State upwards of \$80,000, but by skillful management on the part of Vandyke, the president, and others, the debts were all compromised and liquidated, by the creditors taking one-half of the debt in five per cent. State bonds, and the remainder in the stock of the company at par. The stock of delinquent stockholders was declared forfeited. After various unsuccessful attempts to procure money to carry on the construction of the road, the company finally made a contract with General Duff Green, who agreed, upon certain conditions, to build the road from Dalton, Georgia, to Knoxville. General Green, after doing a considerable amount of work, failed, and surrendered his contract, bringing suit, however, against the company for \$100,000, which suit has been settled since the war, in favor of the defendants.

After the failure of General Green, the company, still persistent, entered into another contract with William Grant & Co., who finished the road from Dalton to Hiwassee River. J. G. Dent & Co. built the road from Hiwassee River to Loudon, in 1852, and the portion from Loudon to Knoxville was not completed until 1856, twenty years after the charter was obtained. Major Campbell Wallace was the president at the time the road was finished. Though meeting with many delays and failures in its construction, and though the name "Hiwassee" became so odious that it was found necessary to change it, yet there is probably no better built road anywhere than that between Chattanooga and Cleveland, located and built under the superintendence of Colonel R. C. Morris as chief engineer. The bridges across a majority of the streams are built of stone, and the one across the Chickamauga is, by all odds, the most substantial structure to be found in the State.

We have gone into the history of the construction of two of these roads not without a purpose. The facts themselves are instructive and interesting. The difficulties encountered, and at last overcome, the scarcity of means, the numerous failures, the unconquerable energy displayed, all have their lessons, which the present times need as incentives and encouragements in the efforts now made to establish new enterprises for the development of our resources, and for the advancement of our social and educational interests.

The completion of the East Tennessee and Virginia Railroad in 1858 formed a connecting link between the two great systems of roads—those in the north-east with those of Alabama, Georgia, and South Carolina. The two lines of railroad from Bristol to Knoxville, and from the latter place to Dalton, Georgia, (and by a branch to Chattanooga) have been consolidated into one line, and is now called the East Tennessee, Virginia and Georgia Railroad. It penetrates the Eastern Valley of the State, and renders accessible a vast number of agricultural products and mineral resources. Perhaps the influence of no road has been so much felt as this. The want of navigable streams in upper East Tennessee was a serious drawback to the prosperity of that beautiful country, diversified with hills and rich valleys, and beautified by innumerable streams of living water. Nature has been lavish in the climate, generous in the soil, gorgeous in the romantic beauty of East Tennessee, and this railroad supplied a necessity, without which, all the imperial wealth and beauty which nature had bestowed upon the country were nearly worthless. Before its construction, goods were brought by wagons from Lynchburg and Baltimore at a cost often equal to their value.

The construction of other railroads followed in quick succession. Internal improvement was stimulated by the munificent aid received from the State, under the operations of the Omnibus Bill, which was enacted by the Legislature in the winter of 1851-2. The provisions of this law were most generous. Under it State aid, to the amount of \$10,000 per mile, was given every railroad in process of construction, or thereafter to be constructed, under certain regulations and restrictions.

From 1850 to 1860, 1,253 miles of railroad were built in the State. The decade which followed shows only 239 miles, and since January, 1871, 142 miles, making, in all, 1,634 miles at this time (January, 1874).

In proportion to population, Tennessee has one mile for 750 inhabitants, and one mile for every twenty-six square miles. England has one mile for every six square miles; Ohio has one mile of railroad for 664 inhabitants, and for every 9.7 square miles; Connecticut one mile for every 641 inhabitants, and for 5.2 square miles, and New York one for every 914 inhabitants, and 9.6 square miles.

We propose, in this chapter, to give such statistics in regard to the railroads of the State as may be of general interest. Some of these roads have furnished a list of the articles carried, quantity and quality, from which some valuable facts may be gleaned in reference to the productions of the State. Others have failed to comply with the request made by this Bureau, and we have been compelled to rely, in such cases, upon Poor's Manual.

#### NASHVILLE AND CHATTANOOGA RAILROAD.

##### OFFICERS.

- E. W. COLE, *President.*  
W. A. GLEAVES, *Secretary and Treasurer.*  
J. W. THOMAS, *General Superintendent.*  
R. C. MORRIS, *Resident Engineer.*  
A. L. LANDIS, *General Agent.*  
R. C. BRANSFORD, *General Book-keeper.*

This, as has been said, is one of the best and one of the most important roads south of the Ohio River. Taken in connection with the Nashville and North-western Railroad, which is owned and operated by the same company, it is the shortest line from the west to the south-east, and in addition to all-rail connections with Louisville, Cincinnati, Chicago, and St. Louis in the north and west, and with New Orleans, Montgomery, Mobile, Atlanta, Savannah, Augusta, Port Royal, Charleston and Wilmington in the south-east, has the Mississippi, Tennessee and Cumberland Rivers to draw from. It traverses the heart of the richest section in the State, passing directly through the middle of the Great Central Basin, throwing out arms to Shelbyville and Jasper, tapping the coal region at Cowan, intersecting the valley of the Tennessee River, and penetrating a considerable portion of the cotton-growing district of Alabama, then passing through a rich coal region on to Chattanooga. It also forms a junction with the McMinnville and Manchester road at Tullahoma, with the Fayetteville road at

Decherd, with the Sewanee road at Cowan, and with the Memphis and Charleston Railroad at Stevenson. It is, in fact, a grand trunk line, gathering the products from each side through subordinate roads its entire length. It is now in splendid order, with new bridges, fine track, fully equipped with first-class engines, and the entire road, with the exception of seventeen miles south of Decherd, is laid with fish-bar iron.

The main line of road from Nashville to Chattanooga is 151 miles in length; from Wartrace to Shelbyville is a branch road eight miles in length, and from Bridgeport, Alabama, to Jasper, another branch fourteen miles, sidings and other tracks eleven miles, in all 184 miles. Gauge five feet, rails sixty-five pounds to yard.

From a report made on the 13th of August, 1873, to the president, E. W. Cole, by the general superintendent, J. W. Thomas, we gather the following information in regard to the business of this line for the twelve months ending June 30, 1873:

The receipts of the Chattanooga division have increased from \$80,000 to \$138,000 per month, or fifty-eight per cent.

Deducting the earnings of the Shelbyville and Jasper Branches, (\$12,932.23) the receipts of the Chattanooga division average \$10,878, expenses \$7,753.95, and net earnings \$3,124.05 per mile of road. An average unequalled but by two roads south of the Ohio River.

The total operating expenses, ordinary and extraordinary, being seventy-one and one-half per cent. of gross earnings.

There have been forwarded from Nashville, over the Chattanooga division, 26,263 loaded and 5,215 empty freight cars, and 4,027 passenger and baggage cars, making a total of 35,505 cars forwarded, and 35,734 received. 1,356 passenger trains have been run over this division between Nashville and Chattanooga, 720 between Stevenson and Chattanooga, and 570 between Wartrace and Nashville, a total of 2,646 passenger trains, transporting, *without the slightest accident*, 166,184 passengers, an average of 62 passengers per train, hauling 2.3 tons of dead weight to each passenger. There were transported 87,130 passengers north, and 79,054 south, of which 47,861 were through, and 118,323 local, at an average for through of \$3.80, and for local \$1.75 each; general average from each passenger, \$2.34. Including passage, mail and express, but excluding Memphis and Charleston Railroad tolls, the receipts of the day passenger trains have been \$187,653.45,

an average of \$549.54 per round trip, or \$1.98 per mile run. Receipts of the night passenger trains were \$165,530.00, an average of \$453.00 per round trip, or \$1.50 per mile run. Receipts of accommodation trains were \$36,106.75, an average of \$115.35 per round trip, or \$1.05 per mile run. Passenger train mileage was 239,186 miles; earnings per train mile, \$1.62; expenses, \$1.12; net earnings, 50c. Car mileage, 956,744 miles; earnings per mile per car, 40c; expenses, 28c; net earnings, 12c.

There have been run 4,414 freight trains between Nashville and Chattanooga, 829 between Stevenson and Chattanooga, 620 between Bridgeport and Chattanooga, 87 between Cowan and Chattanooga, and 161 between Cowan and Nashville, making 6,111 freight trains, transporting 384,240 tons, at an average of \$3.18 per ton. Average number of cars per train, 14½. Total mileage of freight trains, 717,519 miles; earnings per mile, \$1.72; expenses, \$1.23; net earnings, 49c. Total freight car mileage, 10,477,162 miles; earnings per car per mile, 11 4-5c; expenses, 8½-5c; net earnings, 3 2-5c. Total train mileage, 956,770 miles. Train earnings per mile, less Memphis and Charleston Railroad tolls, \$1.70; expenses, \$1.20 7-10; net earnings, 49 3-10c.

The Board of Commissioners for Massachusetts reports that; in 1872, upon twenty-eight roads in that state, the average of expenses to receipts, was 72 per cent.; average income per train mile, \$1.81; expenses, \$1.31; net, 50c; while the results of the past year upon the Chattanooga division show total train earnings per mile, \$1.70; expenses, \$1.20 7-10; net earnings, 49 3-10c; expenses per train mile were 10 cents less than the average in the State of Massachusetts.

The tables given below will exhibit the amount and kind of produce shipped from way stations over this road for twelve months ending June 30, 1873.

It will be seen that the amount of lumber shipped from these stations going north and south will amount to considerable over 5,000,000 feet; coal, over 3,500,000 bushels; cotton, 29,000 bales; bacon, 1,500,000 pounds; wheat, 332,000 bushels; corn, 211,000 bushels; flour, 6,200 barrels; oats, 10,600 bushels; hay, only 287 tons; hogs, 373 car loads; cattle, 211 car loads; horses and mules, 71 car loads. These figures are important, as showing the productiveness of the country through which the road passes.



Annual Statement of Southward-bound Shipments, from Way Stations, over the Chattanooga Division, for Twelve Months ending June 30, 1873.

FROM	Bales Cotton.	Barrels Flour.	Bushels Meal.	Barrels Salt.	Pounds Bacon.	Bushels Wheat.	Bushels Corn.	Bushels Oats.	Tons Hay.	Feet Lumber.	Bushels Coal.	Car Loads Horses & Mules.	Car Loads Cattle.	Car Loads Hogs.	Car Loads Brick, Sand, Poles, Wood, Iron, Tannery, Etc.	Tons Miscellaneous Freight not included under foregoing heads.
Laverne.....					221	52	179									2
Smyrna.....		4					583									132
Florence.....	103	1,002			370,835	35,070	17,330	42,000				38	16	137		3
Murfreesboro.....	7	1			165	937	683									328
Christiana.....					965	3,998										2
Fosterville.....					2,021	7,588	2,204		7			10	5	46		8
Bellbuckle.....					51,424	12,727	21,470	3,500				4	59	31		58
Wartrace.....			335		4,751	4,080	3,281									46
Haley's Station.....		3,912	100	5	860,527	76,465	85,182	2,284	148	6,000		10	25	55		160
Shelbyville.....					13,918	4,691	1,628			372,440		1		4		21
Normandy.....					49,202	16,063	276	61				2	16	57		50
Tallahoma.....		632				130		128								11
Estell Springs.....		542	26	4	29,246	73,627	9,485	1,808	10	5,000	1,205	14	26	2		250
Decherd.....				1		2,137	205	310							12	34
Cowan.....					200	285				700					67	1
Tantallon.....					1,380	484	2,252	4				1				11
Anderson.....					3,372	1,078	2,285	48							1	5
Bass Station.....		84	2		5,573	449	1,267	302		9,000	200		3			109
Stevenson.....					320	320				5,000						1
Boliviar Switch.....	280			2		2,383	18,300	632		15,000	8,280		1			37
Bridgeport.....		1			40	40				468,374						1
Battle Creek.....		1		1	7,689	4,340	16,498	4,182								37
Jasper.....		1			260	229	1,967								2	5
Carpenter's.....		1		2		74	14,706	147	86	537,218	117,825		2	3		78
Shellmound.....		6	22				5,191	15			170,650					15
Whitesides.....							592								15	1
Vulcan Mines.....					311	1,524										12
Wauhatchie.....																
Total.....	390	6,189	487	16	1,402,060	248,771	208,564	10,077	251	1,464,272	1,763,605	66	141	361	97	2,074

Annual Statement of Northward-bound Shipments, from Way Stations, over the Chattanooga Division,  
for Twelve Months ending June 30, 1873.

FROM	Bales Cotton.	Barrels Flour.	Barrels Meal.	Barrels Salt.	Pounds Bacon.	Bushels Wheat.	Bushels Corn.	Bushels Oats.	Tons Hay.	Feet Lumber.	Bushels Coal.	Car Loads Horses & Mules.	Car Loads Cattle.	Car Loads Hogs.	Car Loads Ore, Sand, Poles, Iron, Wood, Tan-bark, etc.	Tons Miscellaneous Freight not included under foregoing heads.
Laverne .....	403					82	910			2,509						68
Smyrna .....	1,180				594	82	32									116
Florence .....	524	1			38,700	22,722				1,018,000		2	3		24	34
Murfreesboro.....	9,610					1,117			27							1,635
Christiana.....	137				943	286						1				27
Fosterville.....	216				1,504	267			5			1	1			34
Bellbuckle.....					1,606	5,937	600			23,600				6		22
Warrace.....								19								70
Haley's.....					65,068	18,325	2,187	20		132,500		1	6	3		324
Shelbyville.....	153	48	14		773	90	321			31,715			1	1		37
Norman's.....	2	26				25,070				78,060			2	2		1,225
Tulahoma.....	26					10	171	41		896,300			1		45	17
Estell Springs.....		18	1		1,138	6,152	8	74				1				500
Decherd.....	4,088		15			1,921				28,007	1,373,000				22	52
Cowan.....					100	224										6
Tanallon .....						249				240,700					37	12
Anderson.....	34					213	233	10		53,000					1	7
Bass.....	110		3			163				97,700	600					1,738
Stevenson.....	9,741	21	1			16				78,000						
Bolivar Switch.....						353				105,700	271,200					52
Bridgport.....	2,509	2	2		445	15		50	5	843,747	200				3	150
Battle Creek.....						7		20								76
Jasper.....					80	21				22,446					1	22
Carpenter's.....							781			63,100					1	45
Shellmound.....		2	3													12
Whitesides.....																1
Whitesides.....																1
Vulcan Mines.....																1
Wauhatchie.....						25	80									5
Total.....	28,763	117	5	35	110,951	83,350	5,002	555	37	3,715,084	1,810,450	5	70	12	134	6,495

RECAPITULATION.—Annual Statement of Shipments over the Chattanooga Division of the Nashville, Chattanooga and St. Louis Railway, for Twelve Months ending June 30, 1873.

FROM	Bales Cotton.	Barrels Flour.	Barrels Meal.	Barrels Salt.	Pounds Bacon.	Bushels Wheat.	Bushels Corn.	Bushels Oats.	Tons Hay.	Feet Lumber.	Car loads Pig Iron.	Car loads Ore.	Car loads Wood, Sand, Poles, Slate, Tan Bark, etc.	Bushels Coal.	Car loads Horses and Mules.	Car loads Hogs.	Tons Miscellaneous Freight not included under any foregoing head.
Nashville....	20,241	180,773	2,965	24,525	85,139,749	244,985	2,403,291	743,801	11,873	290,292				9,467	1,198	117	50,731
Chattanooga	952	457	192	27	558	252	40	135		3,745,000	1,145	323	118	10,250	15		25,001
Stations N <sup>th</sup>	28,763	117	5	35	110,951	83,350	5,002	555	37	3,715,084			134	1,810,450	5	12	6,495
Stations S <sup>th</sup>	390	6,189	487	16	1,402,060	248,771	208,504	10,077	251	1,464,232			97	1,763,605	66	361	2,074
Total.....	50,346	187,536	3,649	24,663	86,653,318	577,358	2,616,837	745,566	12,161	9,214,608	1,145	323	319	3,593,772	1,284	490	84,304

Total tons shipped over Chattanooga division Nashville, Chattanooga and St. Louis Railway, for year ending June 30, 1873..... 384,210

Average rate per ton..... \$3 18

The report of the treasurer, W. A. Gleaves, shows the road to be in a prosperous condition, financially.

R. C. Morris, the resident engineer for the whole consolidated line from Chattanooga, Tennessee, to Hickman, Kentucky, says in conclusion of his report :

“It is gratifying to me to be able to state that your road, consisting of 321 miles of main line, 20 miles of branches, and 30 miles of side tracks, with ample grounds for shops and depots at Nashville, Chattanooga, Hickman, and stations on the line and branches, as well as for division houses for men employed on the track, has been steadily improving and increasing in value during the past four years, and now ranks second to no road in the south.

“The bridges, with few exceptions, have been rebuilt, the important ones having been replaced with iron structures ; a great many depots and division houses built ; the road-bed ditched and a large portion of it ballasted ; 240 miles relaid with best oak ties, and 163 miles with heavy ‘fish-bar’ rail ; the water stations renewed with red cedar tubs, and the important ones supplied with stationary engines and steam pumps. The work required to reduce the grade on section 53, St. Louis division, to the maximum, is well advanced. Your main line and branches, 341 miles, including side tracks and right of way, could not now be constructed for \$40,000 per mile, which I consider a low estimate upon the property in its present condition.”

#### NASHVILLE AND NORTHWESTERN RAILROAD.

This road, now consolidated with the Nashville and Chattanooga, making the Nashville, Chattanooga and St. Louis Railway, was chartered as early as 1852, and was in the course of construction when the civil war put a check upon all public enterprises. It was projected by V. K. Stevenson, at that time president of the Nashville and Chattanooga Railroad. He caused surveys to be made, and asked for subscriptions by counties and cities to be benefited by it. After canvassing various counties, which might be interested, and receiving subscriptions to a large amount, and which were in few if any instances paid, he applied to the city of Nashville for a \$100,000 *cash* subscription, which was paid by a special tax, probably in 1858 or 1859. Nashville subscribed, altogether, \$270,000. On this subscription work was commenced, the first being done from Nash-

ville, and with the money subscribed by Nashville. It had progressed but twenty-nine miles from Nashville, and four from Johnsonville, when the war opened, and was running to Kingston Springs. During the war, the United States Government, for military purposes, built the road to the Tennessee River, at Johnsonville. At the close of hostilities, Mr. M. Burns, who was then president of the Nashville and Chattanooga Railroad, applied to the Legislature for the amounts which the road was entitled to under the then existing laws, both for ironing and bridging. By his active and continuous exertions the entire aid was granted, and with it Mr. Burns was enabled to complete and open the road to Hickman, Kentucky, as originally surveyed and planned. Mr. Burns accomplished this work, when labor was high and when bonds were low, and under general circumstances in which great energy, judgment, and ability were required to finish the enterprise. It was finally finished toward the close of the year 1868.

On the 27th day of October, 1869, the president of the Nashville and Chattanooga Railroad, E. W. Cole, submitted a written proposition, on the part of the road of which he was president, to the directors of the Nashville and Northwestern, in which he agreed to lease the last mentioned road, for a period of six years, to put the road in good repair, to pay out certain amounts for salaries, and to pay to the State of Tennessee, monthly, any surplus earnings, which were to be credited to the interest due, or to become due, to the State upon the bonds issued to the lessor. Any surplus after this should be paid to the lessor. This lease continued in operation for three years, when upon the suggestion of Col. Cole, a two-thirds interest in this road was bought by the Nashville and Chattanooga Railroad, from the commissioners appointed by the Legislature and the Chancery Court to sell delinquent railroads in the State, individuals in Tennessee and New York taking the other third. The whole cost was \$2,400,000 in Tennessee bonds. After this the road was repaired thoroughly, new bridges were constructed, new trestles built, new iron laid, and the whole road put in excellent order. Subsequently, the directors of the Nashville and Chattanooga Railroad, believing it to be to the best interest of the company, bought out the one-third interest held by individuals, and the company now owns the entire route from Chattanooga to Hickman, Kentucky, as well as the branches to Jasper and Shelbyville, making the entire length 341 miles. This line is now called the

## NASHVILLE, CHATTANOOGA AND ST. LOUIS RAILWAY.

The gross earnings for the whole line for the year ending June 30, 1873, were \$2,298,200 67, and accrued from

Freight.....	\$1,607,328 35
Passengers.....	618,781 96
Mail.....	40,582 39
Rents and Privileges.....	31,507 97
Total as above.....	<u>\$2,298,200 67</u>

## For the Chattanooga Division:

Freight.....	\$1,222,841 50
Passage.....	388,476 77
Mail.....	25,580 00
Rents and Privileges.....	18,621 00
	<u>\$1,655,519 31</u>

## The expenses were, for

Maintenance and Improvement of Roadway.....	\$329,202 28
“ “ “ “ Motive Power.....	389,207 92
“ of Cars.....	96,404 14
Conducting Transportation.....	287,445 17
Miscellaneous.....	81,528 15
	<u>\$1,183,787 66</u>

Net earnings.....\$ 471,731 65

## For the St. Louis Division:

Freight.....	\$384,486 85
Passage.....	230,305 19
Mail.....	15,002 35
Rents and Privileges.....	12,886 97
	<u>\$642,681 36</u>
Expenses.....	559,150 33
Net earnings.....	<u>\$ 83,531 03</u>

The two following tables will show the shipments from way stations eastward and westward over the St. Louis division. The shipments each way over the Chattanooga division have been given under the head of Nashville and Chattanooga Railroad.

By adding the shipments eastward to the shipments westward, a very good idea can be formed of the exports from the country lying contiguous to the road. It is a matter of regret that the quantity of peanuts is not given, as the St. Louis division of this road passes through the great peanut-growing region of the State. It will be seen that lumber, corn, bacon and cotton form by far the largest items. Huntingdon and Hollow Rock, in Carroll county, ship more than one-half the cotton on the route.

Annual Statement of Eastward-bound Shipments, from Way Stations, over the St. Louis Division,  
for Twelve Months ending June 30, 1873.

STATIONS.	Bales Cotton.	Barrels Flour.	Barrels Meal.	Barrels Salt.	Pounds Bacon.	Bushels Wheat.	Bushels Corn.	Bushels Oats.	Tons Hay.	Feet Lumber.	Bushels Coal.	Car Loads Horses and Mules.	Car Loads Cattle.	Car Loads Hogs.	Car Loads Iron.	Hogheads Tobacco.	Car Loads Wood, Sand, Shingles, Staves, etc.	Tons Miscellaneous Freight not included under any of the foregoing heads.
Bellvue.....						342	8,671	240		45,000							1	310
Pegram.....						90	5,511	357		6,000							1	19
Kingston Springs.....						366	6,017	68		46,500			1				1	63
White Bluff.....			2			31		349							71			133
Burns.....						720	30			68,500							11	360
Dickson.....					425	1,350	453			305,000		1	1	1				100
Gillems.....	35		2		600	234	1,336			20,000			1				2	190
McEwens.....					6,387	37	718											667
Waverly.....			99										2		1			583
Johnsonville.....	211	10,120	51	50	302,106	22,279	254,349	39,441	17	8,500						47		96
Camden.....	525				11		136											43
Hollow Rock.....	1,504				230													43
Huntingdon.....	4,091			1,400	40								1					3,056
McKenzie.....	263																	36
Gleason.....	461						1,936			45,000						50	9	25
Dresden.....	621				3,050	1,003	1,247			180,000						95	10	53
Ralston.....	294									250,000						71		202
Gardner s.....	582			60					7	36,000								1,158
P. & G. Junction.....	84					254	1,050			242,834			2					42
Union City.....	332	100			250	4,050	11,213		317	77,000								1
Woodland Mills.....		41					3,740	484	38	21,800								1
State Line.....																		
Total.....	9,003	10,362	53	1,510	312,818	31,137	296,434	40,939	379	1,352,134		1	8	1	72,359	25		7,196

Annual Statement of Westward-bound Shipments, from Way Stations, over the St. Louis Division,  
for Twelve Months ending June 30, 1873.

STATIONS.	Bales Cotton.	Barrels Flour.	Barrels Salt.	Pounds Bacon.	Bushels Wheat.	Bushels Corn.	Bushels Oats.	Tons Hay.	Feet Lumber.	Car Loads Horses and Mules.	Car Loads Cattle.	Car Loads Hogs.	Car Loads Iron.	Hds. Tobacco.	Car Loads Brick, Tiles, Stoves, and Wagons, Shingles, and Wood.	Tons Miscellaneous	Tons Miscellane-ous not included under any of the foregoing heads.	TOTAL TONS.
Belvue,.....						5,600			5,000								15	
Pegram,.....				600		1,895											1	
Kingston Springs,.....			150			204											10	
White Bluff,.....							3										18	
Burns,.....																	9	
Dickson,.....									30,000	1					1		20	
Gillems,.....				130													42	
McEwens,.....				1,690					161,617		22	1	119				70	
Waverly,.....						265					5			42			753	
Johnsonville,.....	20										2						98	
Camd'n.....	46										2						4	
Hollow Rock,.....									6,000		1						52	
Huntingdon,.....	27												9				362	
McKenzie,.....	1		70						5,000								52	
Gleason,.....	15																39	
Dresden,.....	77					24		1	100,000					55			287	
Ralston,.....	112				3,117	2,141			42,250					164	1		5	
Gardner's,.....	171	7	10		562				80,000					94	8		24	
P. and G. Junction,.....	14	81			512	748	16	6									168	
Union City,.....					4,619				81,881								354	
Woodland Mills,.....	2				30				35,000								13	
State Line,.....									9,300								89	
Totals,.....	485	88	80	2,570	8,842	10,877	19	7	556,048	1	32	2	128	642	14		2,199	3,650



The following table will exhibit the entire freights passing over the St. Louis division for twelve months ending June 30, 1873, including those from Hickman, Kentucky, Nashville, Tennessee, and the transfers from the Iron Mountain Railroad, as well as all from all the way stations:

FROM	Tons Hay.	Feet Lumber.	Bushels Coal.	Car Loads Mules and Horses.	Car Loads Cattle.	Car Loads Hogs.	Hhds. Tobacco.	Car Loads Iron.	Car Loads Shingles, Wood, Wagons, Sand, Stoves and Brick.	Tons Miscellaneous Frt. not included under foregoing heads	TOTAL TONS.
Nashville,.....	55	870,400	76,860	87	145	14	3,794			13,010	14,609
Hickman, Ky.,	1,004					2				1,125	22,003
Stations East...	379	1,352,134		1	8	1	359	72	25	7,196	17,253
Stations West..	7	556,048		1	32	2	642	128	14	2,199	3,650
I. M. R. R.,.....	2,487	60,000		65						5,433	39,917
Total.....	3,932	2,838,582	76,860	154	187	18	4,795	200	39	28,963	97,434

FROM	Bales Cotton.	Barrels Flour	Barrels Meal.	Barrels Salt.	Pounds Bacon.	Bushels Wheat.	Bushels Corn.	Bushels Oats.
Nashville, .....	8,908	7,306	1,327	1,661	409,063	19,198	38	156
Hickman, Ky.,	612	11,846	30	1,430	655,840	21,492	515,090	241,543
Stations East...	9,003	10,362	53	1,510	312,818	31,137	296,434	40,939
Stations West..	485	88		80	2,570	8,842	10,877	19
I. M. R. R.,.....		76,529	4,519		7,708,996	98,531	617,167	275,699
Total.....	19,008	106,131	5,929	4,681	9,089,287	179,200	1,439,606	558,356

Total tons shipped over St. Louis division, for year ending June 30, 1873, 9,434. Average, per ton, \$3.94

This road has paid its whole amount of indebtedness to the State, in bonds and past due coupons, the sum amounting to \$1,790,789.95.

The amount in Tennessee bonds originally required in the purchase of the Northwestern road was \$2,400,000, and past due coupons; and the amount of bonds loaned by the State to the Nashville, Chattanooga and St. Louis Railway was \$400,000. These large amounts have been paid within the remarkably short space of two years. The last payment on the purchase of the Northwestern Road, amounting to \$600,000, was anticipated, it not being due until next October.

The Nashville, Chattanooga and St. Louis Railway originally had out \$1,650,000 of its bonds indorsed by the State, but this amount has been reduced, from time to time, by purchase of bonds by the company and paying them into the State sinking fund, to \$1,425,000.

The management of this road has been characterized by wisdom, prudence, foresight, and financial ability, and its president and other officers have never failed to advance the material interests of Nashville and the State of Tennessee.

#### EAST TENNESSEE, VIRGINIA AND GEORGIA RAILROAD.

##### OFFICERS.

R. T. WILSON, *President.*

JOSEPH JAQUES, *Vice-President and Superintendent.*

CHARLES M. MCGHEE, *Vice-President.*

JAMES G. MITCHELL, *Secretary and Treasurer.*

O. H. P. ROGAN, *Auditor.*

JAMES R. OGDEN, *General Freight and Ticket Agent.*

This road runs from Bristol, on the Virginia line, to Dalton, Ga., a distance of 240 miles, with a branch from Cleveland, Tennessee, to Chattanooga, thirty miles, making in all 270 miles. It has sidings and other tracks 22 miles; gauge five feet; weight of rail, fifty-six to sixty pounds per yard. The East Tennessee and Virginia, from Bristol to Knoxville, and the East Tennessee and Georgia, from Knoxville to Dalton, Georgia, were consolidated November 26, 1869, and put under one management, with the above title. Since the consolidation, the road has been greatly improved. In 1872, the Rogersville and Jefferson Railroad, sixteen miles in length, was bought by the company from the State of Tennessee for \$15,548.91. It is said to have been recently purchased by W. P. Elliott. The Cincinnati, Cumberland Gap and Charleston Railroad, thirty-nine miles in operation, from Morristown to Wolf Creek, is also operated by this company.

This company purchased of the State, October, 1871, the Knoxville and Ohio Railroad, which extends from Knoxville to Wheeler's Gap, or Careyville, a distance of forty miles. The State granted aid to the original company to the amount of \$2,350,000, but owing to the failure of the road to pay the interest it was sold. The following account of the shipments of coal over this road was furnished by Jno. L. Moses, secretary, treasurer, and superintendent. There is a discrepancy in the amounts as given by him, and those given by Mr. Camp in the chapter on coal.



line from the Georgia cotton fields to the city of New York, the connecting link between the net-work of railways of the north-east and south.

The following tables, furnished by James R. Ogden, the general freight and ticket agent, will show the great amount of local trade. The first will exhibit a classified statement of freight for three years, and the others, the shipments from each station for the year ending June 30, 1873. The items of copper, butter, feathers, marble, dried fruit, eggs and barytes are noteworthy. It will be seen that the amount of iron has increased in three years nearly fifty per cent.

*Comparative Classified Statement of Freight Shipped on the East Tennessee, Virginia and Georgia Railroad, for the Year ending June 30, 1873.*

	YEAR ENDING JUNE 30, 1871.		YEAR ENDING JUNE 30, 1872.		YEAR ENDING JUNE 30, 1873.	
		Pounds.		Pounds.		Pounds.
Bacon and Lard.....		3,795,612		3,844,902		1,938,690
Butter.....		279,348		321,366		346,819
Flour.....		6,919,493		4,174,355		6,813,661
Corn.....		23,733,431		24,141,677		18,037,345
Wheat.....		30,089,704		4,863,375		42,826,560
Oats.....		9,628,076		2,772,988		5,444,629
Other Grain.....		439,227		297,666		1,095,676
Dried Fruit.....		4,072,476		2,284,956		6,094,237
Eggs.....		582,437		573,667		874,404
Salt.....		19,034,950		19,754,150		22,816,000
Leather.....						441,311
Coal and Coke.....	Cars. 2,929	52,294,000	Cars. 3,380	60,840,000	Cars. 4,489	80,792,000
Cotton Yarn.....				504,863		411,351
Cotton.....	Bales. 139068	62,585,092	Bales. 131788	66,031,247	Bales. 144645	72,160,888
Feathers.....		187,935		264,234		292,773
Lime and Cement.....		786,300		723,950		480,000
Copper.....		1,522,825		1,636,908		1,200,910
Barytes.....						1,040,177
Marble.....		1,262,422		2,053,439		1,582,257
Staves.....						6,370,000
Lumber and Shingles..		9,938,916		14,197,713		9,134,548
Iron—Pig, Bl'm & Sc'p.		8,722,864		9,673,239		12,440,634
Iron—Manufactured..		1,714,824		2,183,071		2,918,437
Horses.....			Cars. 63½	1,020,000	Cars. 59½	952,000
Cattle.....	Cars. 266	4,257,655	Cars. 166½	2,664,000	Cars. 301	5,416,317
Sheep and Hogs.....			Cars. 124	1,984,990	Cars. 131½	2,104,000
Nails and Spikes.....		406,866		338,538		733,295
Hay.....		1,992,615		4,420,874		3,728,161
Miscellaneous.....		127,421,121		112,723,219		134,707,574
		371,669,089		344,789,387		443,194,654

STATIONS.	BACON AND LARD.	BUTTER.	FLOUR.	CORN.	WHEAT.	OATS.	OTHER GRAIN.	DRIED FRUIT.	STAVES.	EGGS.	FEATHERS.	HAY.	IRON—Pig, Scrap, and Bloom.	IRON—Mand. Packed.
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Bristol.....	2,168	48,085	54,670	44,443	924,205	17,786	32,440	37,442	.....	41,363	1,108	16,000	108,000	16,475
Union.....	1,509	8,980	36,647	113,419	394,476	173,262	.....	630,197	.....	18,365	3,430	84,000	7,566	10,000
Carters's.....	.....	.....	575,700	.....	61,000	.....	.....	450,181	36,000	3,330	1,200	2,000,000	2,000,000	172,627
Johnson's.....	2,830	12,927	118,530	93,329	342,301	152,993	.....	300,336	400,000	32,910	10,778	201,420	14,925	56,506
June-boro.....	69,910	19,920	618,800	10,425	1,364,660	66,340	.....	388,130	322,000	43,800	9,060	2,681,000	2,681,000	.....
Telford's.....	10,168	2,215	58,959	113	1,345	17,345	.....	25,489	836,000	4,586	814	.....	36,681	.....
Limestone.....	73,538	8,836	1,058,150	66,000	128,000	38,048	50,000	107,914	48,000	22,115	1,669	.....	.....	.....
Fullen's.....	37,574	18,663	85,030	14,738	193,367	49,440	2,070	137,356	810,000	30,939	2,883	66,480	1,458	535
Henderson's.....	10,219	941	468,984	2,542	1,053,381	.....	.....	10,432	486,000	5,180	1,091	66,480	1,458	.....
Greenville.....	8,882	10,392	49,628	.....	2,988,614	8,514	20,413	133,724	1,104,000	18,828	10,600	148,372	6,461,308	6,163
Midway.....	7,260	5,403	17,725	3,721	1,456,234	50,182	.....	492,000	402,000	12,914	5,312	1,015,818	.....	.....
Roadsville Junction.....	69,300	15,000	196,000	98,000	3,716,000	229,000	.....	1,091,000	1,188,000	18,000	13,000	106,000	16,000	.....
Whitesburg.....	76,182	37,320	12,166	2,281	1,347,633	171,196	8,256	293,299	16,418	40,055	7,978	81,078	15,149	.....
Russellville.....	40,127	26,374	13,573	77,541	783,377	171,315	.....	87,128	18,000	32,156	4,241	42,634	19,434	.....
Morristown.....	229,815	16,010	1,481,562	460,569	5,091,344	264,618	3,165	871,701	216,000	50,415	24,128	795,796	.....	.....
Talbot's.....	10,660	4,432	.....	54,594	6,031,433	340,988	.....	36,256	.....	14,732	2,617	21,198	.....	.....
Mossy Creek.....	.....	.....	5,290	63,351	1,918,968	247,923	.....	148,516	.....	7,285	1,426	30,150	.....	.....
New Market.....	14,894	4,683	40,715	85,310	961,677	347,723	3,875	114,604	126,000	16,167	5,225	.....	.....	.....
Strawberry Plains.....	6,869	652	1,410	337,154	616,354	108,226	12,414	10,136	.....	6,935	2,833	.....	.....	.....
McMillan's.....	.....	.....	.....	.....	2,693,443	.....	.....	1,702,891	90,000	225	156	408,976	.....	2,499,325
Knoxville.....	337,488	25,368	569,575	1,549,588	7,665,148	745,685	.....	3,098	.....	218,301	108,837	.....	101,759	.....
Concord.....	50,346	1,345	28,675	407,093	1,150,610	408,335	.....	21,079	.....	14,978	2,106	275,423	.....	.....
Lenoir's.....	95,945	5,219	4,750	1,708,448	811,863	457,496	.....	24,226	.....	3,889	1,605	42,087	.....	.....
London.....	95,012	2,397	700	6,767,499	2,410,124	645,785	30,314	9,319	.....	48,040	5,254	222,142	43,749	.....
Philadelphia.....	46,408	1,944	197,646	1,323,499	1,690,821	293,127	.....	63,121	.....	10,247	685	77,883	.....	.....
Sweet Water.....	147,773	21,573	46,027	1,125,632	1,887,823	179,372	97,493	30,859	.....	48,040	5,254	.....	.....	.....
Mossy Creek.....	169,933	4,131	30,000	461,919	1,822,823	179,372	.....	20,859	.....	10,247	685	.....	.....	.....
Athens.....	101,722	9,588	121,700	527,339	1,290,401	50,000	.....	94,222	.....	27,381	4,114	31,234	9,086	.....
Riceville.....	96,704	3,006	10,422	253,341	464,652	74,523	398,136	94,222	.....	3,545	1,538	10,735	.....	.....
Charle-ton.....	95,771	1,538	94,795	1,892,411	1,292,968	49,156	.....	50,013	.....	5,618	2,544	27,330	.....	.....
Chatata.....	4,415	910	11,280	123,168	316,361	2,314	.....	10,729	.....	1,406	469	.....	.....	.....
Chatsland.....	17,391	6,700	113,496	113,496	2,142,360	.....	201,314	97,256	112,000	45,206	4,668	98,000	.....	.....
Ooltawah.....	11,445	2,743	3,625	293,318	327,328	.....	.....	14,134	.....	6,317	344	44,965	550	.....
Tyner's.....	147	131	.....	15,072	17,666	.....	.....	762	.....	6,317	221	.....	.....	.....
State Linc.....	.....	.....	23,644	8,589	136,351	.....	.....	31,137	108,000	4,885	459	56,543	3,338	61,156
Varnell's.....	1,425	3,385	800	47,550	17,844	2,684	.....	2,965	36,000	670	50	50	599,193	95,650
Dalton.....	.....	.....	.....	.....	.....	.....	.....	26,175	16,000	.....	.....	.....	192,000	.....
Chattanooga.....	.....	.....	740,000	.....	.....	.....	.....	96,660	.....	54,380	48,545	.....	.....	.....
Total.....	1,938,690	346,819	6,813,661	18,037,315	42,826,560	5,440,628	1,095,676	6,094,237	6,370,000	874,404	292,773	3,728,161	12,440,634	2,918,437

STATIONS.	LIVE STOCK—CABS.			LUMBER & SHINGLES.	LEATHER.	BA RYTES.	MISCELLANEOUS.	TOTAL.	COTTON YARNS.
	Horses	Cattle	Sh&H's						
Bristol.....	2						101,993,329	124,969,494	
Union.....				553,216				1,822,016	
Carter's.....				135,000			293,686	3,347,461	
Johnson's.....				54,000			484,917	2,278,183	
Jonesboro'.....	3½						97,730	5,172,165	
Telford's.....		1		19,893				1,090,391	
Limestone.....			6				428,711	2,129,981	
Fullen's.....						455,663	104,359	1,942,807	
Henderson's.....							110,843	1,269,358	
Greenville.....	1	26	2		9,998	125,498		11,568,924	
Midway.....		5	5	4,900		184,847	198,032	3,544,877	
Rogersville J.....			2	50,000			1,219,291	7,697,491	
Whitesburg.....	½						114,660	3,402,761	
Russellville.....				84,000			272,121	1,672,321	
Morristown.....	17	62	7	1,152,000		197,835	1,631,436	11,776,217	
Talbot's.....							78,517	984,789	
Mossy Creek.....	4	6					302,246	1,985,154	
New Market.....	4½		1½				112,907	1,770,180	
Strawbery PIs.....	1	1	8	2,496,000	8,428		145,976	4,039,397	
McMillan's.....					49,170		54,428	512,986	
Knoxville.....	16	63	42				11,722,372	110,377,991	98101
Concord.....	7	2	4	177,572			3,382	2,577,687	
Lenoir's.....		4		33,000			524,395	3,914,683	101800
London.....		15	9	266,804	24,813			10,763,062	
Philadelphia.....		9	2				107,187	3,259,167	
Sweet Water.....		30	8	41,280		76,334		5,180,166	
Mouse Creek.....	1	9	9		1,673		109,899	2,559,203	1521
Athens.....	3	1	9				275,848	3,061,514	33974
Riceville.....		14	9	256,000			382,103	2,046,887	
Charleston.....	1	10	3				180,348	4,176,331	
Chatata.....				4,651			40,699	416,542	
Cleveland.....		16	5	464,000			355,714	5,213,406	
Ooltawah.....				232			268,116	991,277	
Tyner's.....				2,192,000	1,895		24,349	41,275	
State Line.....				207,000	275		455,173	3,022,052	
Vannell's.....				413,000	193,705		216,111	541,740	
Dalton.....				528,000	153,354		3,068,627	19,737,049	175955
Chattanooga.....		27					9,409,062	72,067,151	
Total.....	59½	301	131½	9,134,548	441,311	1,040,177	134,707,574	443,194,654	411351

Besides the articles enumerated in the tables above, there were shipped over the road 1,582,257 pounds of marble, of which 396,000 pounds were shipped from Rogersville Junction, 1,184,813 pounds from Whitesburg, 1,444 pounds from Riceville. Of nails and spikes, 733,295 pounds were shipped from Knoxville, the product of the nail factory at that place; of copper, 1,200,910 pounds from Cleveland, the shipping station of the Ducktown copper mines; of coal and coke, 80,792,000 pounds, 79,578,000 pounds from Knoxville, and the remainder from Chattanooga; of cotton, 144,645 bales from Chattanooga and Dalton, Georgia; of salt, 22,816,000 pounds, nearly all of which comes from Bristol; of cement, 480,000 pounds from Chattanooga.

We may add that this road is managed by able, energetic, and skillful officers, who are faithful in the discharge of their several duties, as the business and freedom from accidents testify.

The two roads for which we give such full statistics are by far the

most important to Middle and East Tennessee; for though one other traverses the middle division, it does not tap the coal region, to the development of which we must look, in part at least, for a restored prosperity.

KNOXVILLE AND CHARLESTON RAILROAD.

This road runs from Knoxville to Maryville, and is sixteen miles in length. It was intended to connect with the Blue Ridge Railroad of South Carolina, and form, with the Knoxville and Ohio Railroad, a through line from the Ohio River to the sea-board at Charleston, S. C. The road was sold by the State on account of its failure to pay the interest on the bonds issued to it for \$105,000. We have received no report of the operations of the road, and can therefore give no account of the amount of its business.

TENNESSEE COAL AND RAILROAD COMPANY.

This road runs from Cowan, a village on the Nashville and Chattanooga Railroad, to Sewanee Mines. It is twenty-one miles in length, and was built at a cost of \$850,000. It is now operated by the Sewanee Mining Company. For a more detailed account of it see Grundy county.

ST. LOUIS AND SOUTHEASTERN RAILWAY.

OFFICERS:

EDWARD F. WINSLOW, St. Louis, Mo., *President.*

JAMES H. WILSON, New York, *Vice President.*

CHARLES W. GARDENER, St. Louis, *Treasurer and Secretary.*

GEO. S. WINSLOW, Mt. Vernon, Ill., } *Assistant Superintendents.*  
 H. L. MORRILL, Evansville, Ind., }

A. E. SHRADER, St. Louis, Mo., *General Ticket Agent.*

This road traverses one of the most fertile regions of the Mississippi Valley, and also passes directly through the immense coal fields of West Kentucky and Illinois. The quantity of coal shipped to Nashville by this road is estimated to be 449,000 bushels; to points south of Nashville, 100,000 bushels. All the towns on the line of the road from Henderson, Kentucky, to Nashville are supplied with coal from the mines in Kentucky, while immense quantities are carried to St. Louis from the coal fields of Illinois. In addition to coal, tobacco,

wheat, corn, and whisky are transferred by this road in large quantities. From Springfield alone over forty barrels of whisky are daily shipped to St. Louis, Nashville, and other points. The road is admirably located, and the facilities offered for the erection of manufacturing establishments on its route are so great that they cannot long remain unnoticed by capitalists. Cheap living, cheap coal, fertile lands, unoccupied water-power, contiguity to the cotton fields and to the iron regions, are some of the advantages of the country through which this road passes. Good management and liberal rates on the part of its officers must eventually make it one of the most desirable roads leading to Nashville.

The total length of this road is 358 miles, 48 of which are branches. The distance to St. Louis is 310 miles. Length of road in Tennessee, 48 miles; guage, 4 feet, 9 inches, and 5 feet; rail, 50, 56, and 65 pounds to the yard.

Operations for the year ending December 31, 1872:

From passengers.....	\$260,888 35
“ freight.....	525,446 06
Miscellaneous .....	36 266 44
Total earnings.....	\$822,600 85
Operating expenses.....	632 821 69
Net earnings.....	\$169,779 16

The authorized capital stock of this road is \$16,000,000, of which 11,000,000 are paid in. Funded debt, \$5,807,000. The cost of construction, \$11,089,000; equipment, \$1,725,000; real estate, etc., \$700,000.

#### McMINNVILLE AND MANCHESTER RAILROAD.

The line of this road extends from Tullahoma to McMinnville, the county seat of Warren. Its length is thirty-four miles. Upon its failure to pay the interest on the bonds issued by the State in aid of its construction, it was sold in 1872. The sale was declared void, and a new sale ordered. It is run by the lessees of the Memphis and Charleston Railroad, and has the same list of officers. The total receipts for the road in 1872, no later information being accessible, were from passengers, \$6,816.45; from freight, \$7,856.05; total, 14,672.50. The expense of running was \$12,517.61.

This road was projected to run to Sparta, Tennessee, and ultimately



to extend to the Kentucky state line, with a view to a connection with the Cincinnati Southern. Work has been done beyond McMinnville, in the direction of Sparta, to the amount of \$81,063.76. The total cost to Sparta, it is estimated, will be \$659,806; and to the Kentucky state line, \$1,493,000.

WINCHESTER AND ALABAMA RAILROAD.

There is in operation of this road thirty-nine miles from Decherd, on the Nashville and Chattanooga Railroad, to Fayetteville, the county seat of Lincoln. It was projected to run to Huntsville, Alabama, a distance of forty-seven miles. The Memphis and Charleston Railroad purchased it of the State on sale for the non-payment of interest, and it is now operated by the Southern Railway Security Company as lessees of the Memphis and Charleston Railroad.

The receipts from passengers, ending June, 1872, was \$6,527; from freight, \$12,429.72; total, \$18,776.72. Expenses, \$16,015.80.

TENNESSEE AND PACIFIC RAILROAD.

OFFICERS:

- GEO. MANEY, Nashville, *President and Superintendent.*
- R. M. MILLER, *Treasurer, Secretary, and General Ticket Agent.*
- W. M. MARR, *Master of Transportation and Conductor.*
- J. D. MANEY, *General Freight Agent.*

This road runs from Nashville, Tennessee, to Lebanon, the county-seat of Wilson. Length, 31 miles; sidings and other tracts, 4 miles; guage, 5 feet; rail, 56 pounds to the yard.

It was projected to run to Knoxville, Tennessee, but financial embarrassments checked its progress. Considering the shortness of the road, it makes a better showing than any short line within our knowledge.

The company bought the interest of the State in this road on account of bonds issued, paying therefor \$300,000. The amount of State loans was \$1,185,000.

The following is the report of the business of the road for 1872:

Cedar lumber, value.....	\$99,400
Other lumber, value.....	8,355
Total value of lumber.....	\$107,755

Besides lumber there were shipped:

Barrels of flour.....	10,437
Sacks of flour.....	9,099
Bushels of grain.....	12,676
Pounds of bacon.....	321,761
“ “ lard.....	12,000
“ “ butter.....	23,568
Eggs, dozens.....	69,800
Pounds of fruits.....	44,858
“ “ feathers.....	6,081
“ “ rags.....	49,177
“ “ old iron.....	98,362
Hogsheads of tobacco.....	140
Bales of cotton.....	146
“ “ hay.....	146
Pounds of wool.....	14,164
“ “ cotton yarn.....	8,237
Car-loads of stock.....	208

For the year ending January 1, 1872, the earnings of the road were:

From passengers.....	\$32,468 44
“ freight.....	20,950 92
Miscellaneous.....	4,323 17
<hr/>	
Total earnings.....	\$57,742 53
The expenses amounted to.....	41,478 71
<hr/>	
Net earnings.....	\$16,263 82

We are indebted to R. W. Miller, secretary and treasurer, for the following account of the business of the road for 1873:

Passengers over the road.....	22,474
Car-loads of stock.....	187
“ “ flour.....	128, average 90 barrels each.
“ “ grain.....	96, “ 300 bushels “
“ “ bacon.....	60, “ 16,000 pounds “
“ “ tobacco.....	20, “ 8 hhds. “
“ “ cotton.....	24, “ 25 bushels “
“ “ lumber.....	466, “ 5,000 feet, $\frac{3}{4}$ cedar.
“ “ wood.....	285, “ 7 cords each.

#### LOUISVILLE, NASHVILLE AND GREAT SOUTHERN RAILROAD.

This is one of the largest corporations in the south, and the ability and energy which have been displayed by its officers in its management have placed it among the first railroads of America. Boldly striking through the heart of Kentucky, it was the first road which placed in communication the cotton states of the Mississippi Valley with the great

grain-growing states of the north-west, and the wisdom of its projectors is manifested in the fact, that since its main line from Louisville to Nashville was finished, a distance of 185 miles, it has, within a period of fifteen years, thrown out branches and extended its main line, until the aggregate number of miles has reached 737.3, 380 of which are in the State of Tennessee. The cost of the property owned by this corporation amounts to \$22,946,338; including other assets, the value of property owned by the company, after deducting floating debt, is \$25,583,575,91; liabilities, (stocks and bonds) amounting to \$23,801,939.03. The total earnings for the year ending June 30, 1873, not including leased lines, amounted to \$4,909,426.44; expenses, \$3,498,303.29; showing a net profit of \$1,411,123.29. A dividend of seven per cent. was paid out of the net earnings, also interest on bonded debt. The bonded debt, for which the road is mortgaged, amounts to \$14,820,500.00.

The main stem of this road, from Louisville to Nashville, was opened for business November 1, 1859. The Memphis branch, extending from Bowling Green, Kentucky, to Memphis, Tennessee, a distance of 264 miles, and embracing the Memphis and Ohio and the Memphis, Clarksville and Louisville railroads, was opened in 1860. The two last mentioned roads, built under separate charters, were bought by the company and consolidated. The Nashville and Decatur road was leased for thirty years, commencing July 1, 1872. The company acquired a controlling interest in the stock of the South and North Alabama Railroad, which road was completed October 1, 1872, putting the capital city of Tennessee in direct communication with the capital city of Alabama.

We only propose to speak of the trade of such portions of this company's roads as pass through the State of Tennessee. The main stem enters the State near Mitchellsville, Sumner county, and for the distance of thirteen miles passes over a part of the great Highland Rim, and descends through a tunnel into the low lands of the Central Basin. Upon the Highland Rim, contiguous to this road, are grown tobacco and wheat of fine quality. The shipments from the stations on the Rim are mainly of these two articles, as will be seen from the subjoined table. South of South Tunnel, and on to Nashville, the stations show but little tobacco shipped, that from Gallatin having probably been raised in Trousdale county, or upon the Highlands, though the ear loads of stock are notably increased. Indeed, there are but few counties in the State that have earned a better reputation for stock-growing than Sumner.

We are indebted to Col. Albert Fink, the vice-president and general superintendent, for the following tables:

Freight Forwarded from Stations on the Main Line from Mitchellville to Nashville, for the Year ending June 30, 1873.

FROM	BUSHELS GRAIN.			BACON.		Pounds Rope and Bagging.	Hds. Tobacco.	Bales Cotton.	Barrels Flour.	Barrels Salt.	Barrels Potatoes.	Barrels Beef, Pork and Lard.	Barrels Liquor.	Barrels Oil.	Barrels Molasses.	Barrels Lime and Cement.	SUGAR.	
	Wheat.	Corn.	Other Grain.	Casks.	Tierces.												Hogsheads.	Barrels.
Mitchellville.....	1656					331			379				2	10				
Richland.....	4		89			21					3	15			1			
Fountain Head.....				2		102				1								
Buck Lodge.....																		
South Tunnel.....																		
Gallatin.....	8685	5996	2741			208		11	720	12	351	2	2	2	18			
Pilot Knob.....	785	361	1514															
Saundersville.....	1687	1374	1154						3		1		1					
Hendersonville.....	3097	5415	2298	1				153			1							
Edgefield Junction.....	421	1714	417								15							
Madison.....	4		270															
Nashville.....	33568	785342	111545	3462	892	723596	1586	51771	54029	6563	10691	1426	7519	6522	232	2422	282	4459

There were shipped from Gallatin, (car loads)—cattle, 106; horses and mules, 6; hogs, 132; sheep, 21; besides 3,736 pounds of fruit, and 1,556,815 pounds of general merchandise. The shipments of live stock from Nashville by the main stem were, of cattle, car loads, 186; horses and mules, 125; hogs, 24; sheep, 25; pounds of fruit, 3,121,577; general merchandise, 47,259,512 pounds.





Guthrie is within the State of Kentucky, but much of the produce shipped from that point is grown in Tennessee.

It will be seen that Clarksville ships the largest amount of tobacco, being 11,125 hogsheads, and Guthrie, which is in the edge of Kentucky, next. Omitting Nashville and Memphis, the most cotton from way stations comes from Brownsville, being 21,153 bales; Humboldt stands second, shipping 14,172; Mason third, 10,316; Pulaski fourth, 8,863; Columbia fifth, being 8,299. From the lower Tennessee River, from Florence to Danville, the steamer Dick Johnson collected 6,999 bales, which is about two-thirds of all the cotton raised on the Tennessee River from the Muscle Shoals to its mouth. About 10,000 bales annually find their outlet by this river. Stewart's Station is noted for lime. 1,473 car loads of iron are shipped by the Memphis division.

This road with its branches, traversing, as it does, one of the most productive sections of the country, is destined, with judicious management, to become the great inland route of commerce between the two sections. It is yet in its infancy. The company hopes before a great while to have direct connections, by Virginia and Tennessee roads, with the Atlantic ports, with the Mexican Gulf by Montgomery, Alabama, and with the Pacific ports by Memphis, Little Rock and Shreveport, connecting at the latter point with the Texas Pacific. Eighteen consecutive semi-annual dividends have been made, the road is well kept up, and under the skillful superintendence and management of Col. Fink, it will doubtless continue to extend its arms, until it can command a large part of the trade of the Southern Mississippi Valley, and the trade of 3,000 miles of seaboard.

#### MOBILE AND OHIO RAILROAD.

##### OFFICERS.

- HON. ABRAHAM MURDOCK, Columbus, Miss., *President*.  
 HON. CHARLES E. RUSHING, Marion, Miss., *Vice President*.  
 JOHN J. WALKER, Mobile, Ala., *Second Vice-President*.  
 ALONZO L. WILLOUGHBY, Mobile, Ala., *Secretary and Treasurer*.  
 OLIVER S. BEERS, Mobile, Ala., *Auditor*.  
 GEORGE N. STEWART, Mobile, Ala., *General Solicitor*.  
 L. J. FLEMING, Mobile, Ala., *Resident and Consulting Engineer*.  
 A. L. RIVES, Mobile, Ala., *Chief Engineer and General Sup't*.  
 JOHN A. PUNCH, Mobile, Ala., *General Freight and Ticket Agent*.

This road was opened in 1859. At the twenty-fifth annual meeting of the stockholders, held in Mobile, the president, in his annual report, took occasion to pay a just tribute to the persevering efforts of

Baldwyn in the building of this road, an enterprise at the time of its inception, greater than had been started on either continent—the building of a road that was to extend through seven degrees of latitude, and to connect the waters of the gulf with those of the western rivers and lakes. After thirteen years of patient toil and persistent energy, the road was completed from Mobile, Alabama, to Columbus, Kentucky, a distance of 472 miles. Shortly after its completion the war broke out, and at its close the road was a splendid wreck. Sixty-five per cent. of its original cost was lost. But by energy and credit, in eight years the property was in a prosperous condition, with increased equipments, enlarged facilities for business, and a developed earning power that surprised its friends.

## EARNINGS FOR THE YEAR 1872.

From Passengers.....	\$ 734,970 39	
“ Freight.....	2,089,681 25	
“ Mail and Express.....	127,855 95	
Total earnings.....		\$2,952,507 59

## EXPENDITURES.

Maintenance of way.....	\$ 582,386 10	
Rolling Stock.....	512,779 48	
Transportation.....	835,053 60	
Total Expenditures.....		1,930,219 18
Net earnings.....		\$1,022,288 41

This road has a bonded debt of \$10,839,144.46, and floating debt of \$1,176,938.03. Its lowest estimated value is \$22,500,000. The original capital stock amounted to \$4,466,475.86. This has been doubled. The company has paid off its indebtedness to the State of Tennessee, and resumed the payment of interest on all classes of bonds, May 1, 1870.

The following table will show the amount of cotton received at each station on this road, within the State of Tennessee, for the year ending March 31, 1873:

Ramer's.....	86 Bales.
Bethel.....	735 “
McNairy.....	733 “
Henderson.....	2,514 “
Pinson.....	1,099 “
Jackson.....	7,841 “
Humboldt.....	688 “
Trenton.....	6,852 “
Dyer.....	561 “
Rutherford.....	751 “
Kenton.....	1,250 “
Troy.....	41 “
Union City.....	992 “
Total.....	24,146 Bales.



Amount of Tennessee cotton received by this road the previous year, 20,856 bales.

The number of passengers moved for the year 1872, was 398,884. Average distance traveled by each passenger, 41 miles. The average number of seats provided in each passenger train, 125; the average number occupied, 25, or only one-fifth the capacity of the cars.

The total tonnage of the road was 374,531; total number of tons, one mile, 553,993.02. Total cars for passenger trains, 56; total freight cars, 1,073; total number engines, 89.

#### MISSISSIPPI CENTRAL AND NEW ORLEANS RAILROAD.

##### OFFICERS:

A. M. WEST, Holly Springs, Mississippi, *President*.

R. P. NEELY, Bolivar, Tennessee, *Secretary and Treasurer*.

E. C. WALTHALL, *General Attorney*.

By the consolidation of the New Orleans, Jackson and Great Northern Railroad and the Mississippi Central, this company controls the entire line from New Orleans to Cairo, Illinois, a distance of 549 miles. Running arrangements have been effected with the Illinois Central Railroad company, which places, practically, under one management, though operated by two charters, 1,700 miles of railway.

The extension of the road from Jackson, Tennessee, to Cairo, Illinois, gives to it an independent connection. By the completion of this work the road gains seven new and independent connections: 1st. With the Louisville, Nashville and Great Southern line, at Milan, Tennessee; 2d. With the Nashville, Chattanooga and St. Louis line, at Frost, Tennessee; 3d. With the Memphis and Paducah line, at Fulton, Kentucky; 4th. With the Iron Mountain Railroad; 5th. With the Cairo and Fulton Railroad; 6th. With the Cairo and Vincennes Railroad. 7th. With the Illinois Central Railroad, at Cairo, Illinois.

By the first, the shortest route yet opened is secured from New Orleans to Louisville and Cincinnati. The second gives favorable connection with Nashville. The third secures connection with Paducah and the rich coal fields of Kentucky. The connections at Cairo bring it within easy access of the great coal regions of Illinois. The Cairo and Fulton and Iron Mountain railroads give it direct connections with Missouri, northern Arkansas and Kansas. The Cairo and Vin-

cennes Railroad leads into the great grain-growing regions of the Wabash and White River valleys.

In his report for 1873, the president, after enumerating the advantages of the connections given above, says :

“The ultimate establishment of a line of steamers between New Orleans and Cuba, to run in connection with these consolidated roads, will follow as naturally as effect follows cause, which, aided by the Mississippi river, will in the main control the direction of the imports and exports, from and into the West India Islands, the value of which may be estimated by the exports from the United States into Cuba, which, in 1871, amounted to \$14,200,000, and the imports from Cuba, for the same year, into the United States amounted to \$58,584,000. If American enterprise could be infused into Cuba, and their exorbitant duties (which on flour are eight dollars per barrel) reduced, we would export as much as we import, and thus keep balances from running against us, and the volume of her commercial wealth would increase with unparalleled rapidity ; and travel, attracted by her tropic charms and salubrious climate, would increase in a greater ratio.

“These arrangements fully consummated, transportation will be cheapened and business greatly increased by doing away with all transfers and drayages on the railroad line. Besides, it will relieve the entire line of roads and steamers of all complications, by fixing definitely its responsibility to shippers and passengers.”

Regular trains commenced running from New Orleans to Cairo on the 24th of December, 1873. Arrangements are effected by which the cars are transferred at Cairo without breaking bulk.

We regret that we have received no itemized account of the business of the road for 1873.

The gross traffic of the road to Jackson, Mississippi, ending December 31, 1872, was \$1,425,984.37, expenses \$846,128.46, of which \$67,477.59 were charged to the Mississippi Central company as construction expenses, making net earnings \$646,333.50. Capital stock \$3,935,534.60. Funded debt \$4,628,980.00. This road is indebted to the State of Tennessee \$1,199,180. The floating debt amounted to \$3,787,030.45. Of the whole road, 120 miles are in the State of Tennessee. Gauge five feet. Rail fifty-six to sixty pounds per yard.

#### MEMPHIS AND CHARLESTON RAILROAD.

This road was opened in 1857 from Memphis, Tennessee, to Stevenson, Alabama, where it unites with the Nashville and Chattanooga

Railroad. The length of the main line is 271 miles, of which eighty-seven miles are in the State of Tennessee. It has a branch leading from Macon, thirty-nine miles east of Memphis, to Somerville, the county seat of Fayette county, a distance of thirteen miles, and another from Tusculumbia to Florence, Alabama, six miles. The Winchester and Alabama and McMinnville and Manchester roads are operated by the same company.

RECEIPTS FOR THE YEAR ENDING JUNE 30, 1872.

From Passengers.....	\$630,423	00
“ Freight.....	670,009	26
“ Mail and Express.....	65,232	77
“ Other sources.....	38,450	99
	\$1,404,116	02

EXPENSES.

Transportation.....	\$312,596	47
Motive power.....	286,597	43
Maintenance of way.....	236,250	85
“ “ cars.....	114,946	94
	\$951,191	69
Receipts over operating expenses.....		\$453,724 33

In the above are included the returns of the McMinnville and Manchester and Winchester and Alabama Railroads.

The amount of cotton moved by this road was 188,313 bales.

The Southern Railway Security Company leased this road for ninety-nine years, which lease went into effect 1st of July, 1872. By its terms it is to pay, during the first five years, six per cent. per annum on the capital stock, \$5,312,725, provided the net earnings amount to that sum. Three per cent. is guaranteed. “After the expiration of five years the company binds itself to pay six per cent. for the remainder of the time for which the road is leased. The company also agrees to pay all installments of interest and sinking fund on the bonded debt, amounting to \$4,157,000, and \$900,000 for completing the Winchester and Alabama Railroad, the Memphis and Charleston Railroad agreeing to issue consolidated mortgage bonds, amounting to \$5,500,000, bearing seven per cent. interest in gold, and payable in forty years from July 1, 1872, to cover the present bonded debt, and a further amount of \$200,000 to take up the floating debt.” “The road is to be kept in good repair, and to be surrendered at the expiration of the lease in good order and condition.” It is now reported (April, 1874) that the company has returned the road to the stockholders.

The road owes the State of Tennessee \$1,741,576.75, upon which interest is due, amounting to \$103,315.

The Memphis and Ohio has been spoken of under the head of the Louisville, Nashville, and Great Southern Railroad in another part of this chapter.

#### MISSISSIPPI AND TENNESSEE RAILROAD.

##### OFFICERS:

H. S. McCOMB, Wilmington, Del., *President.*  
 F. M. WHITE, Memphis, Tenn., *Vice-President.*  
 S. H. LAMB, Memphis, Tenn., *Secretary and Treasurer.*  
 E. D. FROST, Water Valley, Miss., *General Manager.*  
 M. BURKE, Memphis, Tenn., *Superintendent.*  
 S. CAREY, New Orleans, *General Ticket Agent.*  
 D. B. MOREY, New Orleans, *General Freight Agent.*

Only eleven miles of this road are in the State of Tennessee, and, though important to Memphis, it can hardly be called a Tennessee road. It was opened for business in 1857. Distance to Grenada, Mississippi, 100 miles.

For the year ending September 30, 1873:

The gross earnings from all sources were.....	\$560,650 79
Operating expenses less material on hand.....	301,865 24
Net earnings.....	<u>\$258,785 55</u>
Operating expenses, 53 17-20 per cent.	
Gross earnings of previous year were.....	522,644 82
Operating expenses previous year.....	268,152 21
Net earnings.....	<u>\$254,492 61</u>
Operating expenses, 51 3-10 per cent.	

The capital stock of this road is \$825,406.99. Funded debt, \$2,311,214.08, of which \$417,800 are due the State of Tennessee. Floating debt, \$136,121.54.

Of cotton there were shipped:

From local stations to Memphis.....	56,444 bales.
“ local stations to New Orleans .....	5,037 “
“ Memphis to New Orleans.....	33,289 “
Total bales transported in 1873.....	<u>94,770 “</u>
Total bales transported previous year.....	80,077 “
Increase.....	14,693 “
Total present year to New Orleans.....	38,326 “
Total previous year to New Orleans.....	31,901 “
Increase to New Orleans.....	<u>6,425 “</u>

A comparison with the tables of last Report shows a very favorable increase in local cotton, 61,481 against 50,744 last year, besides an increase of 3,956 bales from Memphis to New Orleans. The movement from local stations to New Orleans

Last year was.....	2,568 bales.
This year it is (1873).....	5,037 "
Increase.....	2,469 "

MEMPHIS AND PADUCAH ROAD.

This road is now in the course of construction, and will be finished during the year 1874. It passes through the most fertile sections of the State, and makes connection with other roads at Troy Station, Paducah Junction, and Paducah. Col. L. J. Dupree, in a communication to the Secretary of the Bureau, says of the country through which the road passes:

“The average distance of this road from Mississippi River is about fifteen miles. The whole road from Paducah to Memphis penetrates the richest districts of Tennessee and Kentucky.

“Until the financial collapse occurred, land along the Memphis and Paducah Road was held at from \$30 to \$60 per acre. It is an absolutely faultless farming country; chestnut, oak, cypress, and every tree that flourishes on the richest land in this latitude grows luxuriantly here. The greater part of the country is level, and the lowest of it is above the highest floods of the Mississippi, which diffuses itself over the lowlands of Arkansas. The earthquake of 1811-12 made abrupt hills and deep, narrow valleys in rich lands of Obion; but much the greater part of the country, enriched by the Memphis and Paducah Railroad, and protected against high freight tariffs forever by the proximity of the river on the one hand, and of the Memphis and Louisville Railway on the other, is the most attractive in the State. The reader should remember that the climate of this region is milder than that of East and Middle Tennessee in the same latitude. Knoxville is quite 600 feet more than Memphis above the sea level. Figs and cotton, which never reach maturity at Nashville or Knoxville, flourish along the route of the Memphis and Paducah road. Beyond Troy, 100 miles north of Memphis, the people cultivate tobacco, grain, and grasses, and raise horses; south of Troy there are rich corn and cotton fields. Forests are most dense, but when swept away by the hand of toil the rich alluvial farms that smile in the sunshine are invaluable. There

is no such district of country of equal extent and exuberance in Tennessee."

The roads named below are projected or in course of construction :

#### MEMPHIS AND KNOXVILLE.

A portion of this railroad, (narrow guage) in West Tennessee, is now under contract and the work of grading is progressing. The route passes from Memphis on through Somerville, Bolivar, crossing the Mobile and Ohio Railroad at Henderson's Station, thence through Henderson county, striking the Tennessee River at Saltillo, in Hardin county. From this point to Clifton, in Wayne county, a distance of seventeen miles, connection will be made through the means of steamboats. From Clifton the road will run on through Waynesboro, Lawrenceburg and Pulaski, effecting a junction with the Winchester and Alabama road at Fayetteville, in Lincoln county. An arm of this road will pass from near Wayne Furnace, through Lewis county, to Columbia. Perhaps no road in the State will pass through a more interesting section of country. From Memphis to Saltillo it will pass through the heart of the cotton region of West Tennessee, and from Clifton to Lawrenceburg it will run over deposits of limonite iron ore. Hydraulic rocks and marbles of valuable varieties will form the foundation of the road-bed for many miles. The route east of the Tennessee River offers favorable locations for immigrants. Land is cheap, the country high and healthy, and the soils of moderate fertility, from the Tennessee River to a point twelve miles west of Pulaski, where the road will descend into the great limestone Basin of Middle Tennessee, the fairest and the most beautiful portion of the State. In this Basin it continues its course to Fayetteville. By continuing on to the Cumberland Table Land, it will be the means of connecting the coal with the iron ore of the Western Belt, and will also give to West Tennessee coal facilities hitherto not enjoyed and open the grain-growing and stock-raising-regions of the State with the cotton-producing section.

#### THE BROWNSVILLE AND OHIO.

This road (narrow guage) will run from Cairo, Illinois, to Brownsville, in Haywood county, through Bolivar to Middleton, and there

will connect with the Middleton and Ripley road. Twenty-five or thirty miles are graded from Brownsville north.

#### THE CAIRO AND TENNESSEE.

This road is to be built from Cairo, Illinois, to Paris, the county seat of Henry county, and from thence an arm extended to Johnsonville to connect with the Duck River Valley Railroad—the main line running through Clifton, in Wayne county, to Florence, Alabama. Considerable amount of stock has been taken, and the road is now being surveyed preparatory to letting out contracts.

#### TENNESSEE CENTRAL.

This road was first chartered in 1847, and re-chartered during the session of 1869–70. It is designed to run from Huntington, the county seat of Carroll county, out through Gibson, Crocket, a corner of Haywood and through Lauderdale to the Mississippi River, at Fulton. It penetrates the heart of one of the finest farming regions of the State, and its course from east to west gives it great advantages over roads running north and south.

This road has twenty-five miles of road-bed graded. It will form a link in the great inter-oceanic route from Norfolk, Virginia, or Charleston, South Carolina, to the coast of California. The prospect for its speedy completion is good. The cost from Huntington to the Mississippi River, it is estimated, will be \$366,000.

#### MEMPHIS AND RALEIGH (NARROW GAUGE).

This runs out from Raleigh to a point on the Memphis and Louisville road, a distance of some seven miles. We have no official information in regard to it.

#### CINCINNATI SOUTHERN.

One of the most important projected roads, is the Cincinnati Southern, from Cincinnati to Chattanooga, passing over the Cumberland Table Land to Emeryville, and thence along its eastern edge, and opening one of the finest coal and iron regions in America. The Kentucky end of this road is now under contract, and proposals have been issued for work on sections in Tennessee. The estimated

cost of the road is \$15,000,000, of which Cincinnati subscribed \$10,000,000.

#### CUMBERLAND AND OHIO.

The Cumberland and Ohio Railroad is in process of construction, and will pass from some point on the Ohio River, through Eminence and Scottsville, Kentucky, and Gallatin, Tennessee, on to Nashville. Sumner county has taken stock to the amount of \$300,000. There is little doubt of its early completion. This road will give a new competing line to the Ohio River.

The following are a classified list of railroads proposed and in operation in and passing through West Tennessee:

NAMES OF ROADS.	IN OPERATION. MILES.	PROPOSED. MILES.	TOTAL LENGTH OF ROADS.
Mobile and Ohio.....	119	.....	472
Mississippi Central and New Orleans.....	120	.....	559
Memphis and Charleston.....	87	.....	271
Memphis and Ohio.....	152	.....	377
Mississippi and Tennessee.....	11	.....	100
Memphis and Paducah.....	125	.....	165
Nashville and Northwestern.....	90	.....	321
Memphis and Raleigh, (narrow guage).....	9	.....	.....
Jackson and Birmingham.....	.....	55	210
Memphis and Knoxville.....	.....	117	350
Huntingdon and Jackson.....	.....	38	38
Jackson and Memphis.....	.....	78	78
Tennessee Central.....	.....	97	96
Jackson and Evansville.....	.....	70	190
Jackson and Lexington.....	.....	28	28
Selma, Montgomery and Memphis.....	.....	14	260
Memphis and Vicksburg.....	.....	11	205
Cairo and Tennessee River.....	.....	10	70
Brownsville and Ohio.....	.....	90	60
Total.....	713	668	3,851

The Owensboro and Russellville Railroad is also projected to pass through Sumner county.

The Duck River Valley Railroad, (narrow guage) running from Johnsonville on the Tennessee River, through Centerville, the county seat of Hickman, to Columbia and on to Lewisburg, Marshall county to Fayetteville, the county seat of Lincoln, will probably be built within the next two or three years, and will open a rich agricultural and mineral region. The amount of subscription is \$242,500.



Several more roads were projected, but the financial crisis of 1873 will render their construction, for a time, a matter of doubt. Among these is the Ducktown Narrow Gauge, running from Cleveland to Ducktown. Two miles of this road are now in operation. Also one from Nashville to Clarksville, (narrow gauge) is being surveyed, with some prospect of being built. A narrow gauge, five miles long, from Rockwood Landing to Rockwood Furnace, in Roane county, has been in operation for some years. It does all the carrying business from the river to Rockwood.

We have thus given pretty full statistics of the railroads in the State, because the public mind, from causes not necessary to mention, has been directed towards their management, and a great necessity is felt for a work showing the details of their operations, cost of running, and price of freight. The projected railroads are also a matter of interest to persons seeking new locations.

## CHAPTER XIX.

## CONDITION OF AGRICULTURE.

The condition of agriculture in the State of Tennessee is not so prosperous as the nature of the soil, the variety of the products, the means of transportation and the salubrity of the climate should ensure. The great civil convulsion which upheaved the very foundation, of the social structure in the south, wrought most disastrous changes among the land-owners and farmers of the State, and especially among those occupying the more fertile sections of Middle and West Tennessee. The change was less apparent in East Tennessee, where the proportion of the slave population to the white was not so great as in the other divisions, and where the character of crops grown was not such as to demand arduous and continued efforts throughout the entire year. In the cotton and tobacco-growing regions the greatest changes were wrought, and the condition of the farms in these sections, denote radical defects in the system of labor or general management, or both. Previous to the war, the farmers in Middle and West Tennessee were the most thriving in the State and their farms showed a high state of cultivation and improvement. Each year showed progress and the demand for real estate was so great that land attained the limit at which it ceased to be profitable as an investment, except to those whose increasing number of slaves rendered it necessary for them either to extend their domains or dispose of their surplus laborers. So long had this class of farmers been accustomed to the well regulated and well disciplined system of slave labor, that they found it impossible to adapt themselves to the changed relations between the laborer and the master. Many, who had been prosperous and successful under the former condition of things, were reduced to comparative poverty under the operations of free labor, and sought new fields of business.

Naturally enough, at the close of hostilities, many farmers tried the plantation system, or the system to which they had been accustomed,

paying their farm hands by the year in money and supplying them with rations. With the high prices of produce immediately subsequent to the war, this system proved remunerative, but as the prices of the staple products declined, while the expenses of the farm remained stationary, it was discovered that some change would have to be made, either in the manner of employing labor, or in the character of the crops grown. Then followed what is called the "share system," by which the laborer is paid part of the crop instead of money, thereby decreasing the risk of the land-owner, and, as it was supposed, applying a spur to the exertions of the laborer. In some cases this worked well, but these were exceptional, and only served to show the necessity of additional reform in farm economy. It was found that under this method of employing labor, the farm could not be kept up, either in its productive capacity or in its improvements. Fences rotted down, noxious weeds and shrubs grew without limitation over the farm, and stock-raising became a thing of the past. The laborer felt disposed to work only during the active growing season, and would show a disposition to spend his time during the fall and winter months to no profit to himself or employer. And this state of things exists to a great extent at present. It is found that the amount required to procure extra labor to do what should legitimately be done by "croppers" consumes by far the largest share of the profits of the farm, and the land-owner justly feels that while the burdens of taxation and the social demands of the community rest upon him, his profits are really less than the interest on his capital invested, and are growing smaller each succeeding year. This has in a measure discouraged this class of farmers, and many of them have ceased to regard their estates as a thing of profit, but rather as an encumbrance, locking up their capital and clogging their energies. As might be inferred, there are large quantities of improved land for sale at prices that would in the states north of us be considered ruinously low—prices for which the land could not be cleared and enclosed, to say nothing of the cost of farm buildings.

There is one class of farmers, however, that is both prosperous and happy. We refer to the small farmers who own from 100 to 200 acres, and who perform the work on them themselves, hiring only occasionally during the busy seasons. This class is improving yearly. Their farms denote thrift, and they luxuriate in an abundance of all the necessaries and many of the luxuries of life. Such farmers fill up Perry, Humphreys and Dickson counties. They may be found scattered in spots in Stewart, Montgomery, Robertson and Sumner. They

form a large majority in East Tennessee, and wherever they are found, a pleasing content prevails. Relying upon their own strong arm for support, the question of labor does not affect them. Dependent upon no one, they form a class upon which the State must, in the end, rely for its solid and permanent advancement. The march of events is working out the great problem of labor. It was necessary that something should happen to divorce our people from the plantation system—a system that in times past was the very embodiment of economy, energy and productive industry—a system that moulded, in a measure, the industrial pursuits of Old England and New England, and diverted streams of capital by the certainty with which it furnished the products of the earth, but a system which is not adapted to free labor, and can never be rendered, for a great length of time, profitable, and which must be abandoned sooner or later by the people of the whole south. No system, yet tried, has given such satisfactory results as that in which the owners work their own farms. In this every inducement is held out for practicing economy, for enriching the soil, for improving the stock, and for elevating the social and intellectual status of the people.

We wish to be understood that we are speaking only of farms that are cultivated—not grass farms, nor stock farms. A thousand acres in a grass or stock farm will require but little more labor than one hundred in a tobacco or cotton farm. Additional acres on such a farm only mean an increase in the number of stock and increased labor upon enclosures. The quantity of labor required on such a farm does not increase with the size of the farm.

For the purpose of production, land should be divided approximately in proportion to the number of cultivators. A man who owns the land he cultivates takes a peculiar interest in it. He has a constant motive to improve it. To make it as productive as possible is his study, since all he makes is his own. Each man working for himself, upon his own land, will greatly increase the aggregate wealth of the State: 1st, in the increased products; 2d, in the superior quality of the products; 3d, in the increased fertility and improvement of the land.

Ownership makes men more industrious, thrifty, independent and patriotic. The character of the laborer is elevated. The character of the soil is improved. Poor sterile hillsides are reclaimed, gullies are stopped, and a thriftless laborer becomes a proud and industrious proprietor. When the mass of the people own the land they till, the motives to productive industry are brought to bear most universally.

A strong stimulus is brought to get as much as possible from the land, and at the same time improve it. Mr. Perry, in his *Elements of Political Economy*, thinks the division of the land in France a positive benefit in supplying a regular increase of agricultural products; in creating an industrious, frugal, cheerful peasantry; in the promotion of a desire and ability to purchase land; in diminishing pauperism, and consequently crime. The division of land only reaches the point where it begins to be less profitable. He compares the condition of the laboring classes of England with those of France. The want of patriotism in the former is constantly manifested by their loud complaints against the government. Having no interest in the soil, they feel little interest in the Government.

There is a widely marked and striking difference in the three divisions of the State in the economical management of the farmers. The most distinguishing characteristic of the average farmer in East Tennessee is the effort which he makes to supply what may be required for his own consumption. He is indeed a great provider of the necessaries of life. He is ambitious to live within himself. It is not uncommon on a small farm to see a patch of cotton, which the women of the household work up into cloth; a spot given to tobacco for home consumption; a field of sorghum from which syrup is made for domestic use; a few acres of wheat are raised for flour; corn and oats or hay to feed the stock, which usually consist of a few sheep to supply wool for winter clothes, cows from which a considerable revenue is derived by the manufacture of butter, and a brood-mare or two from which the farmer rears his mules and horses for farm use. Besides these, an abundance of the standard vegetables, such as cabbage, beans, peas, potatoes and onions, is raised, as well as of ducks, chickens, geese, guinea-fowls, peafowls, &c. A few bee-hives, and an apple and peach orchard, are the necessary adjuncts to nine-tenths of the farms in East Tennessee. The most striking fact in the farming operations of that division, is that no money crop, so-called, is raised. Tobacco, cotton, corn and hay, are all grown in small quantities, not so much for sale as for use. The amount of money realized by the average farmer of East Tennessee is painfully small, and yet the people in no portion of the State live so well, or have their tables so bountifully furnished. Many a farmer who lives like a lord at his table, does not realize \$200 in money from his entire farm, and this sum comes mainly from the sale of feathers, chickens, eggs, dried fruit, and occasionally a few cattle or mules. Indeed, with their strict habits of economy, the farmers of East

Tennessee have but little use for money. The wool and cotton, by the patient industry of the female members of the family, are wrought into cloth. A few hides from the beeves are tanned and made into shoes. Salt, coffee and sugar comprise almost the sum total of purchases, while a few dollars are required to meet the demands of the tax-gatherer.

The women of the rural districts, it has been said, do their own household work. It is not considered a hardship by them to cook, wash, iron, milk, churn, clean up, spin the "filling" and make the cloth for the entire family. They also make their bed-clothes, and a generous rivalry is sometimes manifested by the house-wives in the making of the neatest counterpane or window-curtain, and other articles for the ornamentation of their homes. At the annual exhibitions of the Fair in Knoxville, specimens of the handiwork of East Tennessee ladies arrest the attention of all spectators, by their beauty of design and elegance of finish. Yet, after all, it must be confessed that this constant labor is worrying to the physical frame. A woman who, in addition to bearing a house full of children, makes their clothes and does the drudgery of the whole family, shows too visibly the effects of it. There is a care-worn expression about their countenances, and oftentimes a wasted frame, that speaks too plainly of overwork, anxiety and consequent premature old age.

Almost every farm-house is situated near a spring, to which is attached the omnipresent milk-house, where the milk and butter for the family are kept during the summer, fresh and cool. A stranger, passing through the country, is always pleased at the table by the delicious coolness of the milk and the firmness of the butter. Ice-houses are scarce, the cool springs which break out from the base of the mountains supplying their place.

The character of the produce raised for sale in this division has established a barter trade, which is unequalled in extent elsewhere in the State. Almost every neighborhood has its country store, where spun-cotton, calico, salt, sugar, and coffee are exchanged for feathers, eggs, chickens, dried fruit, etc. These articles, after being thus collected in considerable quantities, are shipped to Knoxville and other points. It would astonish a farmer of Middle or West Tennessee, unacquainted with this trade, to learn to what extent it is carried on. In illustration of it, it may be mentioned that the Secretary of this Bureau, on one occasion, rode up to a little store-house, that was perched upon a steep

hillside in one of the counties remote from railroad or river communication. The house was about ten feet by sixteen, and the stock of goods consisted of such things as are named above. Upon inquiry it was found that the eggs bartered for during the preceding year amounted to \$2,200; feathers to about the same sum; chickens and turkeys, \$1,500; and dried fruit, \$2,000. These barter stores are rarely more than eight or ten miles apart, and their proprietors usually have connected with them a little farm of their own, upon which they work in the intervals of trade.

There are fields cultivated in East Tennessee that would be considered, in Middle and West Tennessee, by reason of the abundance of surface rock and their steepness, worthless for agricultural purposes, and yet the farmers in that section, like their prototypes, the Swiss, maintain that such spots are more easily cultivated, will yield more largely, and are more reliable for the production of crops than the level lands of the valleys. And indeed such a statement, with reference to the north hillsides, is not hard to believe. We have seen fields of corn upon steep slopes, where the limestone rocks almost sheeted the surface, that would yield from fifty to seventy bushels per acre. In looking at them it is hard to say which created the greatest surprise, the extraordinary luxuriance of the crop, or the ingenuity of the farmer in cultivating it. This is usually effected by using a bull-tongue plow, narrow enough to enter between the crevices of the rock and stir among the broken fragments.

The use of improved machinery, except in the valley lands, is impossible on the farms in East Tennessee. The consequence is that the implements are very inexpensive, and are frequently made at the neighborhood blacksmith shop. The valley farms are usually supplied with reapers, mowers, and horse-rakes; and resemble, in every particular, the best farms in Middle Tennessee. The growing of corn and wheat, for a long period, in East Tennessee, without proper rotation, resting or clovering, has greatly impaired the fertility of the soil. There is no better land anywhere for clover. The rich, red, ferruginous subsoils, resting in the valleys upon limestone rock, are susceptible of being kept up to a point of high fertility by the liberal use of clover. But the avarice of the farmer, or rather his stinginess to the land that so readily responds to kind treatment, has made the sowing of clover of but little benefit to the soil that grows it; for as soon as it covers the surface with its rich foliage, and the work of renovation begins by shading, herds of stock are turned upon it, and the land is left in its

nakedness to the blasting heats of a July sun which evaporate all moisture, and with it the fertilizing elements deposited while covered with the rich vestment of clover. Or, if not grazed by herds of cattle and sheep, the clover is converted into hay, so that the land receives little or no benefit from it.

As for labor in this division, it is abundant in the neighborhood of towns, and commands a less price than in either Middle or West Tennessee. It is probably also more manageable and reliable. Good farm hands can be hired about Knoxville throughout the summer months for \$10 and \$12 per month. After the corn crop is "laid by," and the wheat harvested and threshed, there is but little employment on the farms. August and September, the busiest months in the tobacco-growing counties, are those of most leisure in East Tennessee. A few farmers, taking advantage of this surplusage of labor in summer, are beginning to grow tobacco for sale.

It is a serious drawback to the farming interests of East Tennessee to have so few good roads. Usually they are execrable, and especially is this the case where the roads run transversely across the country. No successful efforts have been made to build turnpikes, though rocks are abundant and convenient for that purpose. With the exception of a few miles of McAdamized roads leading out from Knoxville, we believe there is not another in East Tennessee. Prior to the war, one, partially McAdamized, extended from Morristown to Cumberland Gap; but, though toll is still collected, its condition is such as to warrant the remark that no worse road can be found in the State. For a greater part of the distance it passes up hill and down over great limestone masses as large as a man's head, and almost impassible for wheeled vehicles. The tax the farmers indirectly pay in getting their produce to market over such roads is very burdensome, and the public mind should be directed to improvement in this particular. Wagons, passing over such roads as prevail in East Tennessee, soon wear out and break down, and teams are strained and overtaxed without doing more than half the work that they might do on smooth roads. Yet, with all this, East Tennessee farmers are blest in the general fertility of the soil, in the glory of the climate, in the excellence and abundance of the water, in the healthfulness of the country, in the sublimity, beauty, and picturesqueness of the scenery, in the extent and variety of the fruits, in the convenience and abundance of mills, in the magnificence of the forests and value of the timber, in the extent of mineral wealth, the development of which will give home



markets for their surplus products, and in that happy combination of physical agencies that develop the highest types of a noble manhood.

Unlike his brother in East Tennessee, the farmer of the Middle division, especially in the Central Basin and the richer portions of the Highlands, aims to have, in addition to the food crops, a "money crop," of either tobacco, cotton or peanuts. His anxiety is greater to secure the former than the latter, for his domestic habits are not such as to enable him to dispense with money to the same extent as the farmer of East Tennessee. As a usual rule, except in places remote from towns, he does not manufacture his clothes at home, but buys them. He does not pay as much attention to the smaller industries, nor is his everyday table supplied with such a variety of food. Milk and butter he usually produces in abundance for home consumption, but unless in the dairy business, he does not aim to produce a surplus for market. While his orchards may cover more acres, his orchard products are less remunerative. Fowls are raised in large quantities, but the money for them belongs to the housewife, and does not enter into his bills receivable. His thoughts center on his money crops, and everything, even the appearance of his farm, must yield to the imperative demands of such crops. Gates may be dragging, the palings that guard his vegetables from the incursions of fowls and swine may be missing, his orchards may be pilfered of their choicest fruits by interlopers, all these give him less concern than worms upon his tobacco, or grass in his cotton or peanut fields. He feels no disappointment at having no corn or pork to sell. He aims to make a supply. If there is a surplus, he rejoices, if not, he remains contented. He is often enlisted in public enterprises, and recognizes the fact that his bulky products are more easily carried over a McAdamized road than over a dirt one. He knows and appreciates the value of labor-saving machinery, and his farm is usually well supplied with the best of implements. His work stock are the best his purse will enable him to buy. He also inherits a love for a good saddle-horse. He rejoices in a good cotton-gin, or tobacco screw, gin-house or tobacco barn, and will take infinitely more pains to exhibit them than he will his dwelling, although his dwelling may be tasteful and elegant in its surroundings, charming with bright flowers and delicious fruits. He is fond, too, of a good stable, with a bounteous supply of provender, though stables and everything else must yield to the exactions of his "money crop." If a stock-raiser, everything is subordinated to that, it being the "money crop." The possession of a heavy purse once a year is the dream of his existence.

Energetic, thoughtful, intelligent and painstaking, he prospered under a different condition of things. He prospers yet when able to take the front row, or to carry on his farm in a systematic and orderly manner. He is not so careful of his land now as before the war; he does not value it so highly. His rotation of crops is not so regular. He can be tempted to rent out fields that in the regular order should be rested. Sometimes his clover seed runs short, and he prefers to let the unsown field lie fallow rather than to incur further expense. He is not so particular about having his fence corners clean as formerly. He is in a manner disheartened because he can rely upon no regular supply of labor. He threatens every year to seed his land to grass, but is rarely ready when seeding time arrives. He sometimes thinks of selling, but the low price of land holds him back. His improvements cost too much to sell at low figures. He is a great grumbler, but can think of no occupation that will pay him better. His enthusiasm is greatly chilled by the course of events, and yet he will confess that in a good season, with good hands, his profits are as great and as satisfactory as ever. He has State pride, and glories as much in the prosperity of the other divisions as in his own. He rarely uses the terms East, West and Middle in speaking of his State.

The farms of Middle Tennessee, as a general thing, are much better improved than in the other divisions. In the great Central Basin, a considerable proportion, probably one-third, are enclosed with either cedar or rock fences. The dwelling-houses are good, many of them elegant, some of them princely. Stock-raising and cotton-growing in this Basin are the favorite branches of husbandry. Fine stock-horses, cattle, hogs and sheep of the most approved breeds are to be found in every county. On the Highlands surrounding the Basin, peanuts, tobacco, wheat and fruits are the favorite crops. The number of turnpike roads is very large. In some of the county towns as many as ten or twelve enter. Timber in the most fertile districts is growing scarce. The capacity of the soil and variety of the crops are great. Almost every crop of the farm, when well worked, makes a remunerative yield. Labor is not sufficiently abundant, and is badly regulated. Small farms and small farmers are greatly needed and desired, and could make, with proper industry, large profits. Capitalists would find this division of the State almost, if not quite, as desirable as East Tennessee as a manufacturing region, for coal could be had in unlimited quantities from our own State, from the upper Cumberland and from the eastern coal fields of Kentucky, while the railroad and river facilities are much greater.

The average farmer of lower West Tennessee aspires to be a planter. He loves to see many broad acres in cultivation. He is ambitious and industrious, careless and energetic. He cares for nothing so much as to see his cotton fields flourishing. He does not try to raise his supplies, but stoutly maintains that he can buy them cheaper than he can make them. Debt has no such terrors for him as for the East Tennessee farmer. He will stake his all upon his prospects for cotton; chickens, eggs, butter, corn, wheat, hay, meat—all these are little things, and cotton will buy them. Cotton is the Grand Mogul of all the crops. It controls all, and buys all. Land, teams, tools, are as nothing compared with the lordly bales rolled out from the gin-house. Gullies may wash, fences may rot, houses may fall to decay, but cotton must be raised. A big crop of this staple atones for all other deficiencies. What if the fertility of the land is exhausted in one place, a large crop of cotton will buy fresh fields with virgin soil in another. Taking care of land and resting it may do for the farmer elsewhere, but time is too valuable to be wasted in this way by the average West Tennessee farmer. He can, and does spend money for fertilizers, and they are used where the cotton crop will get the full benefit. He will crop out his land, or rent it out, payable in cotton, but rarely in money. He is willing to buy mules, supply provender, advance provisions on the faith of cotton, but on no other farm product. He is inclined to be more cosmopolitan than his brothers of the other divisions; yet he cherishes a high regard for his State, but would cherish it still more if it would produce more cotton. Memphis is his pet, because it is the great cotton market. Once a year he goes down to settle with his commission merchant, clear off old mortgages and make new ones. The rise or fall of cotton in New York, or Memphis, spreads with the rapidity of lightning, and in a few hours the most ignorant farm hand smiles with the rise, or grins with the fall of that staple. The rise or fall of corn is nothing if cotton stays up. Cotton is his trade regulator.

In the more northern counties of West Tennessee, however, the average farmer is very much like the average Middle Tennessee farmer. He has his money crop, but he feels an interest in making supplies enough for home consumption. He is careful of his soil, and will feed it and nurse it with clover. He takes great delight in his corn crop, until his tobacco plants begin to press him, then the corn must stand second in his affections. He loves his hay fields, but his tobacco fields better. He is fond of rich soil, and studies the aptitudes and capacities

of the different varieties—the yellow, the mulatto and the black—and plants his various crops so that each may have the most congenial soil. There is no better farmer in the State than the farmer of northern West Tennessee. He rates his lands higher, is better contented, and is more cheerful, pays higher for labor and grumbles less about it. He raises a surplus of all food crops, but pays little attention to the smaller industries. He is fond of good stock, especially good hogs, which his magnificent corn crops enable him to rear in great quantities, unless attacked by disease. He keeps up his improvements, and has a lively faith in the future of the State.

#### DRAWBACKS TO FARMING.

There are numerous drawbacks to the prosperity of the farmer in this State, among which may be mentioned:

1. The want of active capital.
2. An attempt to cultivate too much land.
3. The want of a sufficient amount of good labor.
4. A want of faith in the profitableness of farming, and a consequent inattention to the business of the farm.
5. The expense of fencing.
6. Want of a dog law.
7. Want of home markets.
8. Want of cheap transportation.

Active capital to provide suitable labor and tools, and to enable them to hold their crops for the best prices, is probably one of the greatest needs of the farmers of Tennessee. Their crops, at maturity, are hurried into market oftentimes without proper care in the gathering, housing or handling, and under the pressure of unpaid bills, or indebtedness for labor or supplies, are sold at prices sometimes below the actual cost of production. A farmer under such pressure can neither control his labor, add to his improvements, nor keep them up. All his legitimate profits are lost. The fertility of his land cannot be increased, for to do so requires the expenditure of ready cash either for fertilizers or for clover seed. Nor is he able, under such pressure, to procure labor-saving machines, nor such breeds of stock, or such varieties of seed, or such implements as will insure the largest returns. All the profits are lost which would result in the paying of cash, and in using nothing but the best implements, cultivating nothing but the

best lands, rearing nothing but the best animals, and employing nothing but the best labor.

And the attempt to cultivate too large a breadth of land, is probably as fatal to the prosperity of the farmer as the want of means. Good tillage, next to good soil, is the very foundation of successful farming. The very laws of nature have made this a condition precedent to the gathering of abundant crops. An acre well cultivated can be made to yield as much as three half cultivated, while the amount of work would be a third greater on the latter than on the former. Nor must it be forgotten, that a large percentage of every crop is required to pay the cost of cultivation. If it takes fifteen bushels of corn to pay the cost of culture of a crop upon one acre, the farmer who only makes fifteen, reaps no profit. If it is tilled in such a way as to make twenty bushels, his profits are five bushels, and if thirty bushels are made, his profits will be fifteen bushels, or three times as great as when he made twenty. The profits begin only after the expenses of cultivation are deducted. Many of the crops now grown in the State do not pay the cost of their culture, by reason of the shiftless methods adopted.

By cultivating less land and cultivating it more thoroughly, a better opportunity is afforded for rest and rotation. The expense of fencing is lessened, as well as the amount of labor required; for in the planting of the crop, the same labor is demanded for an acre that will be badly cultivated, as for one that will be well tilled; and in the gathering of it, ten barrels can be gathered in a much shorter space of time from one acre, than to go over two for the same quantity.

The want of a sufficient amount of good labor can be best remedied by cultivating less land, for whatever tends to diminish the demand, relatively increases the supply, and as the latter increases, the efficiency and regulation of labor are promoted. If ten men are wanted and eleven apply, the ten will be more efficient, reliable, and controllable than they would be had only nine in place of eleven applied for situations. The attempt to raise crops out of proportion to the supply of labor, will diminish production by impairing the efficiency of the laborer.

And from this have followed a want of faith in the profitableness of agricultural pursuits, and a neglect on the part of many farmers to attend to their legitimate business. A farmer, like a lawyer, must give his undivided attention to his business if he would succeed. There can

be no substitute for his presence, simply because no other can feel the same interest in his business that he can. If he cannot do this, if he cannot love his pursuit, he had better abandon it. The first element of success in any business is to learn to love that business. A man should not succeed in any pursuit by neglecting it. It would be contrary to the inexorable law of our nature. Without this law there would be no incentive to ambition, to industry, to energy, or to honesty. Indolence and idleness would be as profitable as industry and energy. We might as soon expect a man to be good without being moral, or a thief to be honest while he is stealing, as for men to be prosperous without being industrious and attentive to business. How many plows have been broken, how many tools have been mislaid, how much stock abused, because the interested eye of the master has been absent! Such leaks waste the profits of a farm, to say nothing of the hours of idleness indulged in by the laborers, the slovenly character of the work done, the bad management and the want of interest felt by laborers left to themselves.

Every farmer, too, should have intelligence enough to study his soil, ascertain its capabilities, its defects, and its requirements. He should learn how to increase the first, remedy the second, and supply the third. The habit of scratching over large surfaces, and of half cultivating his crops, is one most disastrous to financial success. In place of seeking to widen his acres, he should strive to deepen them. The drifted leaves and silt that form natural compost heaps along the beds of streams, should be carefully gathered, and freely spread over the galled spots that now disfigure so many farms. Muck beds, rich in the elements of plant food, abound in many counties. These all could be utilized in the same way. More mind is demanded in the cultivation of the soil. The management of the farm is too often entrusted to those who have neither the intelligence to increase its fertility, nor the interest to preserve it. The soil, that provident mother that supplies food and raiment, comfort and affluence, is treated too much like an enemy. It is expected to surrender its rich fruits and receive nothing in return. Nature cries out loudly against such a system. Every industrial pursuit cries out against it. The tax which our farmers pay indirectly by their neglect to provide for the wants of the soil, is more than they are able to endure. When first cleared, much of the land will yield fifty bushels of corn, twenty-five of wheat, one thousand pounds of cotton, and twelve hundred of tobacco. But this yield, by slovenly and unnatural cultivation, is reduced one-half in a few years,

which is a loss of at least two-thirds of the profits. This could all be stopped by nursing the soil from the first, and not drawing upon it until the virgin fertility is exhausted, and then complaining that farming is not profitable. The process of restoration is a much slower one than that of exhaustion, while it is accompanied by an expense that the very condition of the soil will not permit the farmer to make. While the soil is fertile, two circumstances make it easy to keep it so—one, that the farmer is more able by reason of his abundant crops, and the other, that the soil will produce green crops in sufficient quantities without other fertilizers to keep up its productiveness. On the other hand, when once impoverished, the same things, working in an opposite direction, conspire to keep it in that condition. The farmer makes less, while the outlay necessary to restore the fertility is greater. Forecast, which is born of intelligence and experience, is as necessary on a farm as it is in any other pursuit or profession.

The tax upon the farmers for keeping up their enclosures is another burdensome one, and is more onerous than that of state, county and school united. In the State of Tennessee there are 10,027,762 acres enclosed, requiring 65,681,841 rods of fencing, at a cost of \$62,397,748, the interest on which, at ten per cent., will amount to \$623,977. But as this amount of fencing will have to be renewed every ten years, we may add ten per cent. more, making the total annual tax \$1,247,954, according to the estimated cost by the Commissioner of Agriculture, at Washington, which is less than one dollar per rod, and which probably is about the average cost when the worth of the timber is added to the cost of making rails, hauling, putting up, and clearing the fence corners. But there is still an additional item to be added, viz., the quantity of land occupied. Estimating a zigzag fence, of which kind there is ninety-five per cent. in the State, to occupy a width of four feet, we have nearly 100,000 acres of the best lands taken up by fences, worth at a low estimate \$1,000,000, which would rent for five dollars per acre annually, or \$500,000. Add this to the preceding estimate of the annual cost, and we have the grand aggregate, \$1,747,954. Now this tax is paid by 129,550 farmers and planters, who occupy 118,131 farms, or about \$13.50 for each farmer, or \$15 for each farm per annum. Some legislation is needed on this subject. The tax is too burdensome to be borne without complaint, while in some sections timber is growing so scarce that necessity will compel the abandonment of fences to some extent before a great while.

A law creating a pound in every civil district is also a necessity.

Roving stock often break over a legal fence, and no damages, by reason of the exemption laws, can be obtained from the owner. Instances are reported where owners of such stock wilfully turned them upon the crops of others, while the suffering party was obliged to bear the loss. The establishment of a pound would force the owner of such trespassing stock to pay the expense of impounding and keeping, and would altogether have a most salutary effect.

A dog law also would add materially to the prosperity of the farmer. Farmers will not run the risk of raising sheep as long as there are so many prowling curs in the State owned by irresponsible persons. There are about 250,000 families in the State, and it will be no exaggeration to allow one dog to each family. What will support a dog will raise a hog every year that will weigh 200 pounds, so that the people of the State lose, by keeping this large army of dogs, not less than 50,000,000 pounds of pork, or \$2,500,000 annually.

But the losses do not stop here. Not less than 30,000 sheep are killed annually by these pests, worth, say two dollars each, which will be \$60,000. Add to this the discouragements to sheep-raising. In all countries where sheep-raising is protected, and the climate suited to this branch of husbandry, there should be at least two sheep for each person. The population of Tennessee by the last census was 1,258,520. Multiply this by two, and the resulting number, 2,517,040, should represent the number of sheep in the State. But the actual number is 826,783. Deduct this from the number that, in all probability, would be raised if proper protection were given, and the loss, properly chargeable to the presence of dogs, will be 1,690,217, worth at least \$3,380,434.

But we may go further still. There are innumerable streams now wasting their strength against their rocky banks that might be harnessed and made to work up their wool into valuable stuffs, if the supply of wool was regular and constant. Ten millions pounds of wool could be grown every year in Tennessee without interfering in the least with her other industries. Allow this to be worth forty cents per pound, or \$4,000,000, and that manufacturing establishments could realize fifteen per cent. clear profit, which, with the advantages here offered, would be exceedingly reasonable, and here we may enter a loss of \$600,000.

Still further: There are in the State not fewer than 40,000 women, and an equal number of children, who can find no profitable employment on the farm or in our workshops. This labor is lost to the State,



and this class of persons is a burden upon the communities in which they reside. Take what they now cost from the profits of productive industry, and add to it the profits which they would make the State by laboring in woolen mills, and the amount would not fall short of \$50 for each person, or \$2,000,000 annually.

Now let us sum up the actual and constructive losses to the State from this negative protection to dogs, and positive discouragement to sheep raising :

Loss for feeding dogs.....	\$2,500,000
Sheep killed by dogs annually.....	60,000
Value of sheep that would be raised but for dogs.....	3,380,434
Profits of wool factories....	600,000
Losses on labor.....	2,000,000
	<hr/>
Aggregating.....	\$8,540,434

And this is what we pay for dogs annually. Let our legislators do what is right for the protection of property. If they are unwilling to do this, they are unworthy the high position to which they have been called.

Dogs and sheep cannot thrive together. The question reduces itself to very narrow limits: Shall we have sheep and prosperity, or dogs and the depravity and idleness resulting from the want of suitable employment for a large class of our citizens.

The want of home markets is a very serious impediment to the prosperity of the farmers of the State, and this can only be remedied by the establishment of manufactories. The heaviest tax paid by land and labor is that of transportation. It is estimated by Mr. Carey that corn, which would produce at market \$24.75 per ton, is worth nothing at the distance of only one hundred and sixty miles, when the communication is by means of the ordinary wagon road, the cost of transportation being equal to the selling price. By railroad this cost is reduced to \$2.40, leaving the farmer \$22.35 as the amount of tax saved to him by the construction of a railroad. Assuming the product of an acre of land to average a ton, the saving is equal to the interest at six per cent, on \$370 an acre. For wheat averaging twenty bushels per acre, the saving is equal to the interest on \$223.66, and still greater on bulkier products, such as hay, potatoes, turnips. But suppose a farmer pays even \$2.40 for transporting a ton of produce, the yield say of one acre, one hundred and sixty miles, it will be equivalent to paying the interest on land worth \$40 per acre. The average price of

the very best improved farms in the State is about forty dollars, so that it would appear that unless the farmers on such lands are able to make more than six per cent. they cannot, without loss, ship their products to a greater distance than 160 miles. Now if the products could be consumed at home, there would be the entire saving of six per cent. on the investment in land. The nearer the market the greater the profits of agriculture, and these profits increase geometrically, while the distance diminishes arithmetically. The farmer distant from market is always selling his soil, which is his capital in trade. The impoverished fields all over the cotton, tobacco and wheat regions show that this capital has, in many localities, been exhausted, and while the farmers thought they were living upon the revenue derived from the sale of their crops, they have, in fact, been living upon their capital, and find themselves at the end of a certain period with neither income nor capital, and this period is reached when the producing power of the soil is reduced to the point where the cost of cropping is more than the crops will bring in market. This point is reached much sooner in localities where the cost of transportation must be added. By bringing markets nearer and creating an active demand for the products at good prices, the producing power of the land is in effect increased.

But this is not all. Home markets enable the farmers to diversify their crops. Many products of the soil will not bear long transportation, and are yet grown very profitably when they can be sold near by. In this class may be included nearly all garden vegetables, and many fruits, besides fresh meats, milk, etc. Farmers do not diversify their crops because only a few products command a ready sale, or will bear transportation. If there were ten manufacturing establishments in the State where there is one now, the markets for their produce as well as the demand would be greatly increased, so that they could sell every bean, pea, potato, onion, peach, cherry, tomato, every pound of hay, bushel of corn, and sheaf of oats, every pound of butter, beef, bacon and fresh meats, besides their cotton, peanuts and tobacco, at enhanced prices, while they would be able to purchase their hoes, axes, rakes, plows, reapers, calico, domestic, etc., at reduced rates. The saving in the one place and the increased profits in the other, would serve greatly to better their condition and swell their gains. Land would increase in value for two reasons: 1. Because the profits from its cultivation would be increased many fold on account of the active demand for its products; and 2. Because, other things being equal, the price of land

varies as the population and nearness to market. Labor also would be more reliable, because higher prices could be paid by the farmers, and a better class of laborers secured. The best laborers always gravitate to a point where the highest prices are paid.

Next to home manufactures, the construction of competing or cheap lines of railroads, so as to reduce the freight, gives a powerful impetus to agricultural industry. The reason why railroads increase the price of lands is because they increase their value as a producing agent. Major William J. Sykes, in a recent able speech, puts the whole matter clearly in this way:

“It is done,” he says, “by cheapening the cost of transportation. This adds value to the articles grown on the land, and as the value of the productions increase the value of the land producing them increases also in the same proportion. If an acre of land produces fifty bushels of corn, and it costs fifty cents a bushel to get this corn to market, the land is taxed twenty-five dollars per acre every year to enable the farmer to get his corn to market, but if it should only cost ten cents per bushel to get the corn to market, then the farmer would only pay five dollars on each acre for transporting his produce to market, and thus save twenty dollars on each acre planted in corn.

“Cotton is worth four dollars more at Jackson or Henderson Station than at Lexington; and three dollars a bale more at Columbia than at Lewisburg, because Henderson and Marshall counties have no railroads. Peanuts were worth last year fourteen cents a bushel more at Waverly than at Centerville, because Hickman county has no railroads; it costs fifty cents a bushel more to get Hickman wheat to Nashville than it does Maury or Giles wheat, for the same reason. Let these examples suffice.

“Some entertain the opinion that it costs a man nothing to haul in his own wagons and with his own teams. What a mistake! The wear and tear of the wagons, the injury done the horses and mules, the feed of his teams, besides the cost of his labor, really amount to as much as to hire it done, to say nothing of the losses sustained by his absence from home, and his exposure in having the hauling done. Experience has shown that it injures horses and mules as much to haul farm productions a considerable distance over bad roads as it does to cultivate them. A man might say, with as much truth, that it costs him nothing to cultivate a crop with his own wagons and teams, and on his own land,

as to say that hauling in his own wagons and with his own teams costs him nothing. It costs as much to haul corn, wheat, potatoes, and such heavy articles many miles over bad roads, as it does to raise them, and sometimes even more. For these reasons we need cheap railroads in every agricultural neighborhood. The tax upon the productive industry of the country in transporting agricultural products to market is the main reason why our farmers are not more prosperous. Cannot any one see that where there is cheap transportation the land is made more valuable than where transportation is high, although the land produces the same amount of corn, wheat, cotton or potatoes. The remarks which have been made in reference to corn, apply to all other articles in a greater or less degree. Articles comparatively valueless on account of the want of railroads and the distance from market, become valuable as the cost of transportation is reduced. The reason why lands increase in price as railroads are built, is because they increase in real value. The productions of the forest, the field, and the mines depend for their value and usefulness upon cheap and easy access to good markets; and, therefore, if the stockholders should never realize any direct profits from the roads, the incidental advantages would more than compensate them for their construction."

To this able argument we may add that for the very same reasons that is, the want of transportation, persons living in counties without railroads have to pay more for articles of prime necessity, such as sugar, coffee, salt and calico. Thus it will be seen that the want of transportation cuts two ways—the farmer gets less for the products he has to sell, and pays more for the articles he is compelled to buy. To arrive at his actual losses, we shall have to add to what he loses in the sale of his products the increased price he has to pay for his supplies. Let us illustrate: say on the sale of twenty bushels of wheat he loses ten dollars—receiving twenty where he should receive thirty dollars. But this is not all his loss; for with this twenty dollars he purchases, in his county town, his supplies, for which he has to pay, say ten dollars, in excess, because the merchant has been compelled to pay this for transportation. It is plain that he thus actually loses twenty dollars on his twenty bushels of wheat, throwing away, indeed, all his profits.

#### CAUSE OF THE LOW PRICE OF LAND.

The question is sometimes asked, why is it, that, with all the natural advantages of Tennessee, real estate is so much cheaper than it is in Ohio

or Pennsylvania. This is easily answered. The want of home markets is one cause, and perhaps the greatest; another is the want of good roads and cheap means of transportation. The war broke up many farmers, and their lands were placed upon the market in such quantities as to go beyond the demand. Estates that were worth \$100,000 before the war, have been sold for one-fifth of that sum. In addition to this cause, the unequal distribution of the currency has kept money at a high rate of interest, so that capitalists were more disposed to avail themselves of those high rates than invest in real estate. Persons able to buy were thus drawn out of the market, while those who were compelled to sell, were obliged to take the best prices offered. A land panic, as it were, grew out of this state of facts, and prices tumbled in every portion of the State, except in those places where the white element predominated and the owners of the land worked it. Superadded to these causes is the fact that in the more fertile and, before the war, more wealthy counties, the laboring population, mostly negroes, have shown no disposition to save their earnings and invest them in homes of their own. In the states north, the first effort of thrifty and intelligent laborers is to amass means enough to buy homes of their own. This providence on their part creates a demand for land. Were the 150,000 laboring men of the State of Tennessee to save, each, annually fifty dollars, there would be at the expiration of each year, \$7,500,000 of surplus funds to invest in the purchase of homes, in the development of new industries, or in both. After all, it is the frugal and intelligent laborer that gives value to real estate and builds up the commercial and material prosperity and greatness of communities. The leading manufacturers of the north were once economical laborers. The great farmers of the country once held the plow handles and took the front row. With an influx of white immigrants, provident by instinct and economical from principle and training, real property would quickly rise to its true value, and their savings would not only make agriculture flourish, but would develop our matchless natural wealth, and cause the State to rise to a degree of opulence undreamed of in the past and impossible in the present condition of things.

## CHAPTER XX.

## PUBLIC SCHOOL SYSTEM.

The educational interests of the State, above all others, have for many years been a subject for the earnest consideration of the thoughtful and patriotic citizen. The spirit of intellectual progress, without some share of which communities must decay and enterprise perish, is coeval with the spirit of independence, and upon which the latter must rely for support and protection. An ignorant people cannot long resist the encroachments of power, and they soon fall into servility to superior minds, or, what is still worse, override all law, and are controlled by none of the sanctions of an enlightened conscience.

The very foundation upon which the superstructure of our Government rests, makes it the imperative duty of every citizen to see that the voter is made sufficiently intelligent to appreciate the power that he wields. The most dangerous condition of society is that in which ignorance rules. There is no security for property or life where the controlling power is ignorance, and its inseparable companions, superstition and crime. This truth the more enlightened citizens of the State quickly recognized immediately after the war, and urged upon the Legislature the necessity of making some provision for the education of the masses. A law was soon thereafter passed establishing a system of schools, but it was in advance of public sentiment, and the Legislature of 1869-70 repealed it, and substituted a county system. The members of that Legislature, reflecting the sentiments of their constituencies, saw that a tax sufficiently large to support a good system of public schools would press with great severity upon the property-holders of the State in the impoverished condition in which they were left by the results of the war.

The county system during the entire period in which it was in operation was a stupendous failure. Not more than one-third of the coun-

ties pretended to levy any tax for schools, and of those that did, a majority levied such an insignificant amount that it is a question whether it did not do more harm by interfering with private schools than it did good in furthering the cause of education. Davidson, Gibson, and one or two other counties raised a sufficient amount to sustain free schools for several months in the year, but most of the counties levying a tax were able to keep up the schools but one or two months. This was trifling with a sacred cause, and one that impeded the material progress of the State. This exclusively county system fell into disrepute with almost all persons interested in the education of the people. Meantime the degree of ignorance became greater. In many of the counties there was scarcely a school of any kind, and the appalling fact was made manifest by the census returns, that, while the white population had increased during the preceding decade only thirteen per cent., the number of white illiterates had increased fifty per cent. The fact was made known that there had been fewer schools in the rural districts in proportion to population during that decade than were ever known in the history of the State.

This added to the fact that there were 93,651 voters unable to read and write, who were likely to be manipulated in the interest of designing men, aroused the intelligent portion of the community to the necessity of more earnest efforts in the cause of free public schools. Dr. Sears, the agent for the Peabody fund, seconded their efforts with money and with advice; and by dint of lecturing, writing, and speaking, the public mind was brought to act upon this most important subject, and the Legislature of 1873 passed a general law establishing schools, and making provisions for their maintenance. It also made it obligatory upon the county courts to supplement the State aid by such an amount as would sustain the schools at least five months in the year, or submit the proposition to a vote of the people. While the law is not so liberal in some of its provisions as the importance of the subject demands, still it is a great advance over the preceding, and will doubtless form the basis of an enduring system of public schools. A brief synopsis of the law will serve to acquaint persons interested with its leading provisions.

#### SYNOPSIS OF SCHOOL LAW.

It provides for the appointment of a State Superintendent, county superintendents, and district school commissioners. The State Super-

intendent is nominated by the Governor, and confirmed by the Senate. He is allowed a salary of \$3,000 annually, an office in the capitol, and is required to devote his whole time to his duties. For misconduct or neglect of duty he is liable to removal by the Governor. His duties are to collect and disseminate information in relation to public schools; to make tours of inspection among the public schools in the State; to distribute blank forms for all returns required by law; to distribute the school law; to appoint inspectors of schools; to require reports from county superintendents, and, in case the latter fail to make reports, to appoint some one to do so; to prescribe the mode of examining and licensing teachers; to keep and preserve educational documents; to report to the Comptroller on the first day of December of each year the scholastic population; and to report to the Governor annually all information regarding the schools.

The county superintendents are elected biennially by the county courts of each county. They have supervision of the public schools in their respective counties. They are required to visit the schools, confer with teachers and district directors; to keep informed in regard to the merits of school books, though having no power to order a change of books, but can only suggest; to secure reports from the directors; to examine teachers, and issue certificates, as may be required of them by the State Superintendent; to report to the county trustees the scholastic population of their respective counties; to report to the State Superintendent all such particulars as shall be demanded; to keep a record of all their official acts. Their pay is fixed by the county courts.

The law prescribes that three district directors be elected for each school district, one going out each year, and after the first election each one holding his position for three years. The election is held on the first Thursday in August by the sheriff of each county. The directors hold their office until their successors are elected and qualified. Vacancies are filled for unexpired terms by the remaining directors. The directors are required to explain and enforce the school law, and for this purpose to visit the public schools from time to time; to employ and dismiss teachers in case of necessity; to suspend or dismiss pupils; to use the school funds in such a manner as will best promote the interest of the public schools in their respective districts; to see that the census of the children is taken; to hold regular meetings, and call meetings of the people of the districts for consultation; to keep separate and apart the schools for white and colored children; to



disburse the school funds; to take charge of the public school property, and to report to county superintendents.

The clerk and treasurer, who is elected from the board of directors, is required to take the census of all persons between six and eighteen years of age, in the month of July; to gather statistics; to keep a record of proceedings. He is furthermore required to give bond and security in such a sum as the board of directors may designate, for the safe keeping and proper disbursements of all moneys that come into his hands as treasurer. He is to keep a cash account, to keep on file vouchers, contracts, and other official papers, which shall be open to the inspection of the county superintendent and of every citizen of the district. He is allowed one dollar per day for every day of service, to be paid out of the school fund of the district.

Section 22 provides for the establishment of school districts, and invests them with corporate powers.

By section 23 public school officers and teachers are enjoined, under a penalty of not less than \$200 nor more than \$500 and removal, from having any pecuniary interest in the sale of school books, maps, furniture, and apparatus, or from acting as agent for the sale of such, or from receiving any gift for their influence in recommending or procuring the use of any of the articles mentioned, in the public schools.

All school officers going out of office are required to deliver to their successors the papers of their office, under a forfeiture of not less than \$25 nor more than \$100, and a like penalty for each month thereafter that they shall persist in withholding them, and shall also be guilty of a misdemeanor. All penalties and forfeitures shall be for the benefit of public schools. The suit for penalties is brought in the name of the State Superintendent, and if in a court of record, the district attorney is required to conduct the same.

A certificate of qualification is required of every teacher. Teachers are required to keep a daily register of facts pertaining to their respective schools. Written contracts must be made with teachers, in which must be specified the fixed rates per month. Teachers may suspend pupils until the case is decided by the district directors.

All persons between the ages of six and eighteen years, residing within the school district, and, in special cases, those residing in different districts, may attend school under such regulations as may be prescribed by the directors of the districts interested, provided, that white and colored persons shall not be taught in the same school.

Orthography, reading, writing, arithmetic, grammar, geography, elementary geology of Tennessee, and history of the United States shall be taught in every school. Vocal music may be taught. Other branches shall not be introduced except as provided for by local taxation, or shall be allowed by special regulation upon the payment of such rates of tuition as may be prescribed. The fund so derived to go into the fund for the support of the respective schools in which it may be collected.

Preference is given to graded schools. Section 33 provides for consolidation with private schools, on condition that all the branches prescribed shall be taught free.

#### THE PERMANENT SCHOOL FUND

for the State is declared to be \$2,512,500. For this a certificate of indebtedness is issued, signed by the Governor, under the great seal of the State, and deposited with the Comptroller of the Treasury. Interest at the rate of six per centum is payable semi-annually on the first of July and the first of January in each year.

To the permanent school fund are added the proceeds of all escheated property, of all property accruing to the State by forfeiture, of all lands sold and bought in for taxes, of the personal effects of intestates having no kindred entitled thereto by the laws of distribution, and donations made to the State for the support of public schools, unless otherwise directed by the donors.

Only the annual income derived from the permanent school fund can be used for the support and maintenance of the public schools.

#### THE ANNUAL SCHOOL FUND.

This shall be the interest on the permanent school fund, the money that may come into the State treasury for the purpose under present or future laws of the State, as well as the money for that purpose from any source whatever, the poll tax of one dollar upon every male inhabitant of the State subject thereto, the money arising from a tax of one mill on every dollar's worth of property in the State subject to taxation. This last tax is paid over to the county trustee in the county where collected, and distributed to each school district. State school taxes, with the above exception, are collected in the same manner as other State taxes, but the collectors, in paying over to the Treasurer, designate what part is the proceeds of the school taxes.

The law declares that when the money derived from the school fund and taxes is not sufficient to keep up a public school for five months in the year, in the school districts in the county, the County Court shall levy an additional tax sufficient for this purpose, or shall submit the proposition to a vote of the people, and may levy a tax to prolong schools beyond the five months. This tax must be levied on all property, polls and privileges liable to taxation, but shall not exceed the entire State tax. The tax so levied shall be collected as other county taxes, and distributed by the County Trustee to each school district, in proportion to the scholastic population. The State Treasurer and County Trustee are required to keep the school moneys separate and apart from state and county funds. The Comptroller is required to apportion all school moneys in the treasury, on the first Mondays in October and April of every year, among the several counties, according to their scholastic population as reported to him by the State Superintendent. The warrant for the amount due each county is drawn in favor of the County Trustee.

The County Trustee is required to keep separate accounts of the state funds and county funds, whence derived, on what account the moneys were severally derived, and by what order, on what account, and to whom they were distributed. The money received by him shall be reported immediately to the County Superintendent, and to the directors of each school district. He is also required to give bond, with surety, to be approved by the County Court of his county, in double the amount of money that may come into his hands. His compensation is one-half of one per cent. on the amount distributed by him.

Section 45 provides for the incorporation of school districts, which shall be invested with the following rights and powers:

1. To purchase and hold, in the name of their respective boards of directors, such real estate and school furniture as may be necessary for school purposes.
2. To levy a tax, not to exceed three mills on the dollar, upon property for prolonging schools, for purchasing school sites and building school-houses, and for payment of necessary school expenses, but they shall have no power to levy a tax for any other purpose.

The law also provides that when a majority of the freeholders of a district shall make application in writing to the school directors of a district to levy a tax for school purposes, stating the amount to be levied, it shall be the duty of the school directors to call forthwith a meeting of the people of the district, designating the time and place of

meeting, and giving thirty days' notice thereof, the object of the meeting, and the tax proposed, in one or more public places of the district; and if the directors shall fail to call such meeting, it may be called by any fifteen freeholders of the district, in the same manner as required by the directors.

When such meeting is assembled, it shall be the duty of the school directors, or those having called the meeting, to lay before it the purposes for which it is proposed to levy a tax; and if a majority of the legal voters of the district shall vote for a tax, the amount so voted for shall be assessed by the directors upon the property of the district subject to taxation. The school directors of the district shall appoint a tax collector to collect the taxes then assessed, and shall fix his compensation.

The collector is required to give bond in double the amount of taxes to be collected, which taxes are to be paid over to the Treasurer of the district.

All sums of money derived from the State or county funds, which are unexpended in any year in any public school district, are required to be placed in the hands of the County Trustee, for redivision the next year, but the sums derived from district assessment are not subject to redivision outside of the district.

Section 51 provides that none of the provisions of the law shall be so construed as to interfere with schools or school systems already established in cities or incorporated towns, or conflict with the chartered rights, by virtue of which funds for their support are being received, raised, and distributed, or to limit them as to the power to extend the course of study, it being intended to encourage the establishment of public high schools, when the population justifies it, as a means of perfecting the grading and elevating the standard of scholarship. The law provides that all such schools shall receive their *pro rata* shares of money, raised under the provisions of the act, according to their scholastic population.

Such are the leading provisions of this law—a law which, in some respects, is a compromise between a county system and an exclusively State system. While the smaller and poorer counties preferred a State system throughout, the more wealthy and populous counties preferred the county system, and it was found impossible to enlist the representatives of the latter in favor of any law that did not retain some of the features of the county system, whereby the money collected in the respective counties should be expended where collected. The result was the

present law, with two separate and distinct funds, totally independent of each other, yet each distributed in proportion to the scholastic population. The proceeds of the permanent school fund and the poll tax are distributed to the counties by the Comptroller, while the sum derived from the levy of one mill on each dollars' worth of property, as well as that raised by county taxation, is distributed by the County Trustee. The money raised by each district is entirely under the control of the directors of that district.

Not more than thirty-five counties at the present time (May, 1874,) have levied a tax for school purposes. The question in others has been submitted to the people. It cannot be disguised that the Civil Rights Bill, now pending before Congress, has had a very damaging effect upon the school interests of the State. Many eager and zealous friends to the cause have ceased to work for it until the fate of that bill is made known. A large number of counties postponed action on that account. It cannot be doubted that the passage of that bill would ruin the public schools in the State, and give a blow to educational prospects in the south, from which it would not recover for generations. Prejudice cannot be removed by legislation. Of all the qualities of the human mind, it is the most tenacious and the most difficult to eradicate. It conquers judgment and masters the will. It is made powerful by custom and long usage. Statesmen in all ages have recognized this fact, and have guarded against intensifying it by legislation. The passage of the Civil Rights Bill, while it cannot possibly benefit the class for which it is intended, would be a severer stroke to education than even the war itself. Ignorance would be increased, virtue and intelligence among the masses would be diminished, and a corrupt and depraved society, composed of two incongruous and incompatible elements, would keep back the State in all its prosgreive movements, whether intellectual or material. The majority of the citizens in this State are white. They are able to sustain private schools. While the white population numbers 936,119, the colored numbers only 322,331, or about one-fourth of the whole. Can the colored population be educated without public schools, and would public schools be established and maintained under the effects of this Civil Rights Bill? This is the practical question. The ostensible friends of the colored race in this movement, are showing themselves to be indifferent to their intellectual progress in pressing this bill. If public schools are destroyed, what shall prevent the colored race from becoming the victims of ignorance and stupidity? Who shall provide private schools for their instruction?

What possible good, theoretical or practical, social or otherwise, can be accomplished by having a system of mixed schools. Discord would be generated, factions will spring up, prejudice would be nursed, and the whole social structure would be shaken to its very center.

With such a delicate question, enlightened statesmen should deal gently. The application of force in this particular, under the color of securing rights, would be accompanied with evils so much greater than that intended to be corrected, that it would be like blotting out the sun in order that a tallow dip might send its feeble rays over the world. Whose rights are impaired under the present system? If colored children are refused admittance into white schools, so white children are denied places in the colored schools. As well might the farmer be declared inimical to his cows, because he does not permit them to occupy the same enclosure with his horses. The white and colored children of the State have claims upon it, as the cattle and horses have claims on the farmer, and like the farmer, the State should place them in positions where both will receive the greatest benefit. By keeping the schools separate, both races will be advanced, and a spirit of healthy emulation will spring up, and the very prejudice that exists may be made a powerful lever in forwarding the improvement of both races.

The school system of the south had just begun to unfold itself like the beautiful bloom that presages the fruit. The Civil Rights Bill, like the threatening of an untimely frost, has shed its withering and blighting influence over it. If that becomes a law, now or hereafter, all the rich fruitage which a system of public schools would assure, will be destroyed beyond redemption. If the bill be passed, no power on earth can revitalize that bloom, which, to the people of the south, is the germ of progress and enlightenment, the avenue to the "treasures of knowledge, the delights of learning, the comforts and sweets of domestic life, and the incalculable joys of our rational existence."

The following counties have levied taxes in addition to the State tax :

*Bedford.* Eighteen cents on each one hundred dollars, and one dollar on polls.

*Bledsoe.* Fifteen cents on each one hundred dollars.

*Clay.* Ten cents on each one hundred dollars, and one dollar on polls.

*Davidson.* Ten cents on the hundred dollars, one dollar on polls, and forty cents on merchants' largest stock.

*Dyer.* Ten cents on the hundred dollars, one dollar on polls, and one dollar on each marriage license.

*Franklin.* Twenty cents on the hundred dollars worth of realty, and fifty cents on polls.

*Giles.* Fifteen cents on the one hundred dollars, one dollar on polls, and one-fourth of the county levy on privileges.

*Gibson.* Twenty-five cents on the hundred dollars worth of property.

*Grundy.* Thirty cents on the hundred dollars, forty cents on polls, and one-third the State privilege tax.

*Hamilton.* Five cents on the one hundred dollars worth of property, and one dollar on polls.

*Hamblen.* Five cents on one hundred dollars worth of property, fifty cents on polls, and ten cents on privileges.

*Harkins.* Ten cents on one hundred dollars personal property, ten cents on one hundred dollars of merchants' stock, and twenty-five cents on polls.

*Haywood.* Five cents on one hundred dollars, one dollar on polls and marriage licenses, and the State tax on privileges.

*Hardeman.* Fifty cents tax on each dog, and fifty cents on polls.

*Humphreys.* Twenty cents on each one hundred dollars worth of property, one dollar on polls, and one-half the State tax on privileges.

*Houston.* Twenty-five cents on each hundred dollars worth of property, one dollar on polls, fifteen dollars on each tippling house, five dollars on each merchant, and one dollar on each marriage license.

*James.* Ten cents on one hundred dollars, fifty cents on polls, and one mill on privileges.

*Knob.* Ten cents on each one hundred dollars worth of property, one dollar on polls, and ten cents per hundred dollars on merchants' greatest capital.

*Lake.* Ten cents on property, one dollar on polls, and two dollars on dogs.

*Loudon.* Ten cents on each one hundred dollars worth of property.

*McMinn.* Five cents on each one hundred dollars worth of property, and one dollar on polls.

*McNairy.* Ten cents on each one hundred dollars worth of property, and one dollar on polls.

*Maurry.* Five cents on the hundred dollars, and one dollar on polls.

*Montgomery.* Five cents on each hundred dollars worth of property.

*Monroe.* Ten cents on each one hundred dollars worth of property, and one-half the State taxes on privileges.

*Obion.* Twenty cents on property and privileges, and fifty cents on polls.

*Roane.* Fifteen cents on the hundred dollars, and one dollar on polls.

*Robertson.* First of January, 1874, there were assessed twenty cents on the hundred dollars, one dollar on polls, and fifty per cent. of State tax on privileges. The April term repealed the tax and submitted it to the people.

*Sevier.* Ten cents on property, and twenty-five cents on polls.

*Shelby.* Five cents on one hundred dollars.

*Stewart.* Twenty cents on property, one dollar on polls, and a tax on privileges equal to State tax.

*Sumner.* Fifteen cents on property, and one dollar on polls.

*Washington.* Twenty cents on property, and one dollar on polls.

*Wayne.* Ten cents on property, and one dollar on polls, and one-fourth the State tax on privileges.

*Williamson.* Five cents on property, one dollar on polls, and one-half the State tax on privileges.

Most of the counties will be able to carry on schools for five months in the year, a few of them six months, and one or two ten months.

SCHOLASTIC POPULATION FOR THE YEAR 1873, BETWEEN THE AGES OF SIX AND EIGHTEEN.

EAST TENNESSEE.

Counties.	Population.	Counties.	Population.
Anderson.....	2,869	Knox.....	9,193
Bledsoe.....	1,689	Loudon.....	2,559
Blount.....	4,449	Marion.....	2,409
Bradley.....	3,332	McMinn.....	4,764
Campbell.....	3,125	Meigs.....	1,624
Carter.....	3,099	Monroe.....	4,219
Claiborne.....	3,682	Morgan.....	1,024
Cooke.....	3,897	Polk.....	2,508
Grainger.....	3,424	Rhea.....	1,911
Greene.....	6,505	Roane.....	4,004
Hamblen.....	2,571	Scott.....	1,522
Hamilton.....	4,633	Sequatchie.....	776
Hancock.....	2,363	Sevier.....	4,153
Hawkins.....	5,345	Sullivan.....	4,696
James.....	1,440	Union.....	2,604
Jefferson.....	4,433	Washington.....	5,059
Johnson.....	2,054		



## MIDDLE TENNESSEE.

Counties.	Population.	Counties.	Population.
Bedford .....	7,483	Macon .....	2,389
Cannon .....	3,395	Marshall .....	5,399
Cheatham .....	2,191	Maury.....	11,241
Clay .....	1,844	Montgomery .....	7,575
Coffee .....	5,630	Moore.....	2,383
Cumberland.....	1,285	Overton .....	3,335
Davidson .....	21,193	Perry.....	2,314
DeKalb.....	4,012	Putnam.....	3,420
Dickson.....	3,162	Robertson.....	5,345
Fentress.....	1,705	Rutherford .....	10,508
Franklin .....	4,519	Smith .....	4,839
Giles.....	9,484	Stewart .....	3,463
Grundy .....	1,453	Sumner .....	6,515
Hardin.....	4,312	Trousdale.....	1,705
Hickman .....	3,418	Van Buren.....	904
Houston.....	1,233	Warren .....	4,298
Humphreys .....	3,123	Wayne .....	3,313
Jackson.....	3,227	White .....	3,264
Lawrence.....	2,676	Williamson .....	7,685
Lewis.....	620	Wilson .....	8,062
Lincoln.....	7,432		
			<hr/>
			189,354

## WEST TENNESSEE.

Counties.	Population.	Counties.	Population.
Benton... ..	2,841	Henry .....	6,530
Carroll .....	5,697	Lake .....	899
Crockett.....	3,867	Lauderdale.....	3,448
Decatur.....	2,357	Madison.....	7,566
Dyer .....	4,301	McNairy .....	5,007
Fayette .....	8,533	Obion .....	5,860
Gibson .....	8,844	Shelby.....	23,810
Hardeman .....	5,943	Tipton .....	3,827
Haywood.....	6,401	Weakley .....	6,129
Henderson.....	5,136		
			<hr/>
			116,996

## RECAPITULATION.

East Tennessee .....	111,835
Middle Tennessee.....	189,354
West Tennessee.....	116,996
	<hr/>
Total.....	418,185

## EAST TENNESSEE.

School districts in East Tennessee, except Monroe county.....	573
White schools organized.....	1284
Colored schools organized.....	149
	<hr/>
Total schools organized.....	1433

Number of pupils enrolled, white.....	58181
Number of pupils enrolled, colored.....	4984
Total enrolled in East Tennessee.....	63165

Teachers licensed, white, male.....	1254
Teachers licensed, white, female.....	237
Teachers licensed, colored, male.....	97
Teachers licensed, colored, female.....	33
Total teachers licensed.....	1721

*Number of Teachers employed in East Tennessee.*

White, male.....	1205
White, female.....	199
Colored, male.....	80
Colored, female.....	33
Total number teachers employed.....	1517

## MIDDLE TENNESSEE,

*(With the exception of Montgomery County.)*

School districts.....	775
White schools organized.....	1697
Colored schools organized.....	327
Total schools.....	2024

*Number Pupils Enrolled between Six and Eighteen.*

White.....	71108
Colored.....	14245
Total.....	85353

Teachers licensed, white male.....	1541
Teachers licensed, white female.....	414
Teachers licensed, colored male.....	237
Teachers licensed, colored female.....	133

Total.....	2325
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Teachers employed, white, male.....	1398
Teachers employed, white, female.....	410
Teachers employed, colored, male.....	217
Teachers employed, colored, female.....	113

Total.....	2138
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## WEST TENNESSEE,

*(Except Tipton, which failed to give the number enrolled.)*

School districts.....	433
White schools organized.....	489
Colored schools organized.....	113

Total schools organized.....	602
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Pupils enrolled between six and eighteen, white.....	20288
Pupils enrolled between six and eighteen, colored.....	4295
Total enrolled.....	24583
Teachers licensed, white, male.....	472
Teachers licensed, white, female.....	166
Teachers licensed, colored, male.....	93
Teachers licensed, colored, female.....	46
Total.....	777
Teachers employed, white, male.....	380
Teachers employed, white, female.....	177
Teachers employed, colored, male.....	70
Teachers employed, colored, female.....	47
Total.....	674

## TOTAL FOR THE STATE,

(Except *Monroe, Montgomery and Tipton.*)

School districts.....	1781
White schools organized.....	3470
Colored schools organized.....	589
Total schools organized.....	4359
Pupils enrolled between six and eighteen, white.....	149577
Pupils enrolled between six and eighteen, colored.....	23524
Total.....	173101
Teachers licensed, white, male.....	3367
Teachers licensed, white, female.....	817
Teachers licensed, colored, male.....	427
Teachers licensed, colored, female.....	212
Total.....	4823
Teachers employed, white, male.....	2983
Teachers employed, white, female.....	786
Teachers employed, colored, male.....	367
Teachers employed, colored, female.....	193
Total.....	4329

For many of the above facts the Bureau is indebted to the courtesy of Col. Fleming, State Superintendent of Public Instruction.

It may be added, that the private schools of this State are of a high order, and well supported. All the religious denominations have one or more institutions of learning, each, under their supervision and control. There are also three so-called State universities, one in each division of the State. The Cumberland University, at Lebanon, has

established a well earned fame by the thoroughness of its instruction, and is especially noted for its legal department. The Sewanee University, beautifully located in Franklin county, on the Cumberland Table Land, gives promise of extended usefulness, and doubtless in a few years will be as richly endowed as any in the State. The Vanderbilt University, the buildings for which are now being erected in Nashville, will be richly endowed. Mr. Vanderbilt, of New York, has donated to it \$500,000, and the Methodist Church, South, is making efforts to raise \$500,000 additional. The Presbyterians are striving to locate the Southwestern University at some point in the State. Clarksville, in Montgomery county, offers over \$150,000 to have it located at that point. It is a fertile, healthy, accessible region, and well suited for the seat of a university. It is understood that an endowment of \$500,000, if not already, will soon be secured for this institution. The Baptists are also taking steps to establish a first-class university, with ample endowment; and it is thought that the northern branch of the Methodist Church will shortly establish one in Knoxville, with an endowment also of \$500,000. Fisk University, located at Nashville, by the colored people, is being handsomely endowed, mainly from the north.

Besides these colleges and universities, there are a dozen or more flourishing schools for young ladies. It cannot be doubted that Tennessee will become the great educational center of the Mississippi valley, and that it will have invested, in a few years, more than \$10,000,000 in institutions of the highest order.

## CHAPTER XXI.

## A WORD TO IMMIGRANTS.

In a work, the object of which is to give a plain, practical statement of the resources of the State, it is altogether proper that some space should be given to that class of persons desirous of seeking homes in this State, and upon whom it must, in a great measure, rely in the future for its material progress. That many have come to the State, and have to some degree become dissatisfied, we have no purpose or intention of denying. But this discontent has arisen in nearly every instance from the want of the exercise of proper judgment in the selection of their places of residence, or from the inherent sterility of the soils upon which, in consequence of their great cheapness, they have been induced to occupy. Let it be understood, once for all, that the productive, improved lands of this State, favorably located with respect to markets and transportation, cannot be bought for one dollar nor five dollars per acre. Good lands, upon which an industrious, hard-working man may grow rich, are to be found in every division of the State, but these lands are worth from eight to fifty dollars per acre, according to improvements and location. Good unimproved lands may be bought for half this price. Good soils are, in the end, the cheapest. An acre of land that will produce fifty bushels of corn is far cheaper at thirty dollars than an acre that will produce only twenty bushels, though the latter may have cost only ten dollars. The work required to cultivate each is just the same, which may be set down as worth fifteen bushels of corn. In the first instance the farmer will make thirty-five bushels, in the latter five bushels, after deducting the worth of his labor. So that, although the higher priced lands cost three times as much, the profits are seven times as great. But the expenses do not stop here. The cost of improvements and the demands of the family, are as great on the poor soils as on the rich, and this expense will, unless a rigid economy is practiced, in nine cases out of ten eat up the profits and leave nothing to the tiller of the poor soils. Hence follows dissatisfaction. Immigrants who have sold their farms in Ohio, Penn-

sylvania, and New York for fifty or one hundred dollars per acre, ought not to expect to purchase lands of as good quality in this State for one-tenth the prices realized in the northern states. There is no reason for such expectation. This much may be said truthfully. Lands equally as productive, and with greater aptitudes, and in a better climate, can be bought from fifty to seventy-five per cent. cheaper here than in the north, and this arises from a variety of causes, among which may be mentioned :

1. The great quantity of land for sale, in consequence of the destruction of the labor system and the scarcity of labor.

2. Because a large proportion of our old farmers can never adapt themselves to the change from slave labor to free labor, and are therefore anxious to retire from the occupation of the farm.

3. Farming is not profitable unless the owner can "either hold himself or drive," and this is what many farmers cannot get their consent to do, and are consequently not prosperous. Though every farmer who works thrives, and such constitute a large majority.

There is no question that the advantages which this State offers to men able and willing to work are very great. They can have rich soils, healthy climate and good markets. There is scarcely a product of the farm that does not sell twenty-five per cent. higher here than in Illinois and Ohio. Corn, wheat, oats, hay, butter, cheese, are all made in the north-western states and shipped to Tennessee, and through it to the southern markets. Why should not the inhabitants of those states remove nearer their market and save transportation, and where the same knowledge of business and attention to it will produce equal results? Why not possess themselves of soils equally as productive at half the price? Are not these sufficient inducements, not to mention a thousand others?

Below is a statement framed in the experience of a large number of small farmers in the State who occupy good soils :

100 acres of the best land, at \$30.....	\$3,000 00
2 mules to work same, at \$150.....	300 00
1 two-horse wagon and gear.....	150 00
2 plows and gear.....	20 00
Other necessary farming implements.....	25 00
125 bushels corn, at 50 cents.....	62 50
300 pounds of pork, at 5 cents.....	15 00
1200 bundles of oats, at 2 cents.....	24 00
Seed wheat and oats.....	35 00
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	\$3,631 50
Add for interest on disbursement.....	300 00
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Total investment.....	\$3,931 50

On land of the quality to be had for the price mentioned there can be raised by one man, with the exercise of proper industry, in an average seasonable year:

* 3 acres of tobacco, averaging 800 pounds, at 7 cents.....	\$168 00
10 acres of wheat, 15 bushels per acre, 150 bushels, at \$1.....	150 00
5 acres of hay, producing 8 tons, at \$20.....	160 00
15 acres of corn, 40 bushels per acre, 600 bushels, at 50 cents....	300 00
8 acres in oats, 30 bushels per acre, 240 bushels, at 50 cents.....	120 00
1 acre sweet potatoes, 100 bushels, at \$1.....	100 00
1 acre Irish potatoes, 150 bushels, at \$1.....	150 00
Beans, peas, etc.....	50 00
	\$1,198 00
Total.....	\$1,198 00
Deduct value of labor.....	200 00
	\$ 998 00
There remains.....	\$ 998 00

The profit on this investment is over twenty-five per cent. In this, no account is taken of profits that might be made in converting the provender into stock, the sales from the poultry yard, apiary, orchard, and many other items that a thrifty farmer might add to the list. No farmer will say these are over-estimates, on good soils well worked. But it may be asked, if such profits can be made, why do not the farmers grow rich in the State? Why do they complain so much of poverty, and why do they have so little money? We think this can be easily answered.

In the first place, it is not true that they have no money; and if they have none, it is because they do not work themselves, but rely upon hiring the entire force employed on the farm. In the present disorganized condition of labor, and the want of attention given to their business by a certain class of farmers, they do well to get a support for their families. How much better would a merchant or mechanic do who would sit idly in his house, and leave all his business to the control of irresponsible agents? The wonder is that such farmers do so well, or make so much.

In the second place, many farmers cultivate too much land, and do not have it in good tilth. The crops are therefore meager, unsatisfactory, and unprofitable.

In the third place, however extravagant a farmer's family may be, he does not consider that his farm makes anything unless he has a surplus left after paying all the family expenses.

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\*In place of tobacco six acres of cotton may be substituted, which ought to yield, with good tillage, at least 250 pounds of lint cotton per acre, or 1,500 pounds at 12 cents, \$180 00.

In the fourth place, many farmers pay taxes on a large quantity of woodlands that do not contribute a dime to their incomes. The capital invested in such lands is worse than dead, inasmuch as it entails an annual expense in the shape of taxation.

In the fifth place, farmers rely too much upon the virgin fertility of the soil, and there is but little saving or making of manure, and but few farmers will even haul out that which accumulates about their stables.

We do not wish to mislead any one who desires to settle in this State, and we would not have them disappointed after arriving here. To say the least, this course would be the very worst possible policy. There are hundreds of industrious men in the State of Tennessee who have bought small farms, and paid for them with their own labor in the short space of four years, besides supporting themselves comfortably. They did it by rigid economy, by indefatigable industry, by the exercise of a proper judgment and a wise forecast. They did it by hard, patient, and persistent toil, not greater, however, than thousands in the northern states practice every year. The very fact that Tennessee can grow such a variety of crops, makes it patent that the farmers, with the same labor and industry, can make here a greater profit than in the north. His cattle and hogs do not require to be fed so long, the number of days suitable for outdoor work is greater, the amount of capital required to be invested is less, and the price for a majority of his products higher. Is there any good reason why they should not be prosperous?

A strange hallucination sometimes takes possession of the minds of many northern immigrants upon their arrival within the State. Not only do they expect to get lands of the same productive capacity for about one-tenth what they are worth in New York; not only do they expect to have a winter so mild as to make the feeding of stock unnecessary; but they cherish the hope that their labors will be greatly lessened, while their profits will be greatly increased. Now this hallucination should be dispelled. There has been no country yet found in which men can be thrifty without work. It is a law as inexorable as the law of gravitation that man shall eat bread in the sweat of his face, and in shirking labor he shirks thrift, independence, and moral rectitude. Land is cheap, the winters short, the products varied, the markets good, but work is necessary to attain success in this as in other pursuits.



The question is often asked, through letters and otherwise, how will the people of Tennessee receive northern men and women? As kindly as they deserve. If they come to stir up strife between the races, they will not, and should not, be respected. If they come to live by their wits, and, by making false representations to the Government, to secure a fat office, they will not, as they should not, be respected. If they come to preach the unutterable turpitude and sinfulness of the former slaveholder, and to set themselves up as examples of virtue and unstained purity, they will not, and should not, be respected. But if they come with earnest hearts, and willing hands, and cheerful voices, to help build up the prosperity of the State, be their politics what it may, be their religion what it will, they will be received with all the heartiness and all the civility that it is possible for a gallant people to exercise. They will be welcomed with open hands, and encouragement and sympathy will be given them by every intelligent man and woman in the State. Instances could be given, and names mentioned of persons who fought in the Union armies, who would be sent to Congress to represent the people against whom they fought, or other positions given them of honor and profit if they would accept. The prejudices of the war have vanished, except in some dark corners of the State where the facilities of intercommunication are scarce, and where ignorance broods, and prejudice is nursed, as an evidence of patriotism. Yet even such places as these are difficult to find. The great body of the citizens sincerely wish for a denser population, and would give to worthy men and women every attention in order to make them comfortable and happy in their new homes.

It is also asked whether it would be best for immigrants to come singly, or in groups, or colonies. Experience has shown that, not only in this State, but in every State, they are better satisfied, and go to work more earnestly and vigorously when they have the companionship of some of their old friends and neighbors. Not less than six or eight should come at once. Lands in sufficient quantities may always be secured in one neighborhood to settle several families. Coming in groups, they are usually independent. They have a society of their own. The transition is not so sudden. The feeling of loneliness is dispelled, and they do not feel so much like strangers in a strange land. But they should not practice an exclusiveness. They should lay aside whatever prejudices they may have inherited or imbibed, if they expect others to do the same. Like begets like. A cold, suspicious, distant demeanor on the part of immi-

grants will beget the same on the part of the natives. They should come, not claiming Ohio, Pennsylvania or New York as their homes, but should at once throw themselves into sympathy with all the movements looking to the welfare of their adopted State—be citizens of it, willing to endure the hardships, enjoy the privileges, and partake of the glory of the hour. The past, with all its bitter acrimonies, and enmities, should be ignored. Kindly and courteous intercourse should be cultivated. They will find the people of this State as tolerant of opinion as they are anywhere. They will find the observance of law and order as general as in the northern states. They will find that there is no distinction made on account of birthplace; that intelligence, honesty and moral worth are the only passports needed to be received into the best society.

Here, as elsewhere, immigrants are sometimes imposed upon by unscrupulous men. Real estate is sometimes sold for more than it is worth, but this is not done half so often as in the north-western states, simply because the great amount of land for sale, and the competition between sellers, make them, in nine cases out of ten, more eager than the buyers. By the payment of one-third or one-fourth of the purchase money, time extending through two, three and even four or more years, can be had for the payment of the remainder. Usually, however, interest, varying from six to ten per cent., is demanded on the deferred payments. By paying all cash, a deduction is often made of from ten to twenty per cent. The farmers of the State are usually "land poor." The weight they are carrying is too great. They need relief, which can only be obtained by selling off portions of their lands to immigrants, and investing the money where it will be more easily controlled and will yield a larger per cent. than in surplus lands. This they are anxious to do.

There is another error that prevails to some extent among the people of the north, and this error has been industriously circulated to our prejudice, by a class of pot-house politicians, who bank upon prejudice, and whose occupation would be destroyed if the simple truth were told. It is to the effect that the people of this State do not respect laboring men. There was a time perhaps, when labor and servility were associated somewhat together, but the fiery crucible through which the State has passed has purified public sentiment in this particular. The horny hand and brawny arm and stalwart form, if connected with honesty, intelligence and moral worth, augment rather than diminish respect. The truth is being clearly recognized that the

man or State incapable of labor is incapable of greatness; that labor is the living soul of nations as of individuals; that in proportion as men discard labor, just in that proportion do they revert to the condition of the savage; that labor is the true index of civilization, and that without it civilization itself would be lost. The pernicious doctrine, that it is not respectable to labor, has ceased to be taught; on the contrary, the disgrace of indolence is daily discussed. The respectable idler is becoming scarce. His supports are growing feebler each year. His hold upon society is lost. Whether as a lawyer, a doctor, a merchant, a mechanic, or a farmer, if his indolence is so great as not to make a support, he is flouted at by society, shunned and disrespected. On the other hand, diligence, economy and attention to business will soon assure a high place in the estimation of the community. Some of the brightest lights in the State were once mechanics. Money alone, however, has no power to purchase respectability; nor poverty such a disgrace as to work a forfeiture of it, unless the poverty is the result of indolence and inattention to business.

An impression prevails extensively north, that the people of the State of Tennessee are exceedingly ignorant. To a certain degree this is true. The number who can neither read nor write is a burning shame to the legislation of the State, and yet it would be difficult to find in any State in the Mississippi Valley more really educated men and women. Those who are educated at all, are usually well educated. The people in respect to education may be classed thus: The negroes, who are almost totally uneducated; the poorer white classes who live in sparsely settled districts, remote from schools, and who have never had the means or opportunity to educate themselves or their children; and lastly, those who have had school facilities, either public or private, afforded them. The latter class are usually as well instructed as any class of people in the United States. The second class are beginning to reap the benefits of free schools, and as the population becomes more dense, their advantages in this particular will be increased. The first class are making commendable progress, and institutions of learning are springing up in every portion of the State for their benefit. Of course it will be a question for immigrants to decide whether they will prefer cheaper lands without school facilities, or higher lands with ample opportunities for the education of their children. By high priced lands we mean those ranging from fifteen to forty dollars. It may be said, in this connection, that at present there is not a civil district in the State that does not have a free public school taught from two to ten

months in the year. The provisions of the school law are such that each civil district may be incorporated and any additional tax levied, provided, it does not exceed thirty cents on the \$100, to prolong the schools beyond the time which the public funds, derived in other ways, will support them.

There is still another error disseminated to the prejudice of the people of the State. It is, that a secret society, known as the Kuklux, exists in the State, and that persons who are obnoxious are maltreated and driven away by these secret emissaries. There never was a baser slander perpetrated upon any State than this, so far as Tennessee is concerned. There is not a respectable man in the State of Tennessee who would tolerate for a moment such an unlawful, atrocious and mischievous society as this is represented to be. There have been fewer outrages committed against persons or property in the State of Tennessee, during the past five years, than in any other State in the Union. Public sentiment is so strongly enlisted in favor of the preservation of the peace of society, that no man, however bad or however reckless, would dare for one moment to place himself in such an obnoxious attitude, as to declare himself in sympathy with the shadowy, visionary and diabolical band of Kuklux and their alleged atrocities, and thus exhibit himself an enemy to law and order. Our courts of justice are amply sufficient to preserve order and insure justice, and they do the first and render the second. All fears in regard to such an order are groundless. Ten thousand persons in the State would be willing to enter into bond to guarantee protection to the life, person and property of all industrious, honest, sober immigrants, whether they come from the north or from Europe. Quiet and order are the foundation stones of good society. The people of the State recognize the freedom of every man in his opinions, and will protect and defend him in the maintenance of them.

Another error propagated, is, that the State is deeply in debt, and that taxation, of necessity, must be burdensome. A bare statement of facts will serve to correct this error. Taking the census reports of 1870 as our guide, in a comparison of the states, because the figures given in these reports are more accurate and more reliable in every respect than any others within reach, we find, first, the following as showing

THE SHARE PER HEAD OF WEALTH.

1. New York.....	\$1 483 27	5. California.....	1,140 15
2. Massachusetts.....	1,463 03	6. Pennsylvania.....	1,081 31
3. Connecticut.....	1,441 30	7. New Jersey.....	1,038 49
4. Rhode Island.....	1,366 28	8. Ohio.....	838 73

9. Illinois.....	835 73	24. Kansas.....	518 36
10. Maryland.....	824 37	25. Kentucky.....	457 46
11. New Hampshire.....	793 66	26. Louisiana.....	444 51
12. Delaware.....	777 35	27. West Virginia.....	431 32
13. Indiana.....	754 58	28. TENNESSEE.....	395 89
14. Missouri.....	746 48	29. Virginia.....	334 31
15. Nevada.....	732 72	30. Arkansas.....	322 81
16. Vermont.....	711 99	31. South Carolina.....	294 99
17. Wisconsin.....	665 90	32. Mississippi.....	252 67
18. Michigan.....	607 41	33. North Carolina.....	2 3 39
19. Iowa.....	601 03	34. Florida.....	235 23
20. Oregon.....	567 06	35. Georgia.....	226 47
21. Nebraska.....	563 26	36. Alabama.....	202 46
22. Maine.....	555 35	37. Texas.....	194 30
23. Minnesota.....	520 70		

TAXATION UPON EACH \$1,000 (TRUE VALUE) OF PROPERTY.

1. Nevada.....	\$26 34	20. Maryland.....	\$10 30
2. Louisiana.....	21 85	21. Illinois.....	10 28
3. Arkansas.....	18 33	22. Georgia.....	9 79
4. Mississippi.....	17 86	23. Kentucky.....	9 48
5. Maine.....	15 36	24. Vermont.....	9 07
6. Nebraska.....	14 83	25. West Virginia.....	9 03
7. Alabama.....	14 77	26. North Carolina.....	9 02
8. Kansas.....	14 15	27. Indiana.....	8 52
9. South Carolina.....	13 30	28. New Jersey.....	7 88
10. New Hampshire.....	12 88	29. Connecticut.....	7 83
11. Iowa.....	12 62	30. Wisconsin.....	7 67
12. California.....	12 25	31. Michigan.....	7 52
13. Massachusetts.....	11 68	32. New York.....	7 47
14. Minnesota.....	11 57	33. Rhode Island.....	7 31
15. Oregon.....	11 26	34. Texas.....	7 10
16. Virginia.....	11 26	35. TENNESSEE.....	6 79
17. Florida.....	11 22	36. Pennsylvania.....	6 44
18. Missouri.....	10 82	37. Delaware.....	4 30
19. Ohio.....	10 52		

TAXATION PER HEAD.

1. Nevada.....	\$19 30	20. Indiana.....	\$ 6 42
2. Massachusetts.....	17 10	21. Oregon.....	6 39
3. California.....	13 95	22. Minnesota.....	6 20
4. Connecticut.....	11 28	23. Arkansas.....	5 91
5. New York.....	11 07	24. Wisconsin.....	5 10
6. New Hampshire.....	10 22	25. Michigan.....	4 57
7. Rhode Island.....	9 98	26. Mississippi.....	4 51
8. Louisiana.....	9 71	27. Kentucky.....	4 34
9. Ohio.....	9 33	28. South Carolina.....	3 92
10. Illinois.....	8 59	29. West Virginia.....	3 89
11. Maine.....	8 53	30. Virginia.....	3 76
12. Maryland.....	8 49	31. Delaware.....	3 34
13. Nebraska.....	8 35	32. Alabama.....	2 99
14. New Jersey.....	8 18	33. TENNESSEE.....	2 69
15. Missouri.....	8 08	34. Florida.....	2 64
16. Iowa.....	7 58	35. Georgia.....	2 21
17. Kansas.....	7 33	36. North Carolina.....	2 20
18. Pennsylvania.....	6 96	37. Texas.....	1 38
19. Vermont.....	6 43		

## PROPORTION OF STATE AND LOCAL DEBT TO POPULATION.

*(The sums given being the per capita division of the debt.)*

1. Louisiana.....	\$70 03	20. Nebraska.....	\$16 98
2. Massachusetts.....	47 49	21. Illinois.....	16 61
3. Nevada.....	46 74	22. Kentucky.....	14 34
4. Virginia.....	45 64	23. Alabama.....	13 31
5. TENNESSEE*.....	38 80	24. Florida.....	11 64
6. Maryland.....	37 18	25. Vermont.....	10 88
7. New York.....	36 46	26. Arkansas.....	8 57
8. New Hampshire.....	35 04	27. Ohio.....	8 34
9. California.....	32 29	28. Iowa.....	6 73
10. Connecticut.....	31 79	29. Minnesota.....	6 34
11. North Carolina.....	30 31	30. Michigan.....	5 68
12. Rhode Island.....	27 32	31. Wisconsin.....	5 60
13. Missouri.....	27 25	32. Indiana.....	4 64
14. Maine.....	26 52	33. Delaware.....	4 21
15. Pennsylvania.....	25 27	34. Mississippi.....	3 13
16. New Jersey.....	25 22	35. Oregon.....	2 40
17. South Carolina.....	18 53	36. Texas.....	1 97
18. Georgia.....	18 37	37. West Virginia.....	1 27
19. Kansas.....	17 68		

Now, when it is remembered that one thousand dollars worth of personal property is exempted from taxation, and persons owning less than this pay no tax except the poll-tax, it will readily appear that the poor, hard-working laborer bears but a small proportion of the burdens of society. We very much doubt whether there is any State in the Union, in proportion to the value of its agricultural products, that pays so small a tax. It is true the State debt proper amounts to \$27,920,386, but there are debts due to the State from solvent railroads, amounting to \$6,437,548.75, which promptly meet the interest as it falls due, leaving \$21,482,837.70 as the amount upon which the State must pay interest. Add to this the school fund, \$2,512,500, the interest upon which may be met by one-half the tax which will be derived from railroads, not to mention the uncollected back taxes, amounting to nearly \$1,000,000. Now the lowest estimated true value of property in the State is \$500,000,000. It will most probably reach \$600,000,000. The products of the farm, the forest, market garden, and home manufacture, amount to \$106,000,000 annually, to say nothing of the value of live stock, \$55,000,000, and the value of manufactured products, over \$34,000,000. Besides, but few of the counties are in debt. Local taxation is light. Many of the counties have a surplus in their treasuries. And when it is considered what Tennessee may become, with enterprise and well directed energy, its debt appears but an in considerable sum, which may be paid by the gradual increase of wealth, without inconvenience to its

\*The debt in 1870, when the census was taken, was over \$10,000,000. It has been reduced one-half.

citizens. The taxes on merchants and on privileges are estimated to be sufficient to pay the expenses of the State Government. The rate of taxation, which will, at present, pay current expenses and interest, will, at the average rate of increase in taxable property, absorb the principal in a few years. The true value of property in the State in 1850 was \$201,246,686; in 1860, \$493,903,892; in 1870, \$498,237,724. In the decade between 1850 and 1860, the value of property increased 145 per cent. In the succeeding decade it did not increase quite one per cent., though this was owing to the destruction of property by the war. It is estimated that at least \$200,000,000, including slaves, were lost to the property-holders of the State between 1860 and 1870. But for that calamity, \$700,000,000 would have been the true estimate in 1870, or about forty-two per cent. increase. Estimating the same rate of increase to have obtained since 1870, and we ought to have \$600,000,000 in 1875, \$700,000,000 in 1880, and nearly \$1,000,000,000 in 1890. In sixteen years from the present time, we should collect double the amount of taxes, at the same rate of taxation and the same relative assessed value of property as in 1870. To put it in a different way: If the increase in the value of property be four per cent. annually, the increase in the amount collected at the same rate ought to be four per cent. if the ratio between the true and assessed value is maintained.

If the revenue derived from taxation on property in 1875 should be enough to pay the interest on the State debt, we can set aside as a sinking fund in

1876... ..	4	per cent. of present revenue derived from property.					
1877.....	8	"	"	"	"	"	"
1878.....	12	"	"	"	"	"	"
1879.....	16	"	"	"	"	"	"
1880.....	20	"	"	"	"	"	"
1881.....	24	"	"	"	"	"	"
1882.....	28	"	"	"	"	"	"
1883.....	32	"	"	"	"	"	"

Assuming the taxable property will be, in 1875, \$320,000,000, at forty cents, the present rate, the revenue from this source should be \$1,280,000. Now, in 1876, if the property of the State should increase at the rate of four per cent. per annum, and the rate of taxation remain the same, we shall have the exhibits as given below. The first column represents the annual increase of revenue above that of 1875, because of the increase in the value of taxable property; the second column

represents this increase, with the interest on the amount paid towards the State indebtedness added:

1876.....	\$ 51,200			\$ 51,200
1877.....	102,400	plus interest on sinking fund,		105,472
1878.....	153,600	" "	" "	163,000
1879.....	204,800	" "	" "	223,980
1880.....	256,000	" "	" "	288,583
1881.....	307,200	" "	" "	333,098
1882.....	358,400	" "	" "	428,284
1883.....	409,600	" "	" "	500,181
1884.....	460,800	" "	" "	586,391
1885.....	512,000	" "	" "	672,775
1886.....	563,200	" "	" "	764,341
1887.....	614,400	" "	" "	861,402
1888.....	665,600	" "	" "	964,286
1889.....	716,800	" "	" "	1 073,344
1890.....	768,000	" "	" "	1,188,944
1891.....	819,200	" "	" "	1,311,480
1892.....	870,400	" "	" "	1,441,369
1893.....	921,600	" "	" "	1,599,051
1894.....	982,800	" "	" "	1,736,194
1895.....	1,024,000	" "	" "	1,871,566

In twenty years, in this way, we shall have reduced our debt \$16,-164,341, and be in a condition to pay to the sinking fund thereafter over \$2,000,000 annually, without increasing the rate of taxation.

But we have other expectations of an increase in taxable property. By 1875, nearly every railroad in the State will be liable to taxation, which will add \$70,000,000 to our taxable property, though we have included one-half of this in our estimates. All the elements exist in the State also for giving full development to the manufacturing industry of the people. Within the next decade all the pent up forces will burst forth, and the erection of manufacturing establishments will proceed with a marvelous rapidity. Evidences of this are beginning to be seen. Without some unforeseen calamity, at the present rate of increase \$100,000,000 will be invested in manufacturing enterprises within the next ten years, and the debt of the State can be almost extinguished at the present rate of taxation. Financially, there are but few States in a more prosperous condition when the aggregate wealth and undeveloped resources are considered. The surest way of diminishing taxation is by stimulating development and production, and this the people of the State are beginning to do.

Several letters have been received by this Bureau, in which the question is asked, what class of people could do best, farmers, mechanics, tradesmen or professional men. We answer unhesitatingly, any class that will produce. There is room for 100,000 small farmers, and then the State needs for the further development of its rough



wealth 100,000 skilled laborers and artisans. The excellence and variety of timber, the abundance of coal, the immense deposits of iron ore found in forty-four counties out of ninety-three, the superb water-power that flows in rapid currents through nearly every county in the State, the contiguity of the cotton fields, the cheapness of living, the access to markets, the salubrity of the climate, the central position of the State itself, all point to its future as a great manufacturing center. Iron can be made cheaper, agricultural implements will find a readier market, fuel is more abundant, water privileges are better and cheaper, the weather is milder than at the north, and nothing is wanting but skilled hands to weave the cotton and wool into textile fabrics, to convert our woods into the implements of industry, to transform our ores into useful metals, and to develop other beds of treasures that lie slumbering in our valleys and mountain chains. We want mechanics and capital to do this. The field is open, the time is propitious, the harvest is ready.

As for traders and professional men, the supply is already equal to to the demand. Nor does the State need any more of what is called cheap labor, that is, labor that can be hired at a small price, to do a small amount of work in an unsatisfactory manner. We want laborers who are intelligent enough to think, and prudent enough to be honest, and wise enough to save their earnings. We want laborers that can be advanced socially, that can invent and can utilize the forces of nature, and compel them to work in obedience to the will of man. We want the same character of laborers that have made that vast belt of the American continent, extending from the Atlantic to the Pacific, and from the Ohio River to the lakes, the theatre of an industrial activity nowhere else seen on the continent. Measured by the production of wealth, these laborers have proved far the cheapest, and they have also cheapened the means of living while they have elevated themselves. Doubtless, many would like to see an influx of house servants, cooks, milkmaids, &c. These would find remunerative employment at good prices, and we wish it distinctly to be noted, that the prices paid for working men and women in this State, are by no means an index to the prices that would be paid for labor of a more reliable character. The world over, and especially in the United States, laborers are paid in proportion to their real worth. As has been already said, one of the greatest drawbacks to the prosperity of a portion of the farmers of this State, is that a portion will not work themselves, nor will those employed by them work

as they should. They constitute the grumbling and dissatisfied portion of the population. First-class wages are asked by a majority of the laborers, and about sixty per cent. of first-class work done.

As agents of the State, and regarding its interest as paramount to all considerations of the mere personal convenience of the community, the officers of this Bureau regard as the greatest want of the State to be a supply of skillful, energetic, ingenious, industrious and frugal people, to fill up the unoccupied fields of our industry. The class most needed, are men who have a spirit of thrift and independence, resolute hearts, cunning hands, and clear brains. No fairer field was ever presented for the occupation of such a class. It is a field filled with all the elements of wealth and of substantial enjoyment. Here is an abundance of raw material and rich soils, upon which all the fruits and all the crops and all the animals necessary for man's support, comfort or convenience, can be raised with less labor, and less expense, than in a higher latitude. Here are mighty rivers, and flowing creeks, and purling rivulets, and gushing springs of sparkling waters, suited for navigation, for machinery, for stock, the dairy, and the household. Here is a climate so congenial to the physical man, that the very exuberance of his spirits doubles his pleasure, and robs adversity itself of half its woes. This is the home of the working man, land and living are cheap, labor is high and in demand. The laws have exempted from taxation \$1,000 worth of property, and the exemptions from execution are ample to secure comfort, though one may have unwarily become involved in debt.

One word, by way of recapitulation, to those contemplating removal to this State. Do not be deceived by the falsehoods that have been circulated to the prejudice of the people of this State. Do not believe that the native citizens are lawless and despise the stranger. Do not think that labor is looked upon as disreputable. Disabuse your minds of the impression that Tennessee is unhealthy. Consult the census returns for the last seventy years on this point, and convince yourselves. Do not place yourselves in the hands of unscrupulous and designing men, and then hold the people of the State responsible for the damage they may do you. Let no immigrant be deceived about titles to land. Complaints have sometimes been made by persons coming into the State, who have been imposed upon by unscrupulous parties. The responsibilities of this office, as well as a just sense of truth, impel us to make known that in the early history of this State, unwise enactments were made for granting our public lands, and many persons now have the

grant of this State with its great seal affixed, who have no title. It will not do for strangers to accept an entry and grant as sufficient evidence of title. In every county in the State there are persons who may be relied on, and who will give correct information in regard to titles, claims, &c. And, moreover, if immigrants will confer with this Bureau, directing their letters to "The Bureau of Agriculture, Nashville, Tennessee," every effort will be made to give them correct and reliable information, without charge. The officers of it are determined not to publish any thing that they do not believe to be true, after seeking and consulting the very best sources of information to be had.

For the further information of immigrants, we append a synopsis of such laws as may be of interest or value to them, relating to mortgages, redemptions, deeds of trust, exemptions, liens, and the naturalization of aliens.

#### LAWS OF THE STATE OF INTEREST TO IMMIGRANTS.

*Mortgages and Deeds of Trust.* A mortgage is a conveyance to a creditor of property to secure the payment of a debt due or to become due, or the repayment of a sum loaned. A deed of trust is a mortgage with power of sale added. The mortgagor and conveyor in deeds of trust are similar. Where real estate is sold under any decree, judgment or order of a court of chancery, whether founded on a foreclosure of a mortgage or deed of trust, or otherwise, is redeemable at any time within two years after such sale. But the right of redemption may be expressly waived by the deed or mortgage. And again, where the court, upon application of the complainant, orders that the property be sold on a credit of not less than six months, nor more than two years, upon confirmation of such sale by the court, the right of redemption or repurchase is gone, and the title of the purchaser becomes absolute. All mortgages and deeds of trust, of either real or personal property, may be registered. The place of registration in case of mortgages of real estate, is in the county where the land lies, unless it lies partly in two or more counties, and then it may be registered in either; and where it contains several tracts of land lying in different counties, it shall be registered in each of the counties where any of said tracts lie. Mortgages of personal property shall be registered in the county where the person executing the same resides, but if he is a non-resident, then in the county where the property is. Mortgages and deeds of trust have effect between the parties thereto, and their heirs and representatives, without registration; but as to other persons, not having actual notice of them, only from the noting thereof for registration on the books of the register, unless otherwise expressly provided. An assignment of choses in action is not embraced in the registry acts, and is as good with as without registration. A mortgagor in possession of lands is not accountable for rents on a bill to foreclose; but a mortgagee in possession is accountable to the mortgagor for rents and profits. A mechanic's lien has priority over the special lien of a mortgage in a case where the contract is made with the mortgagor, and the mortgagee

has written notice of the same before the work is begun or materials furnished, and he consents thereto or fails to object within ten days after receipt of the notice.

*Redemption.* Real estate sold for debt is redeemable at any time within two years after such sale in cases where it is sold under execution, or under any decree, judgment or order of a court of chancery, whether founded upon a foreclosure of a mortgage, or deed of trust, or otherwise, unless, upon application of a complainant, the court order that the property be sold on a credit of not less than six months nor more than two years, and that, upon confirmation thereof by the court, no right of redemption or repurchase shall exist in the debtor or his creditor, but that the title of the purchaser shall be absolute; or where it is sold under a deed of trust or mortgage without a judicial sentence, unless the right of redemption is expressly waived by the deed or mortgage; or where it is sold for taxes. The right of redemption does not extend to any sale under and by virtue of a power contained in any deed of trust, mortgage, or other instrument, whereby said right is waived or surrendered by such mortgage or conveyance. The time for redemption begins to run from the date of the confirmation of the sale, and the debtor has two years from that time in which to redeem. The debtor, whose interest in real estate has been sold, redeems by paying to the purchaser, or to any one claiming under him, the amount bid or paid by him, with interest thereon at the rate of six per cent. per annum, together with all other lawful charges. If the purchaser is *bona fide* a creditor by judgment, decree, or debt acknowledged by deed, and within twenty days after the sale he makes an advance on his bid and credits his debt by depositing a receipt therefor with the clerk of the court in which the judgment or decree was rendered; or, if the sale was made under a deed of trust or mortgage, he acknowledges a receipt for such advance before the clerk of the county court for registration, and causes the same to be registered in the county where the land lies, then he shall hold the land subject to redemption at the price bid and such advance, just as if he had bid the whole sum at the time of the sale. A creditor redeeming from the purchaser at the sale, holds the property subject to redemption by the original debtor, or any other of his creditors, upon the same terms on which it was redeemable in the hands of the first purchaser or any person claiming under him, that is to say, by the party proposing to redeem paying or tendering to the person holding the land the amount of money paid or credited by him, with interest at the rate of six per cent. per annum thereon, and agreeing to pay to the debtor the further sum of ten per cent. or more on the sum bid for said land when sold, or crediting him with that amount or more on the debt owing to him by said debtor. Any creditor having redeemed land from the original purchaser, or from one who had previously redeemed, may within twenty days advance upon his bid any sum to the extent of his debt or debts, just as if he had been the original purchaser. Real estate sold for debt and made redeemable, continues redeemable to the debtor and his creditors for two years after the sale, no matter how often it may have been previously redeemed. No person holding the temporary title to real estate subject to redemption shall use more of the wood growing thereon than the timber required to keep the improvements in good repair, and fire-wood necessary for those occupying the same, nor destroy or remove from the land any fencing or buildings. The debtor

permitted by the purchaser to remain in possession shall not be liable for rent from the date of the sale to the time of redemption; and if the purchaser or assignee take possession under his purchase, upon redemption by the debtor, he shall have a credit for the fair rent of the premises during the time they were in the purchaser's possession. Where the purchaser is absent from his usual place of residence, so that the tender to him in person is prevented, or resides out of the county where the land lies, the debtor may pay the redemption money to the circuit court clerk of the county where the land lies, to be held by him for the person entitled to it. In case of the death of the debtor, the right to redeem descends to his heirs.

*Exemptions.* A homestead in the possession of each head of a family, and the improvements thereon, to the value of one thousand dollars, is exempt from execution, or attachment, or sale, under legal process. Thirty dollars of the wages of mechanics or laboring men are exempt from execution, attachment, or garnishment. And the following named articles are exempt from execution, seizure, or attachment in the hands of heads of families: Two beds, bedsteads and necessary clothing for each: and for each three children of any one family, one additional bed, bedstead and necessary bed clothing—the value of such bedstead not to exceed twenty-five dollars, two cows and calves, and if the family consist of six or more persons, three cows and calves, one dozen knives and forks, one dozen plates, half dozen dishes, one set of table-spoons, one set of tea-spoons, one bread tray, two pitchers, one waiter, one coffee-pot, one tea-pot, one canister, one cream-jug, one dozen cups and saucers, one dining-table and two table-cloths, one dozen chairs, one bureau, one safe, one wash-basin, one bowl and pitcher, one washing kettle, two washing tubs, one churn, one looking glass, one chopping axe, one spinning wheel, one loom and gear, one pair cotton cards, one pair wool cards, one cooking stove and utensils, or set of ordinary cooking utensils, one meal seive and one wheat seive, one cradle, one bible and hymn book, and all books used in school, two horses or two mules, or horse and mule, or horse or mule and yoke of oxen, one ox cart, yoke, ring, staple and log chain, one two or one horse wagon and harness, one man's and one woman's saddle, two riding bridles, twenty-five barrels of corn, twenty bushels of wheat, 500 bundles oats, 500 bundles fodder, one stack of hay worth twenty dollars, if the family consist of less than six persons, 1,000 pounds of pork or 600 pounds of bacon; if the family consist of more than six persons, twelve hundred pounds of pork or nine hundred pounds of bacon, all the poultry on hand and fowls to the value of twenty-five dollars, a home-made carpet, six cords of wood or one hundred bushels of coal, and one sewing machine. If the head of the family be engaged in agriculture, the following articles, in addition to the foregoing, are exempt: Two plows, two hoes, one grubbing hoe, one cutting knife, one harvest cradle, one set of plow gears, one pitch fork, one rake, three iron wedges, five head of sheep, ten head of stock hogs. In the hands of every mechanic, there is exempt one set of tools, such as are necessary to the pursuit of his trade. One gun is exempt to every male citizen eighteen years of age, and every female who is the head of a family. To heads of families there is also exempt fifty pounds of picked cotton, twenty-five pounds of wool, and upper and sole leather enough to provide winter shoes for the family, and to each mechanic fifty dollars worth of lumber or material.

*Liens.* Proprietors of warehouses have a lien on all tobacco and proceeds for fees and charges on same. There is a lien upon any lot of ground or tract of land upon which a house has been constructed, built or repaired, or fixtures or machinery furnished or erected or improvements made, by special contract with the owner or his agent, in favor of the mechanic or undertaker, founder or machinist who does the work, or furnishes the materials, or puts thereon any fixtures, machinery or material, either of wood or metal. And the benefit of this provision relative to the mechanics, apply to all persons doing any portion of the work, or furnishing any portion of the material for the building. Each mechanic so employed, has the lien in proportion to the amount and value of the work he does or the material he furnishes. The lien includes the building, fixture or improvement, as well as the lot or land, and continues for one year after the work is finished or material furnished, and is not affected by the owner's disposal of the lot or land. Every journeyman employed shall have the lien if he notify the owner of the property in writing of his intention to rely upon it, when he begins to work or furnishes materials. A debt contracted by the master, owner, agent or consignee of any steam or keel boat, within this State, on account of any work done, or materials or articles furnished, or groceries or provisions supplied, for or towards the building, repairing, fitting, furnishing or equipping such boat, or for wages due to the hands of the same, shall be a lien upon such boat, her tackle and furniture, to continue for three months. The owners and proprietors of wharves and landings have a lien on all boats, rafts and other water craft and their loading for the payment of their wharfage fees. Whenever any horse or other animal is received to pasture, for a consideration, the farmer has a lien upon the animal for his proper charges. Any person keeping a stallion, jack, bull or boar for public use, has a lien on the offspring of the same, until the season is paid for, provided the lien is enforced in five months. Livery stable keepers have a lien on all stock received by them for board and feed. When merchants, factors or cotton brokers sell cotton, a special lien in behalf of the vendors, exists for five days from and after the day of sale. Silversmiths, lock and gunsmiths, blacksmiths and artizans generally, are empowered, at the expiration of one year from the time of the contract and leaving the material with them, or the article to be repaired, if not claimed or called for, to sell the same at public outcry and satisfy their charges out of the proceeds. A judgment or decree obtained in a court of record in the county where the debtor resides at the time of rendition is a lien upon the debtor's land from the time the same was rendered. If the judgment or decree was obtained in any other county than that in which the debtor resides, the lien takes effect only from the time when a certified copy of the judgment or decree is registered in the county where the debtor resides, if he resides in the State, or if not, then in the county where the land lies. But this lien will be lost unless an execution is taken out and the land sold within twelve months after the rendition of the judgment or decree. Any debt by note, account or otherwise, credited for the rent of land, is a lien on the crops growing or made on the premises, in preference to all other debts, from the date of the contract, and it continues for three months after the debt becomes due. And any debt by note, account or otherwise contracted for supplies, implements of industry or work stock furnished by the owners of land to lessees, or by lessees to sub-tenants, and used in the cultivation of the crop, is a lien upon the crop growing or made during the year upon the premises, but the lien

must be contracted for on the face of the note or other writing, and this lien does not have priority over the lien of the owner of the land for the rent.

*Naturalization of Aliens.* Any alien, being a free white person, may be admitted to become a citizen of the United States, or any of them, on these conditions: That he shall have declared on oath or affirmation, before the supreme, superior, district or circuit court of some of the States, or of the territorial districts of the United States, or a circuit or district court of the United States, two years at least before his admission, that it was *bona fide* his intention to become a citizen of the United States, and to renounce all allegiance and fidelity to any foreign state or sovereignty whatever, that at the time he applies to be admitted, he shall declare on oath or affirm, before some one of the courts aforesaid, that he will support the constitution of the United States, and that he renounces all allegiance and fidelity to every foreign state or sovereignty whatever. The court admitting such alien shall be satisfied that he has resided within the United States at least five years, and within the State or territory where such court is held at least one year, and that during that time he has behaved as a man of good moral character, attached to the principles of the constitution of the United States and well disposed to the good order and happiness of the same. In case the alien applying for citizenship shall have borne any hereditary title, or been of any of the orders of nobility in the kingdom or state from which he came, he shall make an express renunciation of his title or order of nobility. Every court of record in any individual state having common law jurisdiction and a seal and clerk or prothonotary, may naturalize aliens. The children of persons duly naturalized under any of the laws of the United States, or who may have become citizens of any one of the said States under the laws thereof, being under the age of twenty-one years at the time of their parents being so naturalized or admitted to the rights of citizenship, shall, if dwelling in the United States, be considered as citizens of the United States. If an alien, who has complied with the conditions and directions set forth herein, shall die before he is actually naturalized, his widow and children shall be considered as citizens of the United States, upon taking the oaths prescribed by law. The alien's residence in the United States must have been uninterrupted for five years next preceding his admission to citizenship. An alien under twenty-one years of age, who shall have resided in the United States three years next preceding his arriving at the age of twenty-one years, and who shall have continued to reside therein to the time of making application for admission to citizenship, may, after he arrives at the age of twenty-one years, and after he shall have resided five years within the United States, including the three years of his minority, be admitted a citizen of the United States, without making the declaration required two years before his admission, provided, he makes it at the time of his admission, and declares on oath, and proves to the satisfaction of the court, that for three years next preceding, it has been his *bona fide* intention to become a citizen of the United States, and shall in all other respects comply with the provisions of the naturalization laws. An alien of the age of twenty-one years and upwards, who has enlisted or shall enlist in the armies of the United States, either the regular or volunteer forces, and has been, or shall hereafter be honorably discharged, may be admitted to become a citizen of the United States, upon his petition, with-

out previous declaration of his intention of becoming a citizen, and he shall not be required to prove more than one year's residence within the United States previous to his application to become such citizen. The court shall require proof of good moral character, of residence, and that such person was honorably discharged from the service of the United States. All naturalized citizens shall be entitled to all of the rights, privileges and immunities of native born citizens, and while they are in foreign states, shall receive from this Government the same protection of person and property that is accorded to native born citizens in like situations and circumstances.



## CHAPTER XXII.

## OCCUPATION OF THE PEOPLE AND GENERAL STATISTICS.

It is well to observe, at the outset of this chapter, that though we give an abstract of the census returns for 1870, but little reliance, so far as the State of Tennessee is concerned, can be placed in them. To convince any one of this, it is only necessary to compare the amount of land as returned by the assessors for taxation and the amount returned by the census takers. In the first instance, it was in 1872, 24,822,508 acres, and in 1873, 25,078,308, while the census reports give only 19,581,214 acres, showing a discrepancy of 5,241,294 acres. It is much more reasonable to suppose that the list given in by the tax payers would fall below than above the actual number of acres.

The following table represents the decennial progress in population since 1790:

CENSUS.	WHITES.	FREE COLORED.	SLAVES.	TOTAL.	INCREASE PER CENT.
1790 .....	32,013	361	3,417	35,791	
1800 .....	91,709	309	13,584	105,602	195.05
1810 .....	215,875	1,317	44,535	261,727	147.84
1820 .....	339,927	2,779	80,107	422,813	61.55
1830 .....	535,746	4,555	141,603	681,904	61.28
1840 .....	640,627	5,524	183,059	829,210	21.60
1850 .....	756,836	6,422	239,459	1,002,717	20.92
1860 .....	826,828	7,235	275,784	1,109,801	10.68
1870 .....	936,119	322,331		1,258,520	13.40

As to the order of states in point of population, Tennessee, in 1790, stood 16th; in 1830 it stood 7th; in 1850, 5th; after which time it began relatively to fall back, for we find, in 1860, it stood 9th in point of population, and preserved its place in 1870.

Of the population in 1870, 936,119 were white; 322,331 colored; 70 Indians.

The population of the principal cities as reported, was in 1870,

Chattanooga.....	6,093	Now estimated .....	11,000
Knoxville.....	8,682	“ “ .....	13,000
Memphis.....	40,226	“ “ .....	60,000
Nashville.....	26,865	“ “ .....	40,000

Density of population in 1850, was 24 to the square mile; in 1860, 25; in 1870, 30.

The following tables will show the population by counties, and the decennial increase since 1790. Eight new counties, viz., Clay, Crockett, Hamblen, Houston, James, Loudon, Moore and Trousdale, have been organized since the census of 1870 was taken. We have not the means of ascertaining the population of these new counties. A fair idea can be obtained by comparing the list of voters which we give in this chapter. The counties from which fractions were taken will doubtless show a less increase in the census report of 1880.

COUNTIES.	AGGREGATE.								
	1870	1860	1850	1840	1830	1820	1810	1800	1790
Anderson.....	8704	7068	6938	5658	5310	4668	3959	.....	.....
Bedford.....	24333	21584	21511	20546	20396	16012	8242	.....	.....
Benton.....	8234	8463	6315	4772	.....	.....	.....	.....	.....
Bledsoe.....	4870	4459	5959	5676	4648	5005	3259	.....	.....
Blount.....	14237	13270	12424	11745	11028	11258	8839	5587	.....
Bradley.....	11652	11701	12259	7385	.....	.....	.....	.....	.....
Campbell.....	7445	6712	6068	6149	5110	4244	2668	.....	.....
Cannon.....	10502	9509	8982	7103	.....	.....	.....	.....	.....
Carroll.....	19447	17437	15967	12362	9397	.....	.....	.....	.....
Carter.....	7909	7124	6296	5372	6414	4835	4190	4813	.....
Cheatham.....	6678	7258	.....	.....	.....	.....	.....	.....	.....
Claiborne.....	9321	9643	9339	9474	8470	5508	4798	.....	.....
Coeke.....	12458	10408	8300	6932	6017	4892	5154	.....	.....
Coffee.....	10237	9689	8351	8184	.....	.....	.....	.....	.....
Cumberland.....	3461	3460	.....	.....	.....	.....	.....	.....	.....
Davidson.....	62897	47055	38882	30509	28122	20154	15008	9665	3459
Decatur.....	7772	6276	6003	.....	.....	.....	.....	.....	.....
DeKalb.....	11425	10573	8016	5868	.....	.....	.....	.....	.....
Dickson.....	9340	9982	8404	7074	7265	5190	4516	.....	.....
Dyer.....	13706	10536	6361	4484	1904	.....	.....	.....	.....
Fayette.....	26145	24327	26719	21501	8652	.....	.....	.....	.....
Fentress.....	4717	5054	4454	3550	2748	.....	.....	.....	.....
Franklin.....	14970	13848	13768	12033	15620	16571	5730	.....	.....
Gibson.....	25666	21777	19548	13689	5801	.....	.....	.....	.....
Giles.....	32413	26166	23949	21494	18703	12558	4546	.....	.....
Grainger.....	12421	10962	17824	10572	10066	7651	6397	7367	.....
Greene.....	21668	19004	17824	16076	14410	11324	9713	7610	7741
Grundy.....	3250	3003	2773	.....	.....	.....	.....	.....	.....
Hamilton.....	17241	13258	10075	8175	2276	821	.....	.....	.....
Hancock.....	7148	7020	5690	.....	.....	.....	.....	.....	.....
Hardenman.....	18074	17789	17456	14363	11655	.....	.....	.....	.....
Hardin.....	11768	11214	10328	8245	4868	1462	.....	.....	.....
Hawkins.....	15837	16762	13370	15035	13683	10949	7643	6563	6970
Haywood.....	25094	19232	17259	13870	5334	.....	.....	.....	.....
Henderson.....	14217	14491	13164	11875	8748	.....	.....	.....	.....
Henry.....	20380	19133	18233	14906	12249	.....	.....	.....	.....
Hickman.....	9356	9312	9397	8618	8119	6080	2583	.....	.....
Humphreys.....	9326	9096	6422	5103	6187	4667	1511	.....	.....
Jackson.....	12583	11725	15673	12872	9698	7393	5401	.....	.....
Jefferson.....	19476	16043	13204	12076	11801	8953	7309	9017	.....
Johnson.....	5852	5018	3705	2658	.....	.....	.....	.....	.....
Knox.....	28900	22813	18807	15485	11498	13034	10171	12446	.....
Lake.....	2428	.....	.....	.....	.....	.....	.....	.....	.....
Lauderdale.....	10838	7559	5169	3435	.....	.....	.....	.....	.....

COUNTIES.	AGGREGATE.								
	1870	1860	1850	1840	1830	1820	1810	1800	1790
Lawrence .....	7601	9320	9280	7121	5411	3271	.....	.....	.....
Lewis .....	1986	2241	4438	.....	.....	.....	.....	.....	.....
Lincoln .....	26060	22828	23492	21493	22075	14761	6104	.....	.....
Macon .....	6633	7290	6948	.....	.....	.....	.....	.....	.....
Madison .....	23480	21535	21470	16530	11594	.....	.....	.....	.....
Marion .....	6841	6190	6314	6070	5508	3888	.....	.....	.....
Marshall .....	16207	14592	15616	14555	.....	.....	.....	.....	.....
Maury .....	36289	32498	29520	28186	27665	22089	10359	.....	.....
McMinn .....	13969	13555	13906	12719	14460	1623	.....	.....	.....
McNairy .....	12726	14732	12864	9385	5697	.....	.....	.....	.....
Meigs .....	4511	4667	4879	4794	.....	.....	.....	.....	.....
Monroe .....	12589	12607	11874	12056	13708	2529	.....	.....	.....
Montgomery .....	24747	20895	21045	16927	14349	12219	8021	2899	1387
Morgan .....	2969	3353	3430	2660	2582	1676	.....	.....	.....
Obion .....	15584	12817	7633	4814	2089	.....	.....	.....	.....
Overton .....	11297	12637	11211	9279	8242	7128	5643	.....	.....
Perry .....	6925	6042	5821	7419	7094	2384	.....	.....	.....
Polk .....	7369	8726	6338	3570	.....	.....	.....	.....	.....
Putnam .....	8698	8558	.....	.....	.....	.....	.....	.....	.....
Rhea .....	5538	4991	4415	3985	8186	4215	2504	.....	.....
Roane .....	15622	13583	12185	10948	11341	7895	5581	.....	.....
Robertson .....	16166	15265	16145	13801	13272	9938	7270	4280	.....
Rutherford .....	33289	27918	29122	14280	26134	19552	10265	.....	.....
Scott .....	4054	3519	1905	.....	.....	.....	.....	.....	.....
Sequatchie .....	2335	2120	.....	.....	.....	.....	.....	.....	.....
Sevier .....	11028	9122	6920	6442	5717	4772	4595	3419	3619
Shelby .....	76378	48092	31157	14721	5648	364	.....	.....	.....
Smith .....	15994	16357	18412	21179	19906	17580	11649	4294	.....
Stewart .....	12019	9896	9719	8587	6068	5397	4262	.....	.....
Sullivan .....	13136	13552	11742	10759	10073	7015	6847	10218	4447
Sumner .....	23711	22630	22717	22445	20569	19211	13792	4616	2196
Tipton .....	14884	10705	8887	6800	5317	.....	.....	.....	.....
Union .....	7005	6117	.....	.....	.....	.....	.....	.....	.....
Van Buren .....	2725	2581	2674	.....	.....	.....	.....	.....	.....
Warren .....	12714	11147	10179	10803	15210	10348	5725	.....	.....
Washington .....	16317	14829	13861	11751	10695	9557	7740	6379	5872
Wayne .....	10209	9115	8170	7705	6013	2459	.....	.....	.....
Weakley .....	20755	18216	14608	9870	4797	.....	.....	.....	.....
White .....	9375	9381	11444	10747	9967	8701	4028	.....	.....
Williamson .....	25328	23827	27201	27006	26638	20640	13153	2868	.....
Wilson .....	25881	26072	27443	24460	25472	18730	11952	3261	.....
Totals .....	1258520	1109801	1002717	829210	681904	422771	261727	105602	35691

## OCCUPATION OF THE PEOPLE.

Classifying them with reference to occupation, we find that out of 367,987 persons engaged in all classes of occupation, 267,020 are engaged in agriculture, or over 72.6 per cent.; 54,396 in personal and professional services, or 14.7 per cent.; 17,510 in trade and transportation, or 4.7 per cent.; and 29,061 in manufactures and mechanical and mining industries, or 8 per cent. Compared with Illinois, Iowa, Indiana, Missouri and Kentucky, Tennessee has a far greater proportion of her working people engaged in agriculture. Illinois has but 50 per cent., Iowa 61 per cent., Indiana 58 per cent., Missouri 52 per cent., and Kentucky 63 per cent. But we shall find that the cotton States immediately south, Georgia, Alabama, and Mississippi, will average about 80 per cent. of their population engaged in agricultural

pursuits. On the other hand, Massachusetts has only 12 per cent., and Connecticut 22 per cent.

The following tables, compiled and calculated from the census returns for 1870, furnish some interesting facts in regard to the agriculture of the United States.

Column one shows the ratio of persons engaged in agriculture to the whole number of persons returning occupations in the several States. Thus, Maine has 39 per cent., etc.

Column two shows the number of acres of "improved land" to each person engaged in agriculture.

Column three shows the amount in money value of farm land for each person engaged in agriculture.

Column four shows the total value of farm products for the year 1869 for each person engaged in agriculture.

Maine.....	.39	35	\$1,255	\$ 404
New Hampshire.....	.38	50	1,730	482
Vermont.....	.53	53	2,403	597
Massachusetts.....	.12	24	1,584	442
Rhode Island.....	.13	26	1,843	404
Connecticut.....	.22	37	2,846	606
New York.....	.25	42	3,400	677
New Jersey.....	.21	31	4,079	676
Pennsylvania.....	.25	44	4,012	707
Delaware.....	.39	43	2,924	511
Maryland.....	.30	46	2,117	439
Virginia.....	.58	33	871	211
North Carolina.....	.76	29	283	215
South Carolina.....	.78	14	216	202
Georgia.....	.75	20	281	239
Florida.....	.70	17	234	209
Alabama.....	.79	17	232	231
Mississippi.....	.81	16	314	282
Louisiana.....	.55	14	411	367
Texas.....	.70	17	361	290
Arkansas.....	.80	17	366	372
Tennessee.....	.73	25	818	323
Kentucky.....	.63	55	1,192	335
West Virginia.....	.64	34	1,373	316
Ohio.....	.47	36	2,655	500
Michigan.....	.46	27	2,127	430
Indiana.....	.58	38	2,375	460
Illinois.....	.50	51	2,455	560
Wisconsin.....	.54	37	1,885	510
Minnesota.....	.57	30	1,302	445
Iowa.....	.61	44	1,865	544
Missouri.....	.52	34	1,487	990
Kansas.....	.59	26	1,233	377
California.....	.20	128	2,950	1,041

There are 6,843,278 acres of improved land in the State, according to the census returns, divided into 118,141 farms, or an average of 166

acres to the farm. In 1860, this average was 251 acres; and in 1850, 261 acres, showing a striking tendency towards small farms. The number of farms have also increased from 72,735 in 1850, and 82,368 in 1860, to 118,141 in 1870. Of these, Shelby county has the largest number, 4,187. Giles stands second, having 3,917. Lewis has the smallest number, 223. The entire value of the farms is estimated at \$218,743,747. According to the assessor's returns, there were for 1873, as will be seen, 25,464,857 acres of taxable lands (exclusive of town lots) in the State, valued at \$200,673,358, showing an average assessed value of \$8 per acre. The value of the entire assessed taxable property for 1873 was \$308,089,743 or a little more than three-fifths of the true value, as given by the census reports. This results from the exemptions of \$1,000 worth of personal property, and from the deduction of 15 per cent. on real estate, though the real estate is nominally valued at what it would sell for on a credit of one and two years. The subjoined tables, compiled from the returns of the assessors, will show the taxable property in each division of the State, the number of voters, and the number of polls:

EAST TENNESSEE.

COUNTIES.	No. Civil Dist.	Voters in 1871.	Acres Assessed in 1873.	Value.	Total Valuation of Taxable Property.	Polls.
Anderson .....	12	1,508	194,921	\$1,088,889	\$1,266,591	1,018
Bledsoe .....	10	860	223,348	648,033	818,229	630
Blount .....	17	2,381	316,561	1,985,134	2,310,357	1,585
Bradley .....	13	2,177	185,137	1,543,358	2,535,820	1,276
Campbell .....	14	1,349	262,350	854,175	992,912	1,072
Carter .....	13	1,601	269,736	894,657	1,004,451	1,094
Claiborne .....	13	1,957	195,867	768,419	907,093	1,326
Cooke .....	13	2,173	257,273	1,185,918	1,362,032	1,460
Grainier .....	14	1,952	178,935	1,284,128	1,531,807	1,369
Greene .....	25	4,016	324,143	2,609,144	3,413,336	2,800
Hamblen .....	10	1,712	101,687	1,165,988	1,676,665	1,059
Hamilton .....	12	3,917	191,881	2,397,701	7,012,903	3,227
Hancock .....	14	* 501	112,570	474,995	519,650	807
Hawkins .....	17	3,054	288,986	2,027,727	2,316,675	1,993
James .....	8	963	103,782	641,010	754,372	522
Jefferson .....	14	2,436	179,198	2,146,127	2,459,205	1,720
Johnson .....	10	* 680	233,126	545,973	613,326	723
Knox .....	21	6,093	290,579	4,359,947	9,503,533	4,177
Loudon .....	11	1,604	137,933	1,484,372	1,972,252	1,063
McMinn .....	17	2,608	270,249	2,066,817	2,754,273	1,896
Marion .....	13	1,435	274,631	1,103,430	1,263,199	1,028
Meigs .....	8	1,119	129,144	1,072,322	1,148,930	738
Monroe .....	20	2,278	444,913	1,878,973	2,304,291	1,591
Morgan .....	8	601	803,258	372,515	398,081	418
Polk .....	10	1,375	253,510	975,454	1,220,470	838
Rhea .....	10	985	202,691	969,836	1,123,570	680
Roane .....	13	2,407	212,789	1,770,129	2,210,961	1,809
Scott .....	10	738	387,831	236,187	266,943	534
Sevier .....	14	2,160	549,059	1,377,867	1,593,648	1,517
Squatchie .....	8	467	131,258	298,832	347,526	299
Sullivan .....	18	3,074	237,271	1,819,856	2,394,648	1,822
Union .....	14	1,476	98,475	734,093	843,015	988
Washington .....	19	3,428	304,736	2,270,033	2,709,541	1,970
		65,085	8,347,628	\$45,030,039	\$63,550,129	45,701

## MIDDLE TENNESSEE.

COUNTIES.	No. Civil Dist.	Voters in 1871.	Acres Assessed in 1873.	Value.	Total Valuation of Taxable Property.	Polls.
Bedford.....	19	4,132	293,333	\$5,295,952	\$ 7,104,965	3,260
Cannon.....	12	2,000	160,013	1,452,220	1,669,240	1,305
Clay.....	10	1,121	124,933	661,061	763,615	797
Cheatham.....	12	1,436	182,287	990,708	1,154,108	926
Coffee.....	14	1,936	253,816	1,526,201	1,911,074	1,298
Cumberland.....	11	725	877,663	600,789	614,009	393
Davidson.....	25	15,054	305,244	8,855,160	26,683,765	10,914
Dickson.....	12	2,225	291,623	1,077,460	1,232,543	1,502
DeKalb.....	17	2,186	192,726	1,510,563	1,960,031	1,536
Fentress.....	12	* 271	355,457	392,267	413,658	615
Franklin.....	17	2,911	277,479	1,557,230	2,081,318	1,672
Giles.....	20	6,458	370,430	5,411,041	7,616,921	4,640
Grundy.....	11	700	198,943	462,999	741,498	540
Humphreys.....	15	2,017	322,131	1,225,508	1,394,935	1,390
Hickman.....	15	1,951	359,551	1,465,638	1,794,307	1,330
Houston.....	10	758	179,872	449,299	512,100	629
Jackson.....	16	1,670	175,162	968,379	1,123,915	1,204
Lawrence.....	15	* 521	343,743	990,526	1,295,580	1,037
Lewis.....	8	* 142	120,090	218,189	230,888	213
Lineoln.....	25	4,983	317,079	4,087,394	5,178,933	3,134
Macon.....	12	1,431	176,223	829,647	987,802	1,088
Marshall.....	17	3,330	227,765	3,771,873	4,625,106	2,535
Maury.....	25	6,321	366,910	7,950,478	11,109,144	4,728
Montgomery.....	19	5,271	312,686	3,341,880	5,716,025	3,086
Moore.....	11		98,024	983,484	1,130,168	1,003
Overton.....	13	1,750	254,618	787,204	828,466	1,218
Putnam.....	17	1,612	216,525	790,150	890,712	1,177
Perry.....	11	1,254	220,239	1,011,850	1,235,085	956
Robertson.....	17	3,112	284,116	3,469,035	4,516,117	2,436
Rutherford.....	25	6,343	379,707	6,892,102	9,614,975	4,987
Smith.....	21	2,912	192,902	2,364,973	2,841,259	2,118
Stewart.....	12	* 551	257,042	1,180,415	1,524,379	1,880
Sumner.....	16	4,013	308,399	3,697,504	5,185,727	2,776
Trousdale.....	10	1,351	66,874	888,119	1,152,904	651
Van Buren.....	8	457	140,806	223,617	259,493	300
Warren.....	15	2,743	247,070	1,800,892	2,535,768	1,543
Wayne.....	14	1,915	422,267	1,243,009	1,664,494	1,452
White.....	12	1,915	217,101	1,140,836	1,320,610	1,171
Williamson.....	22	4,786	356,100	5,790,429	7,629,778	3,623
Wilson.....	25	5,332	354,550	5,135,351	6,691,164	3,695
		109,796	10,800,929	\$92,425,463	\$136,906,579	80,858

## WEST TENNESSEE.

Benton.....	12	1,641	239,663	\$ 911,277	1,012,619	1,233
Carroll.....	25	3,970	352,030	3,153,880	3,787,855	2,673
Crockett.....	13		163,658	2,691,121	3,163,580	1,800
Decatur.....	12	1,411	205,354	918,042	1,054,846	1,142
Dyer.....	15	3,339	327,690	3,214,148	4,072,081	1,936
Fayette.....	15	5,540	438,652	4,910,805	6,343,325	4,752
Gibson.....	24	5,851	396,195	5,618,695	7,471,389	4,160
Henderson.....	20	2,529	374,287	1,958,128	2,311,338	2,080
Hardin.....	16	2,214	317,656	1,609,050	1,930,970	1,782
Hardeman.....	18	4,010	398,826	3,339,054	4,449,059	3,198
Haywood.....	16	5,235	296,958	3,700,937	5,697,559	3,145
Henry.....	25	3,784	357,765	2,812,860	3,656,340	2,818
Lake.....	6	* 821	81,260	755,883	908,386	676
Lauderdale.....	12	2,587	272,415	2,442,623	2,829,185	1,895
Madison.....	17	1,834	361,812	3,863,124	6,248,727	3,962
McNairy.....	17	3,009	402,076	1,753,550	2,161,269	2,288
Obion.....	15	3,130	296,278	3,631,149	4,525,800	2,930
Shelby.....	17	24,187	442,524	9,546,311	38,553,951	14,136
Pipton.....	13	3,459	270,704	2,793,155	3,354,682	2,781
Weakley.....	18	3,799	337,387	3,653,464	4,100,065	2,920
		85,440	6,316,300	\$63,217,856	\$107,633,035	61,712

The aggregate number of voters is 290,321, though the counties marked with a star (\*) are not given in full; the number given being the number of votes cast in the last elections.

The following table will exhibit the average yield of farm products in the State for 1869, their cash value per acre, and the number of acres of each :

	AV. YIELD.	AV. VALUE.	NO. ACRES.
Corn..... bushels.....	25.8	\$12 12	1,976,744
Wheat..... ".....	8.8	8 53	836,022
Rye..... ".....	11.3	9 15	20,530
Oats..... ".....	19.3	8 87	203,108
Barley..... ".....	22.5	16 87	1,368
Buckwheat..... ".....	20.0	15 00	475
Potatoes..... ".....	88	45 76	13,863
Tobacco..... pounds.....	845	70 13	41,420
Hay..... tons.....	1.43	23 79	108,391

AVERAGE PRICE OF LIVE ANIMALS.

Horses.....	\$ 84 48
Mules.....	105 51
Oxen and other cattle.....	14 77
Milch Cows.....	23 57
Sheep.....	1 66
Hogs.....	4 49

Table showing Number and Size of Farms in each County.

COUNTIES.	NUMBER OF FARMS.								
	of all sizes.	Under 3 acres.	3 and under 10	10 and under 20	20 and under 50	50 and under 100.	100 and under 500.	500 and under 1,000.	1,000 and over.
Total .....	118,141	170	8,076	19,987	42,862	27,788	18,806	412	50
Anderson.....	1,034	.....	33	196	426	254	123	2	.....
Bedford.....	1,667	.....	25	118	489	551	483	1	.....
Benton.....	1,165	1	53	235	469	310	97	.....	.....
Bledsoe.....	481	.....	21	79	169	104	103	4	1
Blount.....	1,170	2	16	51	216	442	440	3	.....
Bradley.....	1,133	.....	241	59	256	309	265	3	.....
Campbell.....	607	.....	11	27	251	179	139	.....	.....
Cannon.....	1,514	1	110	479	549	252	122	1	.....
Carroll.....	960	.....	3	60	447	266	180	4	.....
Carter.....	527	.....	31	40	184	160	111	1	.....
Cheatham.....	908	8	131	206	285	156	116	5	1
Claiborne.....	1,100	.....	103	216	437	227	117	.....	.....
Coeke.....	1,509	11	586	114	312	255	231	.....	.....
Coffee.....	1,004	9	60	144	378	241	168	4	.....
Cumberland.....	421	1	39	106	158	83	33	1	.....
Davidson.....	1,948	8	132	281	704	455	346	21	1

TABLE SHOWING NUMBER OF FARMS—Continued.

COUNTIES.	NUMBER OF FARMS.								
	Of all sizes.	Under 3 acres.	3 and under 10	10 and under 20	20 and under 30	30 and under 100.	100 and under 300.	300 and under 1,000.	1,000 and over.
Decatur.....	655	.....	7	60	240	229	118	1	.....
DeKalb.....	1,200	3	53	252	517	260	115	.....	.....
Dickson.....	857	.....	28	94	315	261	154	5	.....
Dyer.....	2,311	2	93	842	938	300	129	7	.....
Fayette.....	2,796	1	133	440	1,403	525	264	25	5
Fentress.....	646	5	56	129	216	163	76	1	.....
Franklin.....	1,358	1	51	187	477	344	292	4	2
Gibson.....	3,373	1	161	825	1,498	646	240	2	.....
Giles.....	3,917	8	214	1,199	1,475	607	399	13	2
Grainger.....	1,169	2	68	90	383	342	277	7	.....
Greene.....	1,873	4	35	86	404	681	653	10	.....
Grundy.....	272	.....	11	64	105	51	41	.....	.....
Hamilton.....	850	5	33	68	256	253	230	4	1
Hancock.....	758	.....	20	84	313	240	101	.....	.....
Hardeman.....	2,307	.....	257	406	799	515	303	20	7
Hardin.....	1,059	.....	31	213	435	255	125	.....	.....
Hawkins.....	336	1	116	16	73	69	61	.....	.....
Haywood.....	957	.....	4	100	322	281	238	11	1
Henderson.....	1,923	.....	141	335	755	466	223	3	.....
Henry.....	2,083	.....	80	296	861	584	258	4	.....
Hickman.....	1,178	11	71	305	445	219	127	.....	.....
Humphreys.....	1,108	.....	36	284	471	246	70	1	.....
Jackson.....	1,820	3	168	469	654	351	174	1	.....
Jefferson.....	1,410	6	50	93	355	454	447	5	.....
Johnson.....	601	4	60	81	227	156	73	.....	.....
Knox.....	2,397	3	103	279	957	682	363	9	1
Lake.....	192	.....	1	7	81	55	45	2	1
Lauderdale.....	1,113	.....	12	205	552	206	136	1	1
Lawrence.....	950	.....	36	273	447	150	43	1	.....
Lewis.....	223	.....	10	38	103	56	16	.....	.....
Lincoln.....	3,393	.....	149	997	1,154	616	460	16	1
Macon.....	1,062	7	128	207	410	221	88	1	.....
Madison.....	1,547	.....	1	40	908	382	211	5	.....
Marion.....	937	4	508	73	139	108	102	3	.....
Marshall.....	1,658	.....	45	215	657	428	308	4	1
Mauzy.....	3,061	5	263	646	956	576	589	26	.....
McMinn.....	1,186	1	195	30	184	360	412	4	.....
McNairy.....	1,205	2	47	117	494	373	171	1	.....
Meigs.....	588	.....	11	83	244	115	131	2	2
Monroe.....	991	.....	5	17	213	363	384	6	3
Montgomery.....	1,644	1	21	172	565	417	450	17	1
Morgan.....	394	.....	29	95	198	64	8	.....	.....
Obion.....	2,130	2	168	695	841	295	125	3	1
Overton.....	1,828	3	163	441	579	390	249	2	1
Perry.....	1,138	2	159	452	362	137	26	.....	.....
Polk.....	546	7	63	36	169	160	110	1	.....
Putnam.....	1,325	.....	113	354	484	254	120	.....	.....
Rhea.....	690	2	286	42	117	128	114	1	.....
Roane.....	1,339	7	38	70	396	456	365	6	1
Robertson.....	1,811	1	132	165	479	562	468	2	2



TABLE SHOWING NUMBER OF FARMS—Continued.

COUNTIES.	NUMBER OF FARMS.								
	Of all sizes.	Under 3 acres.	3 and under 10	10 and under 20	20 and under 50	50 and under 100.	100 and under 500.	500 and under 1,000.	1,000 and over.
Rutherford.....	2,011	.....	42	151	576	623	587	31	1
Scott.....	621	.....	76	147	248	125	25	.....	.....
Sequatchie.....	303	3	115	19	59	55	50	1	1
Sevier.....	1,003	.....	51	141	354	285	171	1	.....
Shelby.....	4,187	1	339	917	2,039	619	264	5	3
Smith.....	2,272	1	166	473	823	464	340	3	2
Stewart.....	1,012	1	44	175	464	224	102	2	.....
Sullivan.....	1,526	1	225	87	404	432	372	4	1
Sumner.....	2,528	6	78	254	916	687	569	18	.....
Tipton.....	1,055	.....	14	155	411	299	171	4	1
Union.....	715	2	17	44	225	275	151	1	.....
Van Buren.....	432	2	18	90	152	82	73	14	1
Warren.....	1,372	.....	57	154	499	377	284	1	.....
Washington.....	1,400	1	21	94	385	484	413	2	.....
Wayne.....	1,401	.....	109	414	500	255	121	2	.....
Weakley.....	2,312	4	76	348	1,042	600	236	5	1
White.....	1,152	.....	44	226	363	301	207	11	.....
Williamson.....	2,467	3	169	459	850	502	466	16	2
Wilson.....	3,059	.....	157	461	1,196	793	448	4	.....

## MANUFACTURING INDUSTRIES.

The manufacturing industries of the State have been largely increased since 1870. The number of establishments at that time was 5,317, employing 732 steam engines and 1,340 water-wheels, 19,412 hands, and a capital of \$15,595,295. The amount of wages paid was \$5,390,630; value of material, \$19,657,027; value of products, \$34,362,636. Deducting value of material and cost of labor from the value of products, and there remain \$9,314,979, or nearly sixty per cent. on the capital invested. In this, however, salaries paid are not included. Among these establishments may be mentioned 25 cotton factories, 15 woolen manufactories, not including wool carding, of which there were 133; flouring and grist mills, 1,058; furnaces, 14; founderies, 29; saw mills, 702; tanneries, 209; carriage and wagon, 220; agricultural implements, 25; blacksmith shops, 719; furniture, 80; saddlery and harness, 161, distilleries, 44; breweries, 6; steam engines and boilers, 7; manufactured tobacco, including cigars, 181.

In the manufacture of cotton goods and iron, the establishments, if not doubled in number, have twice the capacity they had in 1870:

and so of the distilleries and carriage and wagon shops. The coal product has been trebled. There is a growing tendency in the minds of the citizens to diversify their pursuits by the establishment of manufactories. The want of home markets is greatly felt. The undue proportion engaged in agriculture is a serious drawback to the prosperity of the State. More than fifty per cent. is not to be desired. Nor is it for the best interest of society to have a fewer number. Those in agricultural pursuits should be numerous enough to supply food and material, and no more, to those engaged in other pursuits and professions, and to be able to absorb, in times of financial distress, those thrown out of employment.

#### RELATIVE RANK OF TENNESSEE.

As compared with other states and territories, we find Tennessee to stand—in area twenty-first; in population, ninth; in number of inhabitants to the square mile, seventeenth, though if the true number of square miles were given, it would be the fifteenth; in land in farms, seventh; in improved land, tenth; in farm productions, ninth; in wheat raised, thirteenth; in Indian corn, seventh; in tobacco, third; in cotton, eighth; in wool, fourteenth; in the value of live stock, ninth; in number of horses, twelfth; in mules and asses, second; in milch cows, twelfth; in work oxen, fifth; other cattle, twelfth; in swine, fifth; in animals slaughtered, ninth; in home manufactures, fifth.

#### FINANCIAL CONDITION OF THE STATE.

Amount debt State of Tennessee	January 1, 1870.....	\$43,052,652	25
“ “ “ “ “ “	“ “ “ 1871.....	38,539,802	25
“ “ “ “ “ “	“ “ “ 1872.....	33,190,938	37
“ “ “ “ “ “	“ “ “ 1873.....	30,632,200	76
“ “ “ “ “ April	“ 1874.....	27,920,386	45

#### AMOUNT DUE STATE.

From solvent railroads:

Mississippi Central Railroad.....	\$1,199,180	00
Mississippi and Tennessee Railroad.....	417,800	00
Memphis and Charleston Railroad.....	1,741,576	75
Interest due from last.....	103,315	00
	<hr/>	\$3,461,871 75

Brought forward.....\$2,461,871 75

From endorsed bonds for which State is secondarily liable:

Nashville and Chattanooga Railroad.....	\$1,237,000 00
East Tenn. and Va. Railroad, consolidated.....	242,000 00
Memphis City Bonds endorsed by Memphis and Little Rock Railroad.....	673,400 00
	<hr/> \$2,152,400 00

From purchasers of delinquent railroads:

McMinnville and Manchester Railroad.....	\$105,000 00
Edgefield and Kentucky Railroad.....	330,250 00
Knoxville and Kentucky Railroad.....	12,500 00
Tennessee and Pacific Railroad.....	150,000 00
Interest on all of above.....	125,527 00
Knoxville and Charleston Railroad, unsold, valued.....	100,000 00
	<hr/> \$ 823,277 00

Total amount due State.....\$6,437,548 75

Net amount upon which State must pay interest.....\$21,482,837 70

To which add school fund..... 2,512,500 00

Whole amount for which the State must provide interest.....\$23,995,337 70

Which amount would require an annual interest of nearly one million four hundred and forty thousand dollars.

A LIST OF NEWSPAPERS AND PERIODICALS PUBLISHED IN THE STATE.

- Courier, Bristol. Democratic. Weekly.
- Herald and Tribune, Jonesboro. Republican. Weekly.
- Echo, Jonesboro. Republican. Weekly.
- National Union, Greenville. Democratic. Weekly.
- New Era, Greeneville. Republican. Weekly.
- American, Greeneville. Weekly.
- Gazette, Morristown. Democratic. Weekly.
- Spy, Morristown. Republican. Weekly.
- Press and Herald, Knoxville. Democratic. Daily and Weekly.
- Chronicle, Knoxville. Republican. Daily and Weekly.
- Grange Outlook, Knoxville. Agricultural. Weekly.
- Holston Methodist, Knoxville. Religious. Weekly.
- Commercial Advertiser, Knoxville. Commercial. Weekly.
- Republican, Maryville. Republican. Weekly.
- Journal, London. Republican. Weekly.
- East Tennessean, Kingston. Independent. Weekly.
- Valley News, Kingston. Republican. Weekly.
- Enterprise, Sweetwater. Democratic. Weekly.
- Post, Athens. Democratic. Weekly.

- Banner, Cleveland. Democratic. Weekly.  
 Republican, Cleveland. Republican. Weekly.  
 Commercial, Chattanooga. Republican. Daily and Weekly.  
 Times, Chattanooga. Democratic. Daily and Weekly.  
 Herald, Jasper. Democratic. Weekly.  
 New Era, McMinnville. Democratic Weekly.  
 Observer, Fayetteville. Democratic. Weekly.  
 Express, Fayetteville. Democratic. Weekly.  
 Home Journal, Winchester. Democratic. Weekly.  
 Commercial, Shelbyville. Democratic. Weekly.  
 Gazette, Shelbyville. Democratic. Weekly.  
 Sentinel, Lynchburg. Democratic. Weekly.  
 Gazette, Lewisburg. Democratic. Weekly.  
 Free Press, Woodbury. Democratic. Weekly.  
 Democrat, Manchester. Democratic. Weekly.  
 Index, Sparta. Democratic. Weekly.  
 News, Gainsboro. Independent. Weekly.  
 Monitor, Murfreesboro. Democratic. Weekly.  
 News, Murfreesboro. Democratic. Weekly.  
 Herald, Lebanon. Democratic. Weekly.  
 Sentinel, Hartsville. Democratic. Weekly.  
 Examiner, Gallatin. Democratic. Weekly.  
 Tennessean, Gallatin. Democratic. Weekly.  
 Record, Springfield. Democratic. Weekly.  
 Chronicle, Clarksville. Democratic. Weekly.  
 Tobacco Leaf, Clarksville. Democratic. Weekly.  
 Record, Dover. Democratic. Weekly.  
 Union and American, Nashville. Democratic. Daily, Semi-Weekly,  
 and Weekly.  
 Republican Banner, Nashville. Independent. Daily, Tri-Weekly,  
 and Weekly.  
 Rural Sun, Nashville. Agricultural. Weekly.  
 Bulletin, Nashville. Republican. Weekly.  
 Commercial Reporter, Nashville. Commercial. Weekly.  
 Journal of Commerce, Nashville. Commercial. Weekly.  
 Christian Advocate, Nashville. Religious. Weekly.  
 Baptist Watchman, Nashville. Religious. Weekly.  
 Banner of Peace, Nashville. Religious. Weekly.  
 Gospel Advocate, Nashville. Religious. Weekly.  
 Independent Workingman, Nashville. Weekly.  
 Southern Press, Nashville. Neutral. Weekly.  
 Tennessee Post, Nashville. German. Weekly.  
 Good Templar, Nashville. Temperance. Weekly.  
 Journal of Medicine and Surgery, Nashville. Medical. Monthly.  
 Pharmacal Gazette, Nashville. Medical. Monthly.  
 Tennessee School Journal, Nashville. Educational. Monthly.  
 Religious Historian, Nashville. Religious. Monthly.  
 Sunday School Magazine, Nashville. Monthly.  
 Sunday School Visitor, Nashville. Monthly.  
 Sunday Morning, Nashville. Monthly.  
 Sabbath School Gem, Nashville. Monthly.  
 Sunday School Standard, Nashville. Monthly.

Our Little People, Nashville. Monthly.  
Southern Law Review, Nashville. Law. Quarterly.  
Theological Medium, Nashville. Religious. Quarterly.  
Review and Journal, Franklin. Democratic. Weekly.  
Herald and Mail, Columbia. Democratic. Weekly.  
Citizen, Pulaski. Democratic. Weekly.  
Journal, Lawrenceburg. Democratic. Weekly.  
Citizen, Waynesboro. Democratic. Weekly.  
Journal, Waverly. Democratic. Weekly.  
Transcript, Savannah. Democratic. Weekly.  
Reporter, Lexington. Democratic. Weekly.  
Times, McKenzie. Democratic. Weekly.  
West Tennessean, Huntingdon. Republican. Weekly.  
Democrat, Dresden. Democratic. Weekly.  
Signal, Troy. Democratic. Weekly.  
Progress, Dyersburg. Democratic. Weekly.  
Gazette, Dyersburg. Independent. Weekly.  
News-Gazette, Trenton. Democratic. Weekly.  
Journal, Humboldt. Democratic. Weekly.  
Exchange, Milan. Democratic. Weekly.  
Herald, Union City. Democratic. Weekly.  
Sentinel, Alamo. Democratic. Weekly.  
News, Ripley. Democratic. Weekly.  
Intelligencer, Paris. Democratic. Weekly.  
Whig and Tribune, Jackson. Democratic. Weekly.  
Dispatch, Jackson. Democratic. Weekly.  
Herald, Jackson. Democratic. Daily and Weekly.  
Courier, Jackson. Independent. Weekly.  
States, Brownsville. Democratic. Weekly.  
Bee, Brownsville. Democratic. Weekly.  
Record, Covington. Democratic. Weekly.  
Bulletin, Bolivar. Democratic. Weekly.  
Falcon, Somerville. Independent. Weekly.  
Appeal, Memphis. Democratic. Daily and Weekly.  
Avalanche, Memphis. Independent. Daily and Weekly.  
Register, Memphis. Democratic. Daily and Weekly.  
Ledger, Memphis. Democratic. Daily and Weekly.  
Western Methodist, Memphis. Religious. Weekly.  
Tennessee Baptist, Memphis. Religious. Weekly.  
Southern Advertiser, Memphis. German. Weekly.  
Southern Farmer, Memphis. Agricultural. Monthly.  
Masonic Jewel, Memphis. Masonic. Monthly.

The table following is inserted to supply a much needed demand. It is taken from the census returns, and shows improved land, value of farms, live stock, &c.

COUNTIES.	Improved Land.	Value of Farms.		Total (estimated) value of all farm productions, including betterments and additions to stock.	LIVE STOCK.						
		A cres.	Dollars.		Dollars.	Value of Live Stock.		Mules and Asses.	Milch Cows.	Working Oxen.	
						Dollars.	No.			No.	No.
1 Anderson.....	50,750	1,045,727	344,492	377,678	1,783	261	1,893	636	6,064	9,773	
2 Bedford.....	143,537	7,511,259	2,037,652	1,471,421	6,255	2,372	4,568	716	25,204	33,962	
3 Benton.....	46,443	463,607	599,786	372,297	1,747	819	2,028	1,075	7,790	20,016	
4 Bledsoe.....	33,873	702,880	387,703	231,915	1,137	236	1,354	498	5,555	11,048	
5 Blount.....	91,740	2,410,825	986,532	540,884	2,847	476	2,488	813	10,828	15,725	
6 Bradley.....	74,597	2,077,861	639,655	448,542	2,181	730	2,455	638	9,146	13,633	
7 Campbell.....	40,042	897,182	350,291	253,685	1,390	235	1,488	684	6,671	9,784	
8 Cannon.....	59,149	3,671,572	1,088,168	680,805	3,360	1,202	2,487	1,046	12,198	23,550	
9 Carroll.....	127,515	3,077,511	1,791,796	910,255	3,517	2,265	4,076	857	10,822	35,018	
10 Carter.....	36,386	1,022,276	275,355	193,166	1,033	167	1,326	239	5,430	7,253	
11 Cheatham.....	43,213	758,535	379,496	341,920	1,450	820	1,529	293	4,225	14,980	
12 Claiborne.....	47,847	979,459	254,175	324,016	1,752	187	2,112	824	9,502	11,942	
13 Cocke.....	67,232	1,529,952	352,850	433,768	1,994	525	2,890	1,145	9,730	19,297	
14 Coffee.....	55,307	2,414,115	598,277	463,201	2,506	503	1,881	599	8,107	17,226	
15 Cumberland.....	16,174	414,455	227,074	175,359	527	103	964	524	4,466	10,311	
16 Davidson.....	126,481	12,186,365	1,967,907	1,299,870	5,646	2,228	5,428	138	12,221	29,667	
17 Decatur.....	41,205	564,677	577,699	311,117	1,258	628	1,436	754	5,649	13,508	
18 DeKalb.....	51,405	1,549,156	710,808	548,285	2,737	653	2,007	1,183	11,473	20,999	
19 Dickson.....	50,534	1,381,333	593,057	366,935	1,622	997	1,912	655	6,925	11,517	
20 Dyer.....	83,724	1,950,346	1,528,585	862,591	3,855	1,562	3,531	923	8,831	36,448	
21 Fayette.....	152,766	3,901,190	2,974,576	1,085,136	2,839	4,673	4,534	405	3,828	30,762	
22 Fentress.....	29,059	527,275	219,302	194,839	942	148	1,380	822	5,021	12,074	
23 Franklin.....	91,716	2,784,364	1,012,127	625,000	2,945	750	3,043	948	8,820	24,017	
24 Gibson.....	132,669	4,890,576	3,327,523	1,319,242	5,631	2,955	5,470	533	14,113	51,103	
25 Giles.....	182,894	6,717,824	2,690,754	1,736,504	7,672	3,458	6,586	1,383	18,658	47,700	
26 Grainger.....	82,518	1,680,266	533,925	433,913	2,233	350	2,248	1,000	9,797	47,723	
27 Greene.....	162,034	4,526,184	1,200,950	890,043	4,644	858	5,279	1,026	21,130	25,306	
28 Grundy.....	12,274	423,190	356,108	104,140	504	99	521	298	1,880	5,892	
29 Hamilton.....	68,958	2,416,203	571,856	445,340	1,755	563	2,393	796	6,741	15,359	
30 Hancock.....	39,778	692,815	334,031	244,673	1,263	98	1,516	661	7,365	10,690	
31 Hardeman.....	138,112	3,335,419	2,154,818	793,203	2,684	2,202	3,146	1,007	7,139	34,834	
32 Hardin.....	51,005	1,293,303	746,785	502,919	1,993	870	2,670	1,383	8,044	21,235	
33 Hawkins.....	116,798	2,348,287	815,033	593,066	3,192	417	3,065	1,298	16,567	21,700	
34 Haywood.....	75,949	1,885,796	1,403,495	662,705	2,172	1,889	2,681	351	5,206	20,514	
35 Henderson.....	92,520	2,029,835	1,168,174	732,519	2,816	1,679	3,649	1,303	10,168	32,559	
36 Henry.....	110,172	1,945,294	1,337,686	915,425	3,658	2,722	3,600	882	10,878	34,384	
37 Hickman.....	57,329	1,411,409	975,189	536,926	2,374	1,790	2,600	549	6,927	23,793	
38 Humphreys.....	44,018	1,663,934	648,819	512,133	1,971	914	2,355	1,094	8,937	18,418	
39 Jackson.....	68,834	1,075,086	631,496	533,605	2,984	435	2,780	2,040	15,323	29,120	
40 Jefferson.....	118,132	3,694,155	993,655	652,822	3,210	461	3,097	768	11,599	17,971	
41 Johnson.....	28,393	763,190	237,671	210,240	951	142	1,601	369	6,004	5,271	
42 Knox.....	135,960	4,502,445	1,116,430	840,287	4,907	913	4,543	744	13,441	22,519	
43 Lake.....	13,379	882,411	398,348	128,802	1,111	381	615	256	816	5,853	
44 Lancaster.....	53,728	2,536,980	1,197,975	594,020	5,992	1,123	2,799	605	3,118	22,086	
45 Lawrence.....	33,337	803,446	574,891	353,641	1,745	544	1,867	771	5,520	13,584	
46 Lewis.....	9,168	211,140	107,804	84,664	329	209	443	165	1,676	3,361	
47 Lincoln.....	189,592	6,521,190	2,066,342	2,155,474	7,968	3,434	6,984	1,371	27,075	26,595	
48 Macon.....	42,680	639,731	1,143,735	424,090	2,233	561	1,599	800	8,175	13,227	
49 Madison.....	94,169	3,953,675	1,691,143	956,719	2,849	3,195	3,931	101	3,558	31,906	
50 Marion.....	33,211	989,080	499,367	356,903	1,571	265	1,977	1,014	5,605	17,020	
51 Marshall.....	114,602	3,707,071	1,201,956	1,229,100	6,202	2,598	3,881	396	16,218	32,038	
52 Martin.....	196,212	10,686,939	2,682,211	2,015,355	8,664	5,346	6,735	693	21,330	53,124	
53 McMinn.....	98,734	2,359,882	856,632	530,128	2,336	713	2,633	703	9,839	16,552	
54 McNairy.....	61,596	1,139,310	943,156	615,521	2,338	1,149	2,989	827	9,865	21,801	
55 Meigs.....	41,204	729,108	266,338	213,550	996	254	1,069	336	4,392	8,068	
56 Monroe.....	101,976	2,253,045	829,515	419,798	2,334	485	2,539	536	8,946	14,422	
57 Montgomery.....	136,295	4,173,162	1,706,506	873,256	3,023	2,663	3,272	562	8,015	28,205	
58 Morgan.....	12,248	263,952	162,877	133,759	515	71	940	473	4,312	9,532	
59 Obion.....	75,416	2,437,755	1,564,292	871,179	3,742	1,671	3,716	1,169	10,505	44,137	
60 Overton.....	82,063	1,357,264	623,589	570,079	3,450	434	3,360	1,643	17,293	29,126	
61 Perry.....	29,286	991,673	499,295	384,690	1,706	804	1,971	928	5,328	17,950	
62 Polk.....	31,648	887,665	317,919	160,998	715	364	1,057	540	4,642	5,537	
63 Putnam.....	51,315	1,822,779	637,645	419,792	2,218	339	2,166	1,364	10,460	21,568	
64 Rhea.....	32,723	966,474	717,727	262,120	1,152	243	1,455	542	5,306	9,269	
65 Roane.....	102,502	2,587,423	619,768	520,488	3,390	604	3,064	827	10,552	17,661	
66 Robertson.....	140,611	4,291,516	1,359,245	970,816	3,998	2,461	3,000	134	1,146	29,817	

PRODUCED.

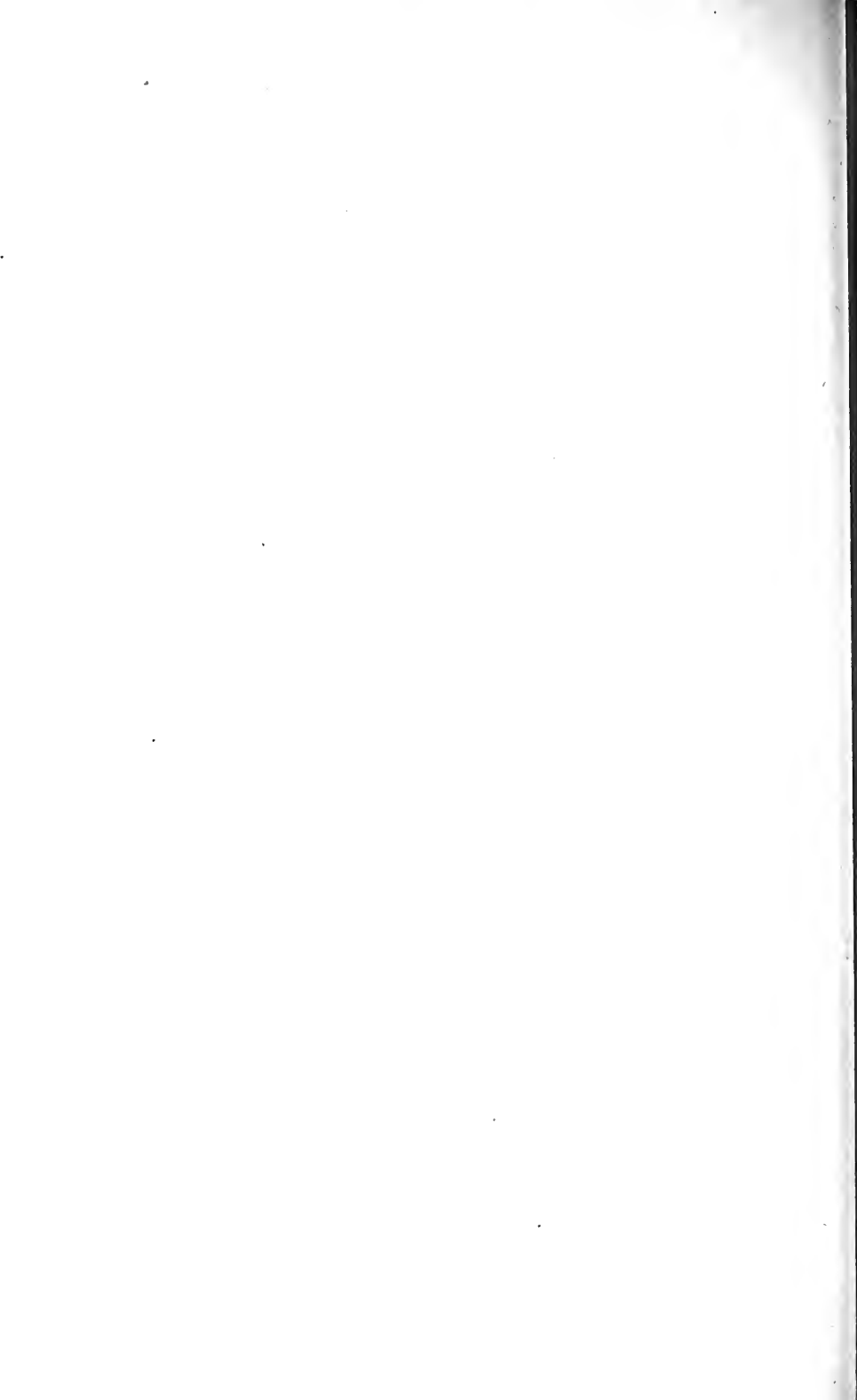
Wheat.		Rye.	Indian Corn.	Oats.	Tobacco.	Cotton.	Wool.	Potatoes	Sugar
Spring.	Winter.							Sweet.	Cane.
Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Pounds.	Bales.	Pounds	Bushels.	Hds
.....	22,932	290	262,664	73,441	15,578	.....	12,884	11,063	1
170	212,752	10,486	1,010,642	104,801	19,290	869	35,516	17,408	7
3,415	22,338	105	357,403	18,986	412,435	696	10,288	19,926	3
68	21,966	2,078	201,667	21,550	14,226	.....	11,465	4,714	4
548	107,271	774	384,583	104,501	675	.....	18,178	3,520	5
2,761	109,580	76	2,39,490	41,727	10,628	.....	14,826	12,810	6
.....	18,401	239	127,145	63,208	8,509	2	12,055	2,445	7
387	19,133	3,167	504,330	26,870	30,750	54	21,451	7,043	8
.....	93,872	70	777,922	4,206	10,840	5,023	13,044	371	9
.....	37,169	4,094	132,097	63,396	1,140	.....	7,978	2,781	10
.....	19,432	281	274,052	44,585	419,265	62	8,179	7,609	11
.....	33,901	1,125	204,840	59,039	4,827	.....	15,300	3,150	12
.....	79,006	1,023	338,867	45,259	17,741	.....	15,074	6,219	13
.....	43,075	10,225	309,503	25,462	13,387	30	12,597	11,726	14
.....	1,585	2,241	42,377	9,115	13,098	.....	8,497	2,367	15
4,863	82,303	10,442	832,982	131,550	21,490	1,416	30,310	62,854	16
80	19,159	146	314,653	20,549	44,610	1,159	9,796	15,913	17
13	81,899	1,492	486,823	32,250	87,076	12	20,480	9,156	18
26,794	7,336	721	319,085	58,810	462,130	9	15,028	12,554	19
12	74,078	738	749,175	7,623	412,440	4,908	3,314	2,931	20
5,208	6,578	34	627,271	9,450	840	20,131	3,305	26,077	21
13	10,236	1,232	109,084	24,067	16,990	.....	9,044	4,501	22
6,828	77,529	3,229	467,757	68,371	9,983	289	16,294	9,915	23
34	116,835	.....	1,067,775	12,118	97,300	9,815	12,677	61,275	24
34,451	111,184	5,895	2,054,163	70,512	40,655	8,367	34,259	28,074	25
.....	78,146	1,971	353,290	86,005	16,646	.....	15,989	8,045	26
.....	238,716	818	496,659	149,518	41,585	.....	39,511	11,331	27
530	11,661	69	73,373	11,242	2,147	47	3,158	3,652	28
606	103,110	3,846	353,700	44,963	855	1	12,912	1,480	29
.....	22,956	2,407	204,190	41,308	9,978	.....	13,967	3,489	30
8,175	24,755	1,180	586,508	19,799	5,600	7,884	9,920	32,143	31
15,904	19,662	131	484,721	15,151	300	2,026	10,375	10,472	32
.....	138,968	1,083	466,470	112,306	12,370	.....	26,124	4,956	33
211	38,296	452	522,921	9,717	40	10,510	10,118	31,037	34
2,816	39,458	446	547,805	17,347	15,124	4,191	15,923	30,736	35
60	98,875	554	767,220	26,816	1,715,061	2,385	16,459	31,882	36
19,416	22,120	1,221	514,554	34,202	18,935	753	14,953	15,229	37
115	27,668	958	491,355	29,967	113,177	167	14,622	17,829	38
3,137	29,909	4,160	530,276	54,314	713,578	9	26,311	12,863	39
26	135,738	1,947	527,853	132,453	10,182	71	21,892	9,280	40
.....	16,184	13,397	85,782	34,682	7,557	.....	1,333	646	41
.....	151,232	7,291	548,546	259,047	26,532	.....	26,328	24,243	42
.....	1,000	.....	414,570	1,892	.....	52	815	4,382	43
.....	18,669	100	443,809	5,465	2,100	6,337	447	5,602	44
2,138	29,183	1,004	189,695	22,095	32,417	522	10,598	9,391	45
2,074	4,025	163	73,315	3,472	5,677	120	3,049	3,004	46
10,322	192,175	13,989	1,233,960	72,179	31,837	3,745	48,113	23,103	47
28	30,497	696	256,483	60,756	950,768	1,988	13,605	9,310	48
30	48,408	287	692,910	9,781	9,255	.....	8,592	9,724	49
60	28,074	1,979	265,100	27,989	17,487	724	9,157	10,662	50
3,217	123,416	18,526	591,358	83,691	12,788	2,063	34,553	16,556	51
78,658	122,226	5,812	1,449,945	61,387	14,245	9,367	35,514	24,962	52
599	43,326	762	350,833	77,810	4,862	4	17,888	13,102	53
18,221	26,378	264	370,431	18,362	6,398	3,347	13,509	22,028	54
.....	20,613	452	176,733	18,776	290	456	4,396	3,497	55
.....	113,382	1,178	415,010	56,667	2,875	.....	15,324	9,208	56
5,515	163,978	6,838	810,194	62,378	4,856,378	21	14,009	33,490	57
29	1,532	2,212	52,642	15,548	7,944	.....	9,117	3,415	58
.....	91,139	216	917,445	21,919	645,937	2,256	17,082	33,607	59
317	43,102	1,897	394,026	69,957	187,331	16	25,585	14,514	60
34,201	336	301	368,045	9,312	5,244	495	10,429	6,254	61
373	35,353	1,519	152,425	17,192	1,160	.....	7,639	4,575	62
.....	39,330	2,082	332,254	37,854	131,856	.....	19,092	11,581	63
.....	32,639	2,459	187,970	36,034	10,276	6	9,088	6,185	64
483	74,331	1,527	504,590	112,029	350	.....	14,027	11,609	65
3,714	157,404	937	550,920	149,019	2,107,322	11	19,387	27,455	66

COUNTIES.	Improved Lat. d.	Value of Farms.	Total (estimated) value of all farm productions, including betterments and additions to stock.	LIVE STOCK.						
				Value of Live Stock.	Horses.	Mules and Asses.	Milch Cows.	Working Oxen.	Sheep.	Swine.
	<i>Acres</i>	<i>Dollars.</i>	<i>Dollars.</i>	<i>Dollars.</i>	<i>No.</i>	<i>No.</i>	<i>No.</i>	<i>No.</i>	<i>No.</i>	<i>No.</i>
67 Rutherford .....	181,447	10,153,110	2,260,874	1,519,939	7,953	3,493	5,862	496	17,183	53,376
68 Scott .....	20,682	298,248	181,869	176,947	824	69	1,400	579	6,589	13,189
69 Sequatchie .....	15,505	382,060	150,180	146,756	655	104	680	298	2,72	6,193
70 Sevier .....	57,338	1,444,930	308,498	364,923	1,954	257	2,264	574	9,578	13,083
71 Shelby .....	164,431	9,987,974	4,169,342	1,418,349	4,221	4,676	6,629	542	5,720	31,070
72 Smith .....	120,332	3,182,929	1,278,088	1,096,202	4,857	1,239	3,715	1,979	17,591	33,687
73 Stewart .....	47,382	803,838	637,559	461,870	1,579	994	2,158	1,007	8,939	15,652
74 Sullivan .....	104,306	2,434,109	655,732	593,487	3,384	202	3,405	268	15,634	18,478
75 Sumner .....	181,189	5,167,581	1,690,216	1,435,431	7,582	3,078	5,378	687	20,421	37,304
76 Tipton .....	67,370	2,236,745	1,458,235	600,109	1,879	1,851	2,784	184	4,675	20,240
77 Union .....	46,435	904,320	505,506	231,235	1,451	118	1,261	400	6,326	6,971
78 Van Buren .....	56,414	370,120	236,262	143,041	718	112	766	406	3,247	8,584
79 Warren .....	85,844	2,454,908	751,645	570,221	3,218	666	2,781	906	12,435	18,814
80 Washington .....	106,646	3,228,291	882,804	605,797	3,620	297	3,604	462	13,208	15,335
81 Wayne .....	56,957	1,201,233	766,893	645,740	2,500	962	2,898	1,585	9,674	24,841
82 Weakley .....	113,457	3,453,713	1,393,025	1,024,853	3,914	2,673	4,062	1,047	13,064	38,935
83 White .....	61,361	1,203,790	673,072	377,622	2,545	349	2,122	866	8,144	17,340
84 Williamson .....	155,471	6,528,324	2,594,875	1,403,202	7,194	3,121	5,060	379	15,226	41,703
85 Wilson .....	163,834	7,147,654	2,195,087	1,919,019	9,682	4,150	5,185	584	24,023	48,708



PRODUCED.

Wheat.		Rye.	Indian Corn.	Oats	Tobacco	Cotton	Wool	Potatoes	Sugar
Spring.	White.							Sweet.	Cane.
<i>Bushels.</i>	<i>Bushels.</i>	<i>Bushels.</i>	<i>Bushels.</i>	<i>Bushels.</i>	<i>Pounds.</i>	<i>Bales.</i>	<i>Pounds.</i>	<i>Bushels.</i>	<i>Hhds</i>
22,725	152,020	13,746	867,443	63,514	1,300	8,412	23,285	24,299	67
24	726	1,001	88,311	17,793	9,283	.....	12,560	4,200	68
.....	12,472	2,035	103,010	6,915	9,353	.....	5,904	4,102	69
.....	63,483	1,575	260,214	42,460	13,997	6	16,109	7,308	70
4 333	14,692	287	940,796	7,697	950	32,434	1,264	50,747	71
57	126,004	3,833	888,078	72,528	2,250,302	8	32,674	15,163	72
.....	31,380	436	428,311	26,623	1,191,620	1,809	16,135	18,746	73
400	132,217	5,650	302,227	176,387	16,307	.....	27,026	7,844	74
40	163,074	7,222	1,155,914	233,837	909,568	170	38,860	25,074	75
.....	30,579	108	446,771	18,681	170	10,052	5,195	18,380	76
.....	29,615	735	168,579	69,799	14,169	884	10,673	.....	77
.....	14,002	422	104,033	4,456	9,858	135	6,006	4,216	78
1,111	72,280	1,072	339,250	56,348	27,446	105	24,212	17,152	79
.....	170,934	6,439	299,388	148,383	22,806	.....	26,694	3,656	80
.....	47,428	1,500	484,861	19,314	26,769	1,101	17,566	14,927	81
1 5	136,173	211	879,544	1,945	2,599,590	7	20,056	10,282	82
.....	55,181	1,158	347,944	22,129	21,816	84	15,785	13,301	83
45,568	181,726	4,662	1,010,443	99,933	80,415	3,815	24,944	20,555	84
1,765	239,950	3,189	1,173,201	151,007	332,901	1,205	36,854	33,362	85



## PART II.

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# EAST TENNESSEE,

(WITH A DESCRIPTION OF EACH COUNTY.)

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The State of Tennessee is divided into three political divisions, known as East, Middle and West Tennessee. Of these we are to speak now only of East Tennessee. This division of the State embraces the counties of Carter, Greene, Hancock, Hawkins, Johnson, Sullivan and Washington, forming the first judicial circuit; Campbell, Claiborne, Coker, Grainger, Hamblen, Jefferson, Sevier, Scott and Union, forming the second circuit; Anderson, Blount, Fentress, Knox, Loudon, Monroe and Morgan, forming the third circuit; and Bradley, Bledsoe, Hamilton, James, Marion, McMinn, Meigs, Polk, Rhea and Sequatchie, forming the fourth circuit—in all, thirty-three counties, containing an aggregate of 7,961,079 acres assessed for taxation. The census returns give to East Tennessee 329,112 inhabitants.

### HISTORY.

It is not within the province of this paper to attempt even a sketch of the history of East Tennessee, only in so far as may be necessary to a proper understanding of the present condition of this division of the State. For this purpose a very brief summary will suffice. The present State of Tennessee was once a part of North Carolina. Indeed, by the same royal grant that made Tennessee a part of the colony of North Carolina, its boundaries were extended "*west-*

ward to the South Sea," (Pacific Ocean). The colony, however, never claimed beyond the Mississippi.

East Tennessee was settled mainly by emigrants from North Carolina and Virginia, with a few families from South Carolina. The first white man who built a house and brought his family out, was Captain William Bean. He came from Pittsylvania county, Virginia, in the year 1769, and built his cabin on a small creek, that empties into the Watauga River, called Boone Creek. This name is said to have been given the creek in honor of Daniel Boone, who had, some time previously, made this record on the bark of a beech standing near its bank: D. Boone "cilled A B A R." The first white native of Tennessee was Russell Bean. Bean's Station now marks and commemorates this first settlement.

A fortunate combination of circumstances had freed that section of East Tennessee lying north and west of the Little Tennessee from Indians, and thus favored the rapid settlement of this most inviting country. The exemption from Indian troubles continued up to the outbreak of the war of revolution. Up to this period the Watauga settlement had grown to many hundreds, and other settlements had been made. A considerable acquisition was made to the Watauga settlement in 1771 from the refugee "Regulators" from North Carolina, who, after the defeat at Alamance, took refuge in the settlement from the threatened vengeance of Governor Tryon.

When the war began, the Watauga settlement went heart and hand with the Colonists against the King. In all the settlement not a Tory was to be found. In 1776 the settlers met together and made a written agreement for the better management of their common affairs. This agreement was called the "Watauga Association." They elected thirteen men as commissioners to manage affairs, and chose five men as a court for the settlement of all individual disputes. The members of this court were: John Sevier, James Robertson, Charles Robertson, John Carter and Zach. Isbel. At the same time they named East Tennessee the WASHINGTON DISTRICT, and sent a memorial to the authorities of North Carolina explaining that they had no desire to separate from the Province, but wished to have its laws extended over them, and were willing to bear part of all the burdens, danger and expenses of the war. To this memorial the North Carolina Legislature replied by establishing all the settlements west of the mountains into Washington county, and giving them the right to send delegates to a State Convention about to assemble at Halifax. The delegates

sent by the new county were: John Sevier, Charles Robertson, John Carter and John Haile.

Thus, to the pioneers of Watauga belongs the honor of being first to do homage to him whose name now graces more men and towns, cities, counties and states, than any other one name in history. George Washington had just been named commander-in-chief of the American colonial armies. The news was fresh to the western settlers, and in their zeal they hastened to link the name, as they stood ready to risk the fortunes of their young settlement, with the cause in which the colonies were embarking. Washington district—afterward Washington county—was the first county ever named in honor of George Washington. It was also the first county organized in the present State of Tennessee, and originally embraced the entire State.

The result of the convention at Halifax was the adoption of a constitution for the government of the *State* of North Carolina. The first Legislature which met under this constitution laid off the county and established civil courts and militia laws for the administration of justice and the protection of the settlers. At the next term a wagon-road was ordered opened from some convenient point in Burke county, across the mountains, to some convenient point in Washington county, and six hundred and forty (640) acres of land were offered to every head of a family who would go out and settle on it, and in addition, one hundred for his wife, and one hundred for each of his children. Under these impulses the number of immigrants increased so rapidly that, in 1779, it was found best to establish another county to the north of the Watauga settlement. This county was named SULLIVAN, in honor of General Sullivan of the Continental army. In the same year the present town of Jonesborough was laid off by authority of the General Assembly. It was named in honor of Wiley Jones, of Halifax, North Carolina, and was made the county seat of Washington, an honor which it still retains.

It would make this sketch too long were we to follow up the line of progress by which, from one county, has developed thirty-five in East Tennessee, and nearly twice as many more in Middle and West Tennessee. A glance at the names of the thirty-five, which we have given above, will suffice to show that for many years the people of East Tennessee continued to go to the rolls of honor of the revolution when they sought to name new counties.

At the battle of "King's Mountain" the Watauga regiment, under command of Colonel John Sevier, contributed largely towards turning

the tide of the battle, and of the war, in favor of the almost despairing colonies.

The first separate government in Tennessee was irregular and short-lived. It was known as the State of Franklin, and had at its head Colonel John Sevier. It lasted just one year, and was suppressed by the State of North Carolina. The one session of the General Assembly of Franklin, held in Jonesborough in 1785, established "Martin Academy," one of the first chartered institutions of learning in Tennessee. It was long and wisely administered by the Rev. Samuel Doak, eminent alike for his piety and his learning. In the same year North Carolina chartered Davidson Academy, at Nashville.

In 1789 the General Assembly of North Carolina ceded the territory now constituting the State of Tennessee, to the United States, and in the following year the cession was accepted by the United States, and Tennessee ceased to be a part of North Carolina.

Under Federal authority, and by the appointment of President Washington, Wm. Blount, of North Carolina, was made Governor of the Territory, and David Campbell and Joseph Anderson were made judges, in the year 1790. The Territory was at that time divided into two districts: Washington district, consisting of all the counties in East Tennessee, and Mero district, consisting of Davidson, Sumner, and Tennessee counties in Middle Tennessee. Governor Blount secured the appointment of Jno. Sevier, as Brigadier-General for Washington district, and James Robertson, for Mero. In these and the many other appointments intrusted to him, Governor Blount confirmed the choice of the people and made himself very popular. He made his official residence at Knoxville, though at the time it was nothing more than the site of a few cabins. It and the county of Knox were named in honor of General Henry Knox, then Secretary of War.

Under the territorial organization, the government consisted of a Governor, Legislative Council, and a House of Representatives. This organization was not completed until August 25, 1794. Much important business was transacted by this body, although it remained in session only thirty-seven days. Among other things, Greeneville College was chartered in Greene county, and Blount College in Knox.

At the next term of the Territorial Legislature, steps were taken to change the Territory into a State. Accordingly, a Constitutional Convention assembled in Knoxville on the 11th of January, 1796, and on the 6th of February following, the first Constitution of the *State of*

*Tennessee* was unanimously adopted. The first session of the General Assembly of Tennessee commenced at Knoxville, on the 28th of March, 1796. General Jno. Sevier was declared elected Governor and duly inaugurated. The United States Senators chosen by this Assembly were Governor Wm. Blount and William Coker, Esq., and in June following, the State of Tennessee was duly admitted a member of the Federal Union.

The name Tennessee was given to the State by the Constitutional Convention, upon motion of Andrew Jackson. It had hitherto been applied only to the beautiful river that flows through the State, and to a county in Middle Tennessee. The name was originally spelled *Tennessee*, and is said to be Cherokee for *spoon*, in consequence of a fancied resemblance in the shape of the river to a spoon.

When admitted into the Union, only about one-third of the State of Tennessee was actually inhabited by white people. There were no settlements whatever in West Tennessee, and the settlements of Middle Tennessee only extended to the counties now known as Cheatham, Davidson, Montgomery, Robertson, Sumner, Wilson, and Williamson, while the East Tennessee settlements were bounded by the Little Tennessee River, and a line running a little west of Knoxville to Kentucky. The only trade there was in the country consisted of peltries, bacon and honey, and other "trade truck," with which flat-boats were occasionally loaded on the Tennessee and Cumberland rivers, and floated to Natchez or New Orleans.

Corn was the staple crop. Wheat was scarcely known as a farm crop. Small crops of flax were grown for home consumption. Hogs, cattle, sheep and horses were grown only for home use. There was no market for anything. And yet the people of Tennessee were not worse off for comforts of life than many of their fellow citizens of older states. How the crops have changed and trade improved will appear as we take up other topics in this sketch.

#### PHYSICAL GEOGRAPHY OF EAST TENNESSEE.

There are very many interesting chapters of East Tennessee history waiting to be written, but ours is not the historian's task. We have to speak of things as we find them to-day, and just now our topic is the Physical Geography of East Tennessee, without some knowledge of which it will be impossible to arrive at a correct appreciation of either the soil, climate or industrial resources of this section.

## THE MOUNTAINS OF EAST TENNESSEE.

The eastern system of the mountains of North America is known as the Appalachian system. It begins in broad low hills near the mouth of the St. Lawrence, in Canada, and keeping approximately parallel to the Atlantic coast, extends through Vermont and New York, Pennsylvania, Maryland, Virginia, North Carolina and Tennessee, and loses itself in broad low hills in the northern parts of Georgia and Alabama. The characteristic feature of the whole system is, that it is made up of parallel ranges, separated by valleys of remarkably uniform width. These ranges are not continuous, but are broken up into stretches of various lengths. The outer ranges sink down into low broad ridges, but maintain, almost without exception, the general parallelism of the larger central ranges. The extreme length of the Appalachians is about thirteen hundred miles (1,300), and the greatest width from east to west about one hundred (100) miles. This is about midway the length, in Pennsylvania and Maryland. Without the towering height of the Alps or the massive grandeur of the Rocky Mountains, there is still much of interest attaching to the Appalachians to excite the study of men of science. Accordingly, many distinguished geologists of America and Europe have made a study of different sections of these mountains and have felt well paid for their labors. But the results of their various labors are only to be found in separate reports and society papers, and a full and satisfactory account of the entire system remains yet to be written. In each State local names are given to the various ranges which make up the system, and most of the school geographies have created confusion by failing to recognize the fact that these local ranges are but parts of one grand system. That part of the system which passes through Tennessee, has been appropriately named the Unaka Range and the Cumberland Table Land. These ranges are in turn composed of various subordinate mountains and ridges having local names and special features to distinguish them. The Unaka and the Cumberland ranges are moreover separated by the Valley of the Tennessee.

*The Unaka Range*, lies between the States of Tennessee and North Carolina, its central crest forming, for the most part, the dividing line between the two States.

The Valley of East Tennessee is in turn made up of numerous subordinate valleys, lying almost parallel. So that an orographic view would present the appearance of a great valley, with a floor fluted by



low ranges of mountains, running almost parallel with the two great ranges that form the sides. The general trend of these ranges is from north-east to south-west. At irregular intervals, the valley is partially intersected by short ridges or spurs, breaking off from the main lines and lying nearly at right angles to them. These parallel ranges and transverse ridges exercise a very powerful influence on the climate of East Tennessee. The trend of all the parallel ranges is north-east and south-west, while the dip of the floor of the valley is almost uniformly to the south-west. Near the Virginia line the elevation of the valley floor is between 1,300 and 1,400 feet, while near the Georgia line it falls to about 800—the direct distance being about 175 miles. In addition to this south-westerly dip, the entire plane of the valley has a north-westerly inclination, in keeping with the general inclination of the plane of the State. On the east the mountain range, which Prof. Safford has named the Unaka, is by far the grandest and most massive chain of mountains east of the Mississippi, and presents many peculiar and interesting features, but little known. The elevations along the State line vary from about 6,500 to about 3,000 feet. The Cumberland Mountains or “Table Land,” lying west of the valley, is much lower and possesses but few of those wild and massive features which characterize the Unakas. It varies in elevation, along its eastern rim, from 2,000 to 3,000 feet.

#### THE RIVER SYSTEM OF EAST TENNESSEE.

With the exception of a few small streams, that take their rise in the north-west corner of East Tennessee, and flow into the Cumberland River, all of the water courses of East Tennessee, both great and small, flow into the Tennessee River, and find their way out of the valley, through one common channel, near the southern boundary of the State, west of Chattanooga. Standing on the northern ledge of the mountain range that lies just along the Alabama State line, and looking north-east, the streams of East Tennessee would present the picture of an enormous oak tree, with its grand and graceful trunk stretching across the entire State and resting its head far up in Virginia, while its numerous branches stretched on either side far and wide. The tributaries on the eastern side are more numerous and more rapid than those on the west, and are fed by many more smaller streams. These streams are all remarkable for their clear waters and rapid currents, and are filled with many of the most esteemed varieties of fish. The principal of the tributaries on the east are the Watauga, the

French Broad, the Little Tennessee and the Hiwassee; on the west, the Clinch and the Sequatchie. Each of these rivers is fed by smaller rivers, and they, in turn, by smaller streams, until the head waters are divided into small branches, flowing from clear and limpid springs bursting out from every nook and cove of the mountain sides. The whole forming a net-work of water unsurpassed in any land.

#### CLIMATE.

East Tennessee has a climate more equable and pleasant than that of any other part of North America, east of the Rocky Mountains. It lies between parallels  $35^{\circ}$  and  $36^{\circ}4'$  north, and its mean altitude is 1,000 feet above the sea level. The prevailing winds are from the south-west and west, and they bring a constant and bountiful supply of rain from the Gulf of Mexico.

Knoxville is the geographical center of East Tennessee, and it occupies a mean elevation too, so that it may be taken as the climatic center also. This is fortunate, since it is only at Knoxville that regular observations have been taken. On this point we cannot do better than quote from the "Geology of Tennessee," by Prof. Jas. M. Safford.

"The summer mean at Knoxville, which has been placed at  $73^{\circ} 6'$  is about that of Philadelphia, Pennsylvania, as well as that of several points in central Virginia, of Cincinnati, Louisville, Kentucky, southern Indiana and central Illinois. It is, too, I may add, that of the central part of Spain, and the northern part of Italy. The summer of the East Tennessee Valley is, therefore, considering its valley-like character and its low latitude, a comparatively cool one. This is mostly due to the considerable elevation of the region above the sea." (Page 65.)

According to very careful observations made at the East Tennessee University, under the direction of the United States signal service, at Knoxville

The mean temperature for the year is.....	$57^{\circ}$
The mean heat for the summer is.....	$74^{\circ}$
The mean cold for the winter is.....	$40^{\circ}$
Average maximum temperature .....	$91^{\circ}$
Average minimum .....	$2^{\circ}$

The result is a mild and equable climate that combines delightfully the temperate and tropical, without the extremes of either.

The mountains on either side protect the valley from the blighting

and chilling northern and north-western winds that so scourge the plains of the north-west—while they act as natural conduit for the milder and gentler winds that come from the Gulf of Mexico. But even these are tempered into pleasant breezes, by the spurs or cross sections of mountains before mentioned as breaking out from the main ranges. Thus it comes, that while it is a very rare occurrence to see the anemometer standing still, destructive storms are never experienced.

#### HEALTH.

A happy result of these influences is a degree of exemption from all malarial and atmospheric diseases, unsurpassed in any country. The undulating surface of the land, the great numbers and rapid flow of the rivers, the entire absence of all low and marshy lands, and the constant flow of gentle breezes, keep the atmosphere pure and exhilarating to a delightful degree.

#### MINERAL SPRINGS.

In addition to the healthful climate, the mountain regions abound with all manner of mineral springs, many of them furnishing waters that have been thoroughly tested and long noted for their healing properties, and have of late years become popular resorts for health and pleasure-seekers from all parts of the south.

#### AGRICULTURE.

Though soil and climate may limit the agricultural capacities of any given land, location and facilities for transportation will always directly shape the character of crops grown as well as the style of cultivation. This truth is well illustrated in East Tennessee. Variety is the characteristic of the soil as it is of the geology of this section. It is true that the great body of the soil is of a limestone character, as limestone is the predominating rock, but limestone soil varies more widely than any other, and there is scarcely a variety that is not to be found in East Tennessee. And all limestone soils, if not rich and fertile, may be made so at comparatively small cost. The sandstone soils of this section are also quite varied in character, and many of them possess very valuable features. For farming purposes, however, they are far exceeded by the limestone. The sandstone soil is confined almost

exclusively to the high mountains, while the limestone soil makes up the lower hills and valleys. How rich these valley and cove lands have been, may be imagined from the enormous size of many of the trees. The fertility of these soils warranted the planting of any crop the farmer might wish to grow, while the equable climate favored any but purely tropical plants; but East Tennessee, with all its fertility of soil and salubrious climate, was shut in by mountains very difficult of crossing. There were no near markets, and only one practicable route to the distant ones. The Tennessee River offered a possible outlet for any produce that the East Tennessee farmers might have to send off. But this route, when open, was very long and tedious, and was practicable only for flatboats and in high water, owing to the obstruction of the muscle shoals. As a consequence of this isolation and lack of transportation, Indian corn was, for many years, the only farm product shipped from East Tennessee. With the increase of population, and the development of the resources of the section, roads multiplied and were improved, and the facilities for trade and commerce were greatly extended. Farmers, too, learned to feed their corn to hogs and cattle instead of shipping it off raw. Still the farm operations of East Tennessee moved in a very narrow circle until the completion of the line of railroad from Virginia to Georgia opened the doors to markets north and south. Corn and oats, and oats and corn, were the chief and only staples. On the majority of farms no other crops were grown. Of course it will be understood that this description applies to the general practice, and is, by no means, applicable to the many individual exceptions, in which intelligent farmers sought, with most praiseworthy zeal, to introduce all the modern improvements and develop the bountiful resources of their sections. It was owing to the presence of these men of superior intelligence and enterprise that the improvement in farming spread so rapidly when once the doors were thrown open to the markets of the world. It would be difficult to overestimate the value of the influence which the Virginia and Georgia line of railroad has exerted on the agricultural interest of East Tennessee. It is all the more admissable and desirable that the good work that it has done be noted and acknowledged at this time when, under the excitement of feeling against railroads, on account of alleged exorbitant rates of freight and travel and invidious discriminations, many are apt to lose sight of the amount of the indebtedness of the entire community to railroads. The extent and character of the revolution which this road has worked and is working in the farm economy of East Tennessee may be estimated by reference to the

chapter on Transportation—Railroads. For these facts\* we are indebted to the kindness of Captain Jos. Jaques, the Superintendent, and Mr. Ogden, General Freight Agent, at Knoxville.

The point brought out by these figures to which we wish to direct especial attention, is the very great increase in the smaller products of the farm, such as butter and cheese, eggs and poultry, fruit fresh and dried. In this we discover that the characteristic of East Tennessee agriculture is *diversity of products*. This characteristic is strengthened by the prevalence of small farms. According to the census returns of 1870 there are, in East Tennessee, 26,331 farms. Of these only nine are reported to amount to, or exceed, 1,000 acres, only seventy amount to 500 acres and over, while 6,379 are between 100 and 500 acres, leaving the large proportion of 19,873 under 100 acres. While it is freely admitted that census figures are very little to be trusted, where accuracy is desired, it cannot be denied that, after every allowance is made, these figures show, what is true, that in the matter of sub-division of farms, East Tennessee has gone quite as far as seems to be desirable. However this may be, the fact remains that the small farms and diversity of crops characterize East Tennessee agriculture. And it is mainly to these facts that we trace the marked increase within a few years of the smaller industries of agriculture. But it must not be assumed that because these little things have grown that larger things have been neglected. Such is by no means the case. Turn again to the account of shipments and see how corn, wheat, and bacon figure.

**WHEAT.** East of California no section of America is better adapted by soil and climate to the growth of wheat than East Tennessee. Since 1858 the fact has been well established that Tennessee wheat could command a premium in the New York market. This fact, and its cause, is clearly stated by Henry C. Carey, the distinguished political economist :

“Even before the war a great change had commenced in regard to the sources from which northern supplies of cereals were to come, Tennessee and North Carolina furnishing large supplies of wheat, *greatly superior* in quality to that grown on northern lands, and commanding higher prices in all our markets. The daily quotations show that southern flour, raised in Missouri, Tennessee, and Virginia, brings from three to five dollars more per barrel than the best New York Genesee flour; that of Louisiana and Texas is far superior to the

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\*See chapter on Transportation—Railroads.

former even, owing to the superior dryness, and the fact that it contains more gluten, and does not ferment so easily. Southern flour makes better dough and maccaroni than northern or western flour, it is better adapted for transportation over the sea, and keeps better in the tropics. It is, therefore, the flour that is sought after for Brazil, Central America, Mexico, and the West Indian markets, which are at our doors. A barrel of strictly southern flour will make twenty pounds more bread than Illinois flour, because, being so much dryer, it takes up more water in making up."

Add to this the fact that the Tennessee harvest precedes that of New York and the north-western states by nearly a month, and it becomes evident that, so far as quality and time of selling go, our statement of the superiority of Tennessee, as a wheat section, is borne out. The quantity grown per acre is far below what it should be. The gross yield might be trebled by judicious management.

**CORN.** Of corn, East Tennessee has long produced too much in proportion to the other crops.

**OATS** are much grown and of excellent quality. In this crop there has been much improvement of late years.

Both natural and artificial grasses flourish in the greatest luxuriance. Indeed, from the lofty mountain lands in the East, where timothy grows six feet high, to the banks of the Mississippi, where the Bermuda grass abounds, it is doubtful if a greater variety of good grassland can be found within the bounds of any State in the Union.

**RED CLOVER.** Throughout East Tennessee, wherever the land is properly prepared, a good stand of red clover may be secured, and when once secured, from one and a half to three tons of hay may be counted on. Such has been the experience of forty years.

**TIMOTHY.** From the meadow lands of the valley to the table lands of the mountain, timothy of the rankest luxuriance may be met with. With equal care it yields about the same as clover.

**BLUE-GRASS.** This favorite grass of the limestone regions, which has given name and fame to the richest region of Kentucky, grows indigenously throughout almost all of the valleys and coves of East Tennessee, and is easily introduced upon most of the uplands that are in good heart.

**ORCHARD-GRASS, (*Dactylis Glomerata*).** This grass has been but sparingly introduced into East Tennessee, but has failed nowhere. It

succeeds admirably, and takes rank even above blue-grass in the estimation of those who have tried it. It is rapidly spreading, being sown with clover for hay, or alone for pasture. It is much relished by all kinds of stock, green and in hay, and yields abundantly.

**MOUNTAIN PASTURES.** One of the prominent features of stock-growing, as practiced in East Tennessee, is the use made of the luxuriant growth of wild grasses and succulent vines and shrubbery that clothe the mountain sides and tops. Vast areas of unoccupied lands here furnish almost unlimited and inexhaustible range for cattle and sheep. And thousands are driven out every spring to pass the summer in these free pastures, from which they return in the fall as fat as grass can make them.

**CATTLE.** The native cattle of East Tennessee are descended mainly from the stock brought by the original settlers from North Carolina and Virginia. They are generally small, hardy and active. More nearly resembling the Devon, Ayrshire and Kerry than the Short-horn or Hereford types, and, as a general rule, are good milkers. Only a few farmers, comparatively speaking, had made any effort to improve the cattle of the section before the war. Within the past few years, a considerable impetus has been given to the improvement of cattle, through the influence of county and division fairs and conventions. Quite a number of excellent small herds of thoroughbred Jerseys, Devons and Short-horns are now scattered throughout the valley, and a commendable spirit of improvement seems to be spreading throughout the entire section. The tendency at present is in favor of the smaller and milking breeds. Among these, the Jersey takes the first rank. As a consequence, the quantity and quality of East Tennessee butter is rapidly increasing and improving. At the same time the number of farmers who fatten cattle for shipping is steadily increasing. For this purpose it is probable that the Devon will take precedence of the Short-horn in the larger part of East Tennessee, owing to the ability of that breed to keep on shorter pasturage than either the Short-horn or Hereford. With the increase of cattle feeding, the sale of hay and corn will cease. A thing much to be desired.

**SHEEP.** Sheep husbandry in East Tennessee is in its infancy. If the country can ever get rid of the thousands and tens of thousands of worthless dogs that over-run it, the rearing of sheep will very soon thereafter become one of the leading and most profitable branches of rural economy in East Tennessee. The natural advantages are unsur-

passed in America; but hitherto every effort to develop this industry has been frustrated by the abominable dogs.

**HOGS.** The rearing and fattening of hogs has long been a favorite branch of East Tennessee farming. The near and profitable markets offered by Alabama and Georgia have, for many years, been largely supplied from East Tennessee. There is still much room for increasing the supply and leaving the demand unsatisfied. The Berkshire is much the most profitable and popular among the improved breeds. There is, however, much need of improvement in the general stock of hogs.

**POULTRY.** More or less of poultry is raised, or allowed to breed on all farms in Tennessee, but as a general rule, the fowls get but little or no attention, and what they get is given them by the "women folks" and children. In East Tennessee, however, the rearing of poultry is fast growing into one of the fixed industries of no insignificant importance. Already a poultry car is a regular fixture on the Virginia and Georgia Railroad, and the business is rapidly increasing, as may be seen by reference to the railroad figures already referred to. There is no one breed kept to any considerable extent, but the old-fashioned Dominique is most common. No separate poultry farms have yet been established, nor is it probable that there will be soon; but it is becoming quite a general practice for all small farmers to raise more or less poultry, and to rely on them for more or less of the profits of the farm.

#### THE ORCHARD.

Did space permit, the facts would justify an elaborate presentation of the advantages of East Tennessee as a fruit region. But the length to which this report has already extended, and the many other weighty topics yet to be dwelt on, compel us to condense into bare statements many facts that we should like to dwell on.

**APPLES.** From the days of the earliest settlers, even among the Indians, excellent apples have been grown in East Tennessee. Many orchards half a century old still bear abundant crops. Most of these old orchards are stocked with native varieties, and many of these rival the best and most popular varieties of the north. As yet, however, the apple has been sold from East Tennessee only in the shape of dried fruit. In this form it is a very considerable article of export.



PEARS. Only a few experiments have been made in growing pears as an orchard crop, but in every instance, under proper care, they have succeeded admirably.

PEACHES. Only a small amount of attention is necessary to secure abundant crops of peaches throughout the greater part of East Tennessee.

GRAPES. On this subject, we cannot do better than quote from an admirable address delivered some years ago by Hon. O. P. Temple, before the Knoxville Industrial Association :

“ Before the late war, the varieties planted here were the Catawba and the Isabella, and here, as nearly everywhere else, they proved unreliable—some years making splendid crops, and sometimes failing. Since the war, new varieties have been introduced, and, so far as they have been tested, they promise to prove an entire success. This is particularly true of the Concord. That this justly popular grape, as well as the Hartford Prolific and the Norton’s Virginia, and other varieties, will do as well here on the banks of our rivers as in any part of the United States east of California or New Mexico, does not admit of a doubt.

“ On this subject, Mr. George Husman, a grape-grower of Missouri, and the author of a standard work entitled ‘ Grapes and Wine,’ speaking of the advantages of his State for grape culture, says : ‘ The mountainous regions of Tennessee, Georgia, Arkansas, Texas and Alabama, may perhaps rival, and *even surpass us* in the future, but their inhabitants at present are not of the clay from which grape-growers are formed.’

“ That may have been true of us in the past, and even yet, but let the author of ‘ Grapes and Wine ’ remember that, in East Tennessee at least, old things are passing away, and that this secluded region, girdled round with mountains—this heretofore *terra incognita*—snuffs from afar the spirit of advancement, and will ere long tread on the heels of her most forward sisters, *even of Missouri*, in all that pertains to material, moral and mental progress.”

What he then predicted, Judge Temple has since done much to verify. He has on his own place as fine a vineyard of the grapes named, and many others, as can be found anywhere in Missouri.

STRAWBERRIES. The same may be said of strawberries that has been said of grapes, and the same gentleman has demonstrated that

the Charles Downing, Agriculturist, Barnes' Mammoth, Boyden's No. 30, Triomphe de Gand, and many others of the most popular varieties, can be grown as successfully in East Tennessee as anywhere else in the United States. Indeed, for at least two seasons past, Knoxville might have challenged any city in the Union to show finer strawberries than were offered in her market.

We leave the fruit department with reluctance, because we see in it so vast a field for profitable development.

#### STYLE OF FARMING.

The system of agriculture practiced in East Tennessee is very far from perfect. There is scarcely any point in which it does not need improving. Some of the points in which improvement is most needed we shall state briefly, prefacing with the remark that we speak in general terms, of general practices, and in no case refer to individuals.

**ROTATION.** There is no system of rotation practiced. Corn follows corn, year after year, if the farmer thinks his land will stand it. If any change is made, it is to alternate oats and corn and maybe wheat. But system there is none.

**PREPARATION OF LAND.** The bull-tongue plow does the greater part of the work the year round. This is by no means the worthless instrument which it has been represented to be, nor is it the perfect thing which the use made of it in East Tennessee would indicate. The farmer who relies mainly on the bull-tongue will always have foul fields. Deep ploughing and thorough cleaning are the two things most needed in the preparation of the land on the most of farms in East Tennessee. For these purposes better implements are essential.

**FENCES.** The worm fence, made of rails, is universal throughout East Tennessee. They are none of the best when new, and the common practice of allowing the corners to grow up in briars and bushes rots them very rapidly.

**FARM BUILDINGS.** These are generally built of wood. The dwelling-houses often of plank, but most generally of logs. They are neither handsome, comfortable nor convenient, as compared with the better class of houses. The stables and out-houses are mere make-shifts. They are by no means sufficient in numbers and room, and very badly built. Too little care is taken of stock and implements, and too little regard is paid to the comfort of the farmer and his family. The room for improvement in these particulars is very great.

These criticisms apply with more or less force to American agriculture in general, and especially to that of the Southern States. And while it may be true that, owing mainly to its comparative isolation for so long a period, agriculture is less advanced in East Tennessee than in Middle or West Tennessee; it is also true that several circumstances combine to stimulate a more rapid advancement in East Tennessee in the future, than can be hoped for in either of the other sections. One of these circumstances is the tendency to develop the small industries already alluded to. In these industries the labor of women and children, which is almost entirely unused in the other sections, can be profitably employed. Another favorable circumstance is the character of

THE FARM LABOR. In comparison with the other sections, the number of slaves was always small in East Tennessee, and the number of non-slave holding farmers quite large. As a consequence, there has always been a much greater proportion of the farm work done by white laborers. Since the war, year by year the number of negroes has rapidly diminished, by emigration to the cotton regions mainly, and of course the number of white farm laborers has increased. This condition of things has already opened the way for the introduction of considerable foreign farm labor. This brings us to the consideration of the next favorable circumstance of which we wish to speak.

#### IMMIGRATION.

No part of Tennessee certainly, perhaps no part of the south, has received so many immigrants since the war as East Tennessee. From the northern states and from Europe many most excellent people have come, and more are coming every year. So far, they have been mostly men with families, possessing small means, who come to make their homes here. They are heartily welcomed, as they would be anywhere else in the State, and almost universally they are well pleased, and write back to their old homes inviting others to come. Comparatively few immigrant laborers have as yet come to this or any other part of the south. The time has not come for them, as yet, but it will come soon, and when it does, East Tennessee will be one of the first sections supplied. In the meantime, the native farm laborers should be cultivated and encouraged to improve in skill and intelligence. The farmers who set the example of bettering the condition of this class will not only be public benefactors, but will find their profit in doing good.

## MINERAL RESOURCES.

The Mineral resources of East Tennessee are exceedingly rich, abundant and varied. Some general notion of the character and extent of these resources may be gathered from Prof. Safford's excellent Geological Report, but no adequate survey has as yet been made of the entire region, and no trustworthy statistics as to the present state of development are to be had. This very much needed information it is the purpose of the Bureau of Agriculture, in part, to supply. We can only state, therefore, in general terms, through what sections and counties the various minerals are known to exist, without attempting to particularize as to localities and mines.

**IRON.** The iron regions of Tennessee, as described by Prof. Safford are three: the Eastern, the Dyestone (or Cumberland), and the Western.

The Eastern region extends along the western base of the Unaka range of mountains. It passes through parts of Johnson, Carter, Sullivan, Washington, Greene, Jefferson, Cocke, Sevier, Blount, Monroe, Polk and McMinn. The iron of this region is of three species, as follows:

1. *Limonite*, (Brown Hematite) containing, when pure, nearly sixty per cent. of metallic iron.
2. *Hematite*, (Red) containing when pure nearly seventy per cent. of metallic iron. Varieties, (hard solid ore,) (Dyestone or stratified ore.)
3. *Magnetite*, (Black,) contains, when pure, seventy-two per cent. of metallic iron.

The first is most abundant, the third the rarest and richest.

In this region the iron is found at the bottom of the many coves and valleys that fringe the western slope of the Unakas. The ore is of sufficient quantity to supply, for an indefinite period, an average of four large-sized iron works to each of the counties named, or an average total of forty-eight iron works.

The *Dyestone*, or Cumberland region, extends along the entire eastern face of the Cumberland range, and is a part of the grand belt which extends through the entire Appalachian system from Canada to

Alabama. In no part of its immense limits is it richer or more abundant than in the Tennessee section. Included in this section are all or parts of the counties of Hancock, Claiborne, Grainger, Campbell, Anderson, Roane, Rhea, Meigs, Hamilton, Marion, Sequatchie and Bledsoe. The iron of this region is of two species: the Dyestone, or Red Hematite, and the *clay-ironstone*. The former much the best known, and most abundant; the latter of exceeding value on account of its occurrence with coal. This is the species that is mostly used in England.

The amount of iron in this region almost defies computation, and its proximity to the coal regions renders it additionally valuable.

At various points throughout the valley are to be found considerable quantities of iron. Not enough, however, in any one place to justify the erection of extensive works.

**COAL.** The Coal Measures of Tennessee are co-extensive with the Cumberland Plateau, stretching across the State from Kentucky to Alabama, embracing an area of some 5,100 square miles, and about eight feet deep. Of this immense area Prof. Safford makes three divisions. The Sequatchie, the Raccoon and Walden's Ridge, the North-eastern. All of these crop out in East Tennessee on their eastern borders. The Sequatchie division in Marion, Sequatchie and Bledsoe; the Raccoon division in Marion, Sequatchie, Hamilton, Bledsoe, Rhea, Cumberland, Roane and Morgan; the North-eastern division crops out in Morgan, Anderson, Scott, Campbell and Claiborne. Of the quality of this coal Prof. Safford says: "All the Tennessee coals are bituminous; but as such they present many varieties. Some are highly bituminous, gas-making coals; others are semi-bituminous; some open, free-burning, while others are cokeing coals."

Since the war, all of these qualities have been put to the test alongside of the best coals of other regions, and the result is all that could be desired by East Tennesseans.

**COPPER.** The copper region of Tennessee is confined to the southeast corner of East Tennessee. It is known as the Ducktown region, and is very rich in ore of excellent quality.

**LEAD AND ZINC.** These two metals are found in small quantities in many parts of East Tennessee. Indeed, there is scarcely a county in which small quantities of lead may not be found. With the exception of perhaps two or three localities, however, it is not likely ever

to be developed sufficiently to pay. The most promising veins of lead are in Union and Monroe counties. Zinc is found in considerable quantities in Union, Claiborne and Jefferson counties.

**GOLD.** For many years a small amount of gold has been mined in East Tennessee. The gold region extends from the French Broad River to the Georgia State line. The amount of gold to be found in any place, however, is too small to justify any considerable expense in getting it out.

**MARBLE.** Next in value to its iron and coal, come the marbles of East Tennessee. Already these have attained national reputation by reason of the use made of them in the national capital at Washington and the State capital at Nashville. There are found in East Tennessee six distinct varieties of marble, to-wit :

1. *Reddish Variegated Fossiliferous.* This is much the most valuable and most abundant. It is found in Hawkins, Hancock, Grainger, Jefferson, Knox, Roane, Blount, Monroe, McMinn, Bradley, Meigs, Anderson, Union and Campbell counties. This variety is popularly known as the Hawkins county marble, owing to the fact that the most of the marble sent to Washington and Nashville, for use in the two capitals went from that county.

2. *Whitish Variegated Fossiliferous.* Akin to the above. This variety is also very abundant and furnishes some of the most beautiful marble to be found in the national capital. The largest quarry opened is within a mile of Knoxville, from which the custom-house is built.

3. *Dull Variegated Magnesian.* This variety in many places makes an excellent building-stone, and is quite available.

4. *Black and Dark Blue.* Throughout most of the extreme eastern counties are to be found beds of this variety. It takes a good polish and much of it is checked with narrow white veins that, contrasting with the dark color of the body, render the slabs very handsome.

5. *Breccia and Conglomerate.* This variety occurs chiefly in the coves and valleys at the foot of the Unaka Mountains. The peculiar feature of this variety is the mosaic appearance given it by the angular fragments of various colors which compose it. Good specimens, well polished, are exceedingly beautiful.

6. *Conglomerate.* This variety differs from the last named only in the rounded form of the various colored fragments that compose it. The last two varieties are comparatively of limited extent.

## OTHER BUILDING STONES.

*Granite* of excellent quality and exceeding beauty is found in almost all of the beds of the Metamorphic group in East Tennessee. Fine specimens of gray and flesh-colored have been taken from beds lying in Johnson, Carter, Washington, Coeke and Polk counties.

*Sandstone.* Throughout all the sandstone groups, extensive beds of most excellent building-stones may be found. Owing to the little use made of stone in building, throughout East Tennessee, very little of this inexhaustible material has been tried. One quarry on the Knoxville and Ohio Railroad has been opened to a limited extent, and the stone used in the front of E. G. Sanford & Co.'s handsome building, in Knoxville. The stone is of a beautiful brown, comparatively soft when taken from the quarry, but hardening under exposure to the atmosphere.

*Flagstones*, of an excellent quality and in great abundance, may be obtained in Morgan and Anderson counties. In the latter very close to the railroad.

*Roof Slates*, of good quality and abundant in quantity, are found in Polk, McMinn, Monroe, Blount, Sevier and Cock counties. The greatest quantity and best quality perhaps is on the West Fork of Little Pigeon River, in Sevier county.

*Millstone material*, hydraulic limestones, fire clay, potters clay and mineral paints abound, many of the very best variety, and conveniently located for transportation.

(For timber, see chapter on timber.)

## MINING AND MANUFACTURING.

In no department of industry has there been so much capital invested and so much work done in East Tennessee since the war as in mining and manufacturing. The opening of the Knoxville and Ohio Railroad to the grand coal fields of the Cumberland Mountains, has given a powerful impetus to these departments. Several extensive coal mines have been opened, several large foundries established, and active measures are on foot for the establishment of many more. In almost every county of East Tennessee, prospecting surveys are making, with a view to finding out the character and extent of the hidden wealth of the land. And all indications point to the rapid

growth of the mining interest throughout this section of the State. As yet the stimulus to manufacturing has become neither so general nor so active as the mineral developments would seem to justify. This is in some measure due to a scarcity of capital, undoubtedly, but it is in a larger measure due to the lack of enterprise and the absence of that spirit of improvement so essential to the rapid development of the wealth of a country. Beyond iron furnaces and foundries, cotton-yarn factories, wool-carding factories, planing mills, tanneries, coach factories and such other mechanical industries as are absolutely necessary, almost nothing has been done.

“ We import from other States, all of our reapers, mowers, threshers and engines; all of our chains, axes, shovels, spades, hoes, rakes, forks, wire, sheet-iron, iron pipe, hinges, scythes, picks, willow-ware and rope, and even our axe and pick handles and wagon spokes; most of our plows, brooms, furniture, wooden-ware, fire grates, stoves, corn shellers, horse shoes and horse-shoe nails, domestics, prints, woolens, boots, shoes, hats, clothing, horse collars, most of our carriages and many of our wagons, besides hundreds of other articles. The average cost of transportation upon thirty of these articles, as I learn from a leading hardware house, is seventeen per cent. as compared with the original cost. On stoves it is from twenty to twenty-five per cent.; on reapers, mowers and threshers, fifty per cent., and on fire-proof brick, one hundred per cent. Hundreds of reapers and mowers are sold here that are manufactured in Chicago or Ohio; plows and axes and even horse shoes are brought from Connecticut; stoves are brought from Albany, Philadelphia and Cincinnati; carriages are brought from New Hampshire; even brooms are brought from New York.”—*Judge O. P. Temple, before Knoxville Industrial Association.*

Not one of these articles but could be profitably manufactured in East Tennessee. Not one but will be, within the next decade, if things do but prosper as they promise. No portion of America offers more, or better natural advantages for manufacturing. Water courses without number and of unlimited power, and coal inexhaustible, furnish motive power for as much machinery as now moves in all Pennsylvania and New England. Nor is there any less abundance of the raw materials. Every species of useful ore lies almost in contact with the coals, timber of every variety and of excellent quality clothes the hillsides on every hand. Everything needful is at hand for the manufacture of metal or wood, and the same facilities offer for woolen manufactories, while thousands upon thousands of acres now lying idle,



would make as fine sheep-walks as America can boast of. With cotton, too, though it may not be grown in East Tennessee with profit, East Tennessee is the nearest point to the cotton belt, where the natural facilities for its manufacture are to be found. In short, every natural advantage for manufacturing is found in East Tennessee, but the spirit of enterprise is wanting. The people have yet to learn the power of associated capital. The joint stock company is almost an indispensable institution where manufactures or mines are to be opened. The cost of such works is beyond the individual purse. But the people of the entire south are lacking in that commercial spirit that begets joint stock companies, and until they improve in this respect, they will not engage very extensively either in mining or manufacturing. In the meantime, the golden harvest will not appeal in vain to the many men from abroad, who are every year prospecting through East Tennessee, and foreign capital and enterprise will gradually gather in the harvest, while the native people are learning to be enterprising. Such at least are the present indications. Most of the mines opened and manufactories erected since the war, are wholly or in part under the management of new-comers.

On this subject, however, it is but fair to state that the complaint is very general among the miners and manufacturers that the railroads cramp their operations and prevent their developments by their high rates of charges. How far the complaint is just, we cannot say. We only note it as one of the excuses made for the slow growth of these great industries.

While speaking of railroads, and mining, and manufactories, we must not pass by a new feature in railroads that seems destined to play a very prominent part in the future progress of railway transportation, and that is

#### THE NARROW GAUGE RAILROADS.

Of the utility of railways, there can be no question, and the only obstacle to their universal adoption in the place of wagon ways, is their cost. In proportion as this cost is reduced, will this substitution take place. It was in response to this desire for cheap railways, that the narrow gauge was invented. It is a well-known fact, that on a large number of American railroads, there are considerable periods of the year during which the freights and passengers scarcely pay expenses. And on the majority of them, there is one direction which does not

pay so much as the other. These two sources of co-operative loss, it is claimed, may be removed by the use of narrow guage roads. The estimated cost of constructing and running such roads is far less than that of the ordinary roads, while it is claimed that for the greater part of the year they could do all the carrying. However this may be, the one point about which we are now interested, is the introduction of narrow guage roads into the main branch valleys of East Tennessee. There are several exceedingly rich valleys in East Tennessee, which would abundantly support such roads. And every such road would promote the rapid development of the valley through which it passed, besides contributing to the business of the main roads. Several such roads are now talked of, and we refer to the subject merely to indicate the line of possible development which internal improvement is to take in East Tennessee.

#### EDUCATIONAL FACILITIES.

Naturally and rightfully, before moving to a new home, one wishes to know what facilities are offered for educating his children. Upon this very important point, East Tennessee can well afford to invite comparison with the other portions of the State, although, in truth and candor, it must be owned that throughout the entire State the facilities for education are lamentably deficient. A strong desire for improvement in this respect is, however, rapidly spreading throughout all East Tennessee, and there is every reason to believe that this spirit will grow and increase, until the educational advantages are equal to the natural wealth of the section. At present, there are several colleges and seminaries in healthy operation in various parts of the Valley, and at Chattanooga and Knoxville city schools are kept up in fair style for ten months in the year. The East Tennessee University, at Knoxville, is one of the oldest institutions of the State, and has done much good in its time, numbering among its *alumni* many of the most prominent public men of the State. In 1869, this institution undertook the establishment of the Tennessee Agricultural College, under the Congressional endowment. This college is now among the most flourishing in the State, and promises to develop into an institution of the highest rank and value. It is designed to train young men in the principles of those sciences especially applicable to agriculture and the mechanic arts. This purpose entitles it to the cordial sympathy and hearty support of the farmers and mechanics, and when

the college comes, to be in truth what it was designed to be, it will undoubtedly obtain this support.

#### SOCIAL LIFE.

The luxuries and refinements of social life have never flourished in East Tennessee. All the conditions and surroundings of the people have contributed to foster those simple and frugal habits of life which characterize most mountain people. As a consequence, even now a great many, perhaps a majority of the families in East Tennessee, wear home-made clothing in part or altogether. As a result, while they do not dress finely, they live well and are free from debt and own what they use. Hospitality is a cardinal virtue throughout all the South and East Tennessee is no exception. The well-behaved stranger, whether he comes as a mere passer-by or an immigrant, is sure of a hearty welcome and kind treatment.

#### CHURCHES.

All of the leading Protestant denominations have churches scattered throughout the different counties, in which religious services and Sunday schools are regularly held. The Methodists, Baptists, and Presbyterians are most numerous. There are a few Quakers, and at Knoxville and Chattanooga, Roman Catholic churches. All of these denominations have one or more male and female schools or colleges, located in different counties, and are actively alive to the work of spreading the gospel, at the same time that they work most earnestly for the increase of their own sect.

Thus have we, in a brief and hurried manner, gone over the salient points in the industrial resources of East Tennessee. Of necessity, we have done but scanty justice to the many interesting features, which render it one of the most promising fields for the future growth of wealth and prosperity to be found in the United States. We can only refer the reader to the details as given in the accounts of different counties. Brief and incomplete as these details are, they cannot fail to impress the observing reader with the fact that nature has lavished her wealth as abundantly upon East Tennessee as upon any part of the United States. This wealth lies waiting the hand of enterprise and skill to develop it.

## ANDERSON COUNTY.

COUNTY SEAT—CLINTON.

This county, situated partly in the Valley of East Tennessee and partly on the Cumberland Table Land, was established by the Legislature as early as 1801. It contains about 450 square miles. Its physical geography is of a most interesting character. It has great inequalities of surface. Its north-western half is a high mountainous rough region, traversed by deep ravines, and covered on the slopes with a dense growth of timber. The surface of this portion does not partake of the general character of the Cumberland Table Land, which usually has a flat or slightly rolling surface. It here rises to a higher altitude, and is the water-shed between the Cumberland and Tennessee rivers. Several creeks, flowing north-westerly, unite and form the South Fork of the Cumberland, while Coal Creek and Poplar Creek flow in an opposite direction, south-easterly, and empty into the Clinch, a tributary of the Tennessee. Between the south-western escarpment of the Cumberland Table Land and the Valley of East Tennessee, Walden's Ridge, with its nearly vertical strata of sandstone, forms a huge barrier, almost continuous throughout the county, and preserving its parallelism with the Table Land. This ridge, so singular by reason of its tilted strata and its persistent continuity, is cut in a few places by transverse gaps or fissures down to the level of the valley, and through these gaps the streams that take their rise upon the southern side of the Table Land find a passage to the Clinch. Between the ridge and the Table Land, a narrow rocky valley, down which a railroad might run, preserves its continuity through the entire diagonal length of the county. Coal Creek flows down this valley in a north-easterly course, and unites, at a point between the ridge and the Table Land, opposite the village of Coal Creek, with Welding's Fork, which comes from the valley above. The united streams flow nearly at right angles to their original courses through a deep narrow cut in Walden's Ridge, which here makes a beautiful symmetrical curve, forming nearly a quadrant. This curve has its counterpart in the Table Land, and makes what is called the Big Butt. This Big Butt furnishes a great amount of excellent coal, the working of which will be referred to hereafter.

Between Walden's Ridge and Pine Ridge is a narrow valley, which is, in fact, a continuation of Powell's Valley, though much shrunk in

its dimensions and diminished in its fertility. Pine Ridge is one of the characteristic ridges of East Tennessee, whose north-western slope is of an abounding fertility, crowned with stately forests, while the opposite side, exposed to the vertical rays of a burning sun, is parched into sterility and barrenness. Going transversely across the county in a south-easterly direction, we next meet a series of broken hills and ridges, which may be termed the river ridges of Clinch River. Crossing the Clinch, whose general course is south-west, though making some great convolutions before reaching Clinton, the county seat, we reach Lone Mountain, which is in the same line with Powell's Mountain, and is really a continuation of it, and extends from Roane up through Claiborne and Union counties. On the south-western slopes of this mountain are found the Trenton and Nashville strata of limestone. The tangled masses of luxuriant creepers which envelop the tops of stately trees like a green tufted veil, indicate a soil teeming with an abundance of plant food. The White Oak red sandstones sheet the opposite side, and, in their tilted positions, resemble the huge scales of a water monster. As in Powell's Mountain and Clinch, the south-east side is poverty stricken. The timber is sparse and scraggy, and the thick scales of sandstone leave but few interstices for the gnarled roots of the famishing timber to penetrate. On this side, however, is found the Dyestone formation, which contains some rich beds of red hematite, or fossiliferous iron ore.

Continuing our course south-east, we come to Chestnut Ridge and Flint Ridge. The last is characterized by occasional deposits of oxide of iron, which occurs in pockets. This ore does not work readily in a furnace, on account of its hardness, but mixed with the red or brown hematites, it adds greatly to the quality of the iron. A little west of Clinton is a ridge known as Black Oak, though not the same as passes through Knox county of the same name.

The most noted valley in the county, and the one best suited for farming purposes, lies between Lone Mountain and the Clinch River hills. It is about one mile in width, and extends from Moore's Ferry, on the Clinch River, through the remainder of the county, and continues on into Virginia. Near the base of Lone Mountain, the soil of this valley has a chocolate color, but grows darker as one approaches the river from the mountain. Nowhere does it attain the blackness of the alluvial bottoms, but is rather intermediate between the red lands mentioned and the river bottoms.

*Streams.* Clinch River, the great arterial current of the county, with

several long bends, passes nearly through the center, its general course being a little west of south. It is a rapid stream, flowing, for the most part, over rocky ledges. The channel is often obstructed with large stones that have rolled down from the confining bluffs. It abounds in fish of delightful flavor. So numerous are they that more than a wagon load have been taken in a single night from one fish trap. Flat-boats and keel-boats freighted with produce, from as high up as the Virginia line, pass down during the freshets. In Campbell county it forks, one branch, Powell's River, reaching up through Claiborne county, while the main stream furnishes navigable facilities to Union, Grainger, Claiborne and Hancock counties, forming the boundary line between Grainger and Claiborne. Steamboats have passed as high up as Clinton. Before the construction of the Knoxville and Ohio Railroad, this river formed the sole means for the transportation of the products of Anderson county to distant markets.

Hinds Creek, a stream of sufficient volume to drive a large flouring mill, runs through this valley. A small rapid stream, known as Clear Creek, rises in the northern part of the county, among the river hills, and flowing nearly west, empties into Clinch River. Clear Creek is noted for its excellent water power. There are two carding factories, one saw mill and two grist mills upon it. Its length does not exceed five miles. It has a rapid fall and a good volume of water. Between Clinch River and Hinds Creek occurs one of the finest forests of pine timber to be found in the State.

Bull Run, on the south-east side of Hinds Creek, and running at the distance of five miles parallel with it, is sluggish, and inferior on that account as a milling stream. There are many fine bottoms, however, on it, which are kept very fertile by frequent overflows. The banks of Bull Run being flat and low, are quickly submerged.

West of Clinch River is Poplar Creek, which rises on the Cumberland Table Land, cuts through a gap of Walden's Ridge, in the same manner as Coal Creek, and empties into the Clinch. It has, as all these mountain streams have, a rapid descent. It is about forty feet wide, and in ordinary stages of water will average a foot in depth. The supply of water for nine months in the year is ample, but in the remaining three it gets very low.

Running out at a right angle to Poplar Creek is a narrow, broken valley, which extends up to Coal Creek. This creek, previously mentioned, is not more than six miles long, but owing to the rapidity of

its fall is admirably suited for manufacturing purposes, for nine months in the year.

*Lands.* Hinds Creek Valley has already been mentioned. On all the streams are found alluvial bottoms, but they are, with few exceptions, narrow, the confining hills and ridges coming oftentimes, on both sides, to the water's edge. Especially is this true of the Clinch. For six miles the Knoxville and Ohio Railroad runs along its banks, and throughout this distance the bottoms are narrow, rarely more than three hundred yards wide and frequently less than twenty.

The highlands in the western part of the county are very poor, hilly and rough, being composed of sandstone soils, which, in their productive capacity, are in every respect like the soils elsewhere on the Cumberland Table Land, with the disadvantage of a more broken surface. These highlands are inhabited by a hardy class of mountaineers, who supply the deficiencies of their farms by fishing, hunting and digging ginseng and pink-root for market. Though unsuited for agricultural purposes, this portion of the county is rich in mineral coal and iron ore, and will doubtless, in time, be by far the most valuable part of the county.

The minor valleys, after leaving the Cumberland Table Land and entering the Valley of East Tennessee, are all fertile, having limestone soil, though many of them are much worn by careless cropping. It must be borne in mind that the Valley of East Tennessee, so called, is only so by contrast with the Unakas on the east and the Table Land on the west. It is, in truth, composed of a succession of minor valleys and ridges, the latter rising above the valleys from 300 to 500 feet. There is a marked parallelism in all these minor valleys and ridges, which is preserved all the way from Alabama and Georgia to Virginia.

The north sides of the ridges, though steep, rarely abrupt, are highly productive, and produce quite as well as many of the valleys. In the southern part of the county, next to the Knox county line, are some good areas of farming lands.

*Timber.* Almost every variety of timber prevails in this county. The pine forest between Clinch River and Hinds Creek has been mentioned. This is quite extensive, and supplies a large amount of lumber. On the Cumberland Table Land, especially on the slopes, are walnut, poplar, white and red oaks, and occasionally cherry and chestnut. In the valley, besides the species named above, are some groves of cedar, though they have been thinned of the best timber. Board and rail

timber is abundant. The price of sawed lumber is from ten to twelve dollars per thousand feet at the mills. For making rails, seventy-five cents per hundred is the usual price. The farms are all enclosed with old Virginia zigzag fences.

*Crops.* Everywhere in East Tennessee the standard crops are corn, wheat, oats, potatoes and hay. Clover is sown both for hay and for grazing. All these are raised in Anderson county, though the amount of hay raised is disproportionately small to the demand and the facilities afforded for its growth. The soils of the numerous valleys that run through the county produce timothy and herdsgrass well. For wheat, the best soils are in what are called the second river bottoms. On such lands the yield frequently reaches twenty bushels per acre. On the poorer lands and ridges it cannot be relied on as a paying crop, the returns sometimes exceeding but little the amount sown.

Corn is the great staple of the county. It is raised in largest quantities on the black soils of the river and creek bottoms, and sometimes there are gathered from such lands sixty bushels per acre.

Oats make a very fair average yield, though they do not grow with the same luxuriance as on the bottoms of the Tennessee River above Chattanooga, where crops averaging seventy-five bushels per acre have often been grown. The usual average in Anderson county is about twenty-five.

Both sweet and Irish potatoes are raised in considerable quantities and are sold in the Knoxville market and at Coal Creek, where several hundred persons are engaged in coal mining. Market gardeners could do well in this county, as neither the land nor labor is so high as in Knox county, while the vegetables could be shipped by rail at a trifling cost.

Upon all the limestone soils clover grows well, and it bespeaks a thriftlessness among the farmers of Anderson that more is not sowed. It is the only possible method by which their washed hillsides can be reclaimed. Clover and land-plaster are the only remedial agents for the bruised and skinned surfaces that appear with ghastly sterility upon many farms. When it is sown, it is not done with a view of fertilizing the land, but for hay and for grazing. About two tons of clover hay per acre are obtained from the best lands, and about two bushels of clover seed from the second growth.

The lands upon Black Oak Ridge grow a good article of tobacco, which cures a light, fancy, bright yellow color, and makes an excellent



wrapper leaf. Many farmers would engage in the culture of tobacco, but for the burdensome exactions and prohibitions of the government. Under the operations of the present law, a farmer can sell to no one but a licensed dealer. However much his neighbors may wish to buy a few pounds for their own use, he is prohibited from selling without procuring a license, the cost of which would probably amount to as much as his surplus tobacco would be worth. Honey and butter are sold in considerable quantities.

*Fruits.* Apples and peaches, on the ridges, rarely fail. Even the severe frost of 1873 did not destroy them upon the highlands, though they were entirely destroyed in the valleys. Strawberries, raspberries, gooseberries, and, indeed, all the smaller fruits, grow and yield as well in Anderson county as in any portion of the State. The hills and knobs, and mountains afford every variety of site and climate that could be desired by the most fastidious fruit-grower. Indeed, what may be said of Anderson in this respect, may with equal truth be affirmed of all the counties in the Valley of East Tennessee and of the Cumberland Table Land.

The apples and peaches are marketed after being dried, and the revenue from this source is almost equal to that from the wheat crop. Brandy is distilled from apples, but not to the same extent as formerly, owing to the heavy government tax.

*Stock.* A few mules are raised in the county, and considerable quantities of pork are sent to Knoxville. There have been no efforts made by the farmers to improve the quality of the stock. The common scrub "razor-back" hog is most usually met with. The cattle are suited to the country, and subsist during the summer months upon the "broom-sedge" that everywhere springs up in the old abandoned fields. This grass, odious and unsightly, usually an emblem of neglect, the farmers of Anderson county make useful in protecting their lands from washing, and for grazing their cattle.

*Leases and Rents.* Farmers rarely lease their lands, preferring to keep them in timber. Leases are confined almost entirely to lands containing coal, in which the lessee pays to the owner a royalty of one cent per bushel. About one thousand acres are thus leased about Coal Creek by the Coal Creek Mining and Manufacturing Company.

Good land for farming purposes rents high—the best for one-half the crop, medium uplands, one-third.

*Size, Condition and Price of Farms.* By the census returns for 1870, there were 1,034 farms in the county, of all sizes. There

were 33 of less than 10 acres; 196 of less than 20 acres; 426 containing between 20 and 50 acres; 254 between 50 and 100 acres; 123 between 100 and 500 acres, and but 2 containing over 500 acres. The average size of farms is probably about 45 acres. As the amount of good land is small in comparison with the unproductive, the farms, though small, have large quantities of woodland attached to them. The number of acres assessed for taxation in 1873, was 149,921, while the improved land, as given by the census, amounts to 50,750, so that for every acre cleared there are about three in timber. The pernicious habit, and one that argues no rights for posterity, prevails to some extent of opening lands, and by ceaseless and careless tillage exhausting their fertility, and thus cheating the soil of "its opulent privilege of production." They are then turned out to grow up in broomsedge and briars, persimmon and sassafras bushes, unsightly and painful pictures in the land-scape, showing a want of thrift on the part of such farmers. Many of these old fields are gashed with gullies and are past redemption, except at a cost greater than the value of the best land.

The greatest drawback to farming is the want of effective and reliable farm hands, and an orderly and systematic cultivation of the farms. The farmers are afraid to spend money for either fertilizers or labor—unwilling to risk the first, and having no confidence in the efficiency of the second. As a necessary consequence, the farms are not kept in a high state of cultivation. Nor do the farmers always give such attention to the business of their farms as will insure success and profit, but most frequently divide their time between the farm and some other avocation.

Farm houses are not built, with few exceptions, with an eye either to comfort, elegance or convenience. But few farmers feel entirely satisfied with their homes or attached to them. There are, however, a few notable exceptions to this state of things. Some of the valley farms are embellished with magnificent mansions, with yards and lawns, adorned and beautified by the choicest shrubbery, where the highest comforts of life are secured and enjoyed. On these farms, too, good barns and stables are erected, and the dumb brutes are made to partake of the prosperity of their owners. The fences are well built, the corners kept clean, and everything indicates the fact that the proprietors are devoting their time, energies and capacities, to the operations of their farms.

Well improved places, such as described above, with good lands attached, are rarely in market, except upon the death of the owner, and

then for division. They bring from \$50 to \$100 per acre. Where the improvements are bad, the best lands may be bought for \$20 to \$25 per acre, generally on time. Of course, much depends upon the nearness to the railroad and to the county seat. Very good farms, *well improved*, may be bought remote from these advantages for \$25 to \$30 per acre. Ridge lands, well timbered, where there are no minerals, are worth from \$5 to \$10. On the Cumberland Table Land the price is still lower, running down to one dollar per acre.

*Minerals.* Anderson county is rich in coal and iron ore. On the south-east side of Walden's Ridge, and immediately at its foot, is a lead of Dyestone iron ore, that extends through the county, it being the same great vein that runs almost continuously from Alabama to Pennsylvania. This vein on the surface varies in thickness from one to four feet, and dips at a very high angle. The ore is highly fossiliferous and calcareous, and yields from fifty to sixty per cent. from the furnace. This dyestone vein is supposed to pass under Walden's Ridge and thin out under the Cumberland Table Land. Iron ore is also found, as before mentioned, on Lone Mountain, and on Flint Ridge. Recently the lands containing iron ore have been much sought after, and at least two companies, before the financial crash in September, 1873, were preparing to erect furnaces in the county. Most all the iron lands have either been bought or leased, by parties who propose at some time to work the ore.

The convenience and abundance of coal will make the cost of making iron very low. Coal pits have been opened on Coal Creek, where five companies are now at work, the details of whose operations, as well as a description of the mines and coal, may be found in the chapter on coal in the first part of this report. In the same chapter may also be found a description of the Poplar Creek coal mines.

Near Poplar Creek is a remarkable group of mineral springs, known as the Oliver Springs. Here are found, in close proximity, sulphur, salt and chalybeate water. A salt well was sunk near this place by the lamented Estabrook, and 1,500 bushels of salt made, but the difficulty of keeping the fresh water from the well rendered the manufacture of salt unprofitable. It is thought that operations will again be resumed at this well.

*Domestic Manufactures.* The almost universal custom which prevails in East Tennessee of manufacturing homespun for daily wear, is practiced in this county. The value of home manufactures amounted, in the year 1870, to \$30,126, a sum greater than the whole amount paid

for wages, including the board of the laborer. The daily wear of the farmers is homespun.

*Immigrants and Schools.* A good many Welchmen, with their families, have migrated to the county since the war. The heads of families are mostly engaged in mining, but some of them have bought small farms, upon which their wives and children work and raise supplies. The citizens would gladly receive new accessions to their population, and some efforts have been made to attract immigrants. Probably the want of good schools has operated most powerfully against success in this particular. Up to the passage of the law creating a more liberal system of public schools, the schools, with the exception of the academy at Clinton, were of a very low grade; the price of tuition low, and the quality of instruction bad. At present there are several good schools in operation, and the one at Clinton is said to be very efficient. The tax levied by the county to supplement the State aid for schools is ten cents on each \$100 worth of property.

*Towns and Villages.* Clinton, the county seat, is situated on the Clinch, and has communication with Knoxville and other points by the Knoxville and Ohio Railroad, which extends to Wheeler's Gap, within three miles of Jacksboro, the county seat of Campbell. It has a population of 325. The houses are generally of wood. The courthouse and jail are of stone. There are three stores, two saloons, a blacksmith shop, a wagon-maker's shop, one boot and shoe shop, three hotels, two flouring mills, a saddler's shop, one carpenter shop, a tannery, two lawyers and two physicians.

*Coal Creek* is a village ten miles above Clinton, near the Knoxville and Ohio Railroad, and between Walden's Ridge and the Cumberland Table Land. It has a population of 500. It has been built up during the past two or three years by persons working the coal at that point. There are three stores, three churches, three schools and a place of entertainment. The population is a mixed one, consisting of native Tennesseans, Welchmen and Scotchmen—arranged in the order of their predominance. A branch railroad runs up through the gap in Walden's Ridge to this point.

*Coal Creek Station.* This place has a population of about 100, and is situated one mile from the former, on the main line of railroad. It is built up with tenement houses for miners and other employees of the mining companies.

*Game.* The county of Anderson is a heavily wooded region, and in

the mountain fastnesses the wild deer still roams in moderate security, though often hunted by the hardy and athlete mountaineers. Part-ridges and squirrels are numerous, and the wild ducks glory in the gleaming waters of the Clinch. Fish, as has already been said, is plentiful.

*Health.* The health of the county is proverbial. The excellent drainage, the pure water, the inspiriting breezes that play upon the mountain top, or sweep in gentle currents through the valleys, dispelling malaria and purifying the atmosphere, the temperate and steady habits of the citizens, with wholesome food, all conspire to keep the physical frame vigorous, hale and hearty, and the mind fresh, active and strong. What is said of this county in this respect, may with equal truth be affirmed of almost all the counties of East Tennessee, and to a large portion of those in the middle division of the State.

(For statistics of this county the reader is referred to the twenty-second chapter of Part First.)

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## BLEDSON COUNTY.

### COUNTY SEAT—PIKEVILLE.

This is one of the counties lying mainly in the beautiful Valley of Sequatchie. It was erected November 30, 1807, embracing at the time of its organization one-third of what is now Sequatchie county, and one-half of Cumberland county. The original county seat was a place known as "Old Madison," six miles from where the town of Dunlap now stands, the capital of Sequatchie county, and fifteen miles from Pikeville, the present county seat. The first court ever held in the county was at the residence of a Mr. Thomas. The county is bounded on the north by Cumberland, on the east by Rhea, on the south by Sequatchie, and on the west by VanBuren counties.

The only town in the county is Pikeville, containing a population of about 150, and situated in the heart of a fine agricultural region. It has the disadvantage of being cut off from the commercial centers. To Chattanooga across Walden's Ridge, it is some fifty or sixty miles, and to Jasper, in Marion county, it is about the same distance, where it reaches railroad communication. It is hemmed in by two mountains, the Cumberland and Walden's Ridge. The entire valley in which it

is located is retarded in consequence of the lack of railroad facilities. The great distance to market keeps the farm products down at a low figure. The Nashville and Chattanooga Railroad Company has submitted a proposition to the people to the effect that, if they will grade the road from the upper end of the valley on through the counties of Bledsoe, Sequatchie and Marion, the company will furnish the rolling stock and run the road at its own expense. This proposition has not been accepted, and, perhaps, will not be. There is some talk about a narrow guage road, but this will also fail, judging from present indications. If both these projects fail, then the citizens should construct a McAdamized road through the counties mentioned to Jasper, in Marion county.

Pikeville is an enterprising little town, and filled up with an energetic and intelligent class of business men. They carry on a considerable trade with the farmers, furnishing them goods, and often buying their hogs, mules, horses and cattle, as well as their bacon, lard, wheat, corn, flour, butter and dried fruit. Its chief feature is its excellent male and female school, which will compare favorably with any in the country. This institution is known as the "PEOPLE'S COLLEGE." The building is a commodious and handsome one, and will accommodate from two to three hundred students. It was chartered in 1871. The course of study is ample. The faculty the very ablest, and the number of students in attendance about 125.

That part of the county stretching from the base of the main Table Land to the base of Walden's Ridge, comprises an area of the finest farming lands in East Tennessee. An ordinary ridge runs through the center of it from north-east to south-west, not very steep, and affording a vast deal of timber, such as oak, hickory, walnut, pine, etc. On either side the valley extends for miles, and widens out from two to three miles to the base of each mountain. The soil is productive, but much injured by injudicious treatment. Everywhere there is a lack of clover and grass. Deep tillage is neglected to a great extent. The farmers seem to pay but little attention to the manure heap. No plaster is used, and no fertilizers of any description. The principal crop grown is corn. Wheat is secondary. The corn is fed to hogs and cattle, and these are driven across the mountains to Chattanooga, from whence they are shipped by rail to Georgia. For years this county, and the entire valley, has been famous for hogs and cattle. Thousands are annually fattened and sold. A great mistake, however, is made in

not seeding the land in grass to a wider extent, and this must be done before this region can be restored to anything like its original fertility. The lands are not near so productive as they were twenty-five years ago, and the present system of farming will inevitably keep them down.

There can be no better section for grazing stock, such as sheep and cattle. The nearness of the mountains affords wonderful advantages for grazing purposes. For nearly two-thirds of the year these mountains abound with a nutritious grass and tender weeds that keep sheep and cattle in excellent order. Here the "cattle of a thousand hills" can be grazed from the first day of April to the first day of November. The expense attending the operation is only nominal.

It has already been remarked that the only valley in this county is Sequatchie. Its average width is from two to three miles. That part of it lying next to the Cumberland range of mountains is more or less deficient in limestone, and the soil is mixed with yellow sand. The part stretching along Walden's Ridge is strongly impregnated with lime, the limestone cropping out everywhere. On the other side there is a great deal of sandstone. On the tops of both of these mountains there are extensive plateaus of land, quite level for eight or ten miles across them, with springs and water courses, but the land is unfit for profitable cultivation. It is said it produces superior Irish potatoes. No doubt fruit trees, apples and peaches, would do well. Along the slopes and coves of these mountains tobacco could be grown advantageously. The average production of corn in the valley is about twenty bushels to the acre; of wheat, about five; of oats, ten; of rye, five; of sweet potatoes, one hundred and fifty; and of Irish potatoes, one hundred. There is some cotton grown, which seems to do well. No flax or hemp.

The primitive style of dwelling-houses is still in vogue for the most part. But few brick mansions, occasional frame ones, and mostly log. Here and there scattered over the valley, fine mansions are found. There are no brick or stone barns, and but little attention is paid to the housing of milk cows. There are but few improved agricultural implements. The turning plow is mostly used. No wheat drills are used, and but few reapers and mowers.

Mineral springs are abundant. They are found in every portion of the county. There is a valuable one near Pikeville, and still another seven miles distant.

The deposits of iron ore and coal hidden in the bowels of the mountains referred to are very great in extent. Of course they remain where they are, as there is no transportation.

The educational interests of the county are commendable. Allusion has been made to the "PEOPLE'S COLLEGE," at Pikeville. There is still another of high grade some eight miles southwest of Pikeville, known as Sequatchie College. It was chartered in 1870. The building is a substantial brick, and large and airy. It is located in a moral and intelligent community. It is presided over by an able faculty, and there are now over 100 students in attendance.

BLED SOE COLLEGE is twelve miles north-east of Pikeville, in a good neighborhood, and now numbering about 100 students. There are twenty-three free schools in successful operation, and three colored schools.

(For statistics pertaining to this county, the reader is referred to page 405, chapter XXII.)

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## BLOUNT COUNTY.

COUNTY SEAT—MARYVILLE.

Blount county is one amongst the oldest of the State, and was named in honor of Willie Blount, the first Governor of Tennessee. Most of its early records were destroyed during the late civil war. The county was erected by the Territorial Legislature, July 11, 1795. In connection with its adjoining counties, it formed what was known as "CHEROKEE COUNTY," whose inhabitants stoutly contended for its continued possession, and even now make occasional pilgrimages to their ancient hunting grounds. This county also claims having reared several prominent personages, among whom may be mentioned General Sam Houston, whose mother settled in this county, from Virginia, from which State and from North Carolina the principal settlers of this county came, and in the year 1800 numbered 347 inhabitants. The census of 1870 gives this county 14,180 inhabitants.

Maryville, the county seat, is situated near the center of the county, on Pistol Creek, and contains 811 inhabitants. Other towns are Louisville, Friendsville, Unitia and Rockford.



The area of the county is estimated at 425 square miles, a little more than one-third of which, or 91,740 acres, are in cultivation. About one-sixth of the area of the county is mountain land and unsuited to successful cultivation. Several ranges of hills, or low ridges, well timbered, but of inferior land, run through different parts of the county, but no waste swampy land is found anywhere.

Being bounded on two sides by the Holston and Tennessee rivers, while Little River runs through its entire length, and numerous streams flow into all these, the county can boast of a very fair amount of first-class river and creek bottoms, alluvial in their formation. The substratum along all the streams is either limestone or marble. The soil of the uplands is much varied in composition and richness, principally composed of limestone, loam or slate, and lying on a substratum of red clay, which serves greatly to retain the fertility of the soil. The best soil is along the streams, of course, but marble soil on the uplands, when fairly treated, is but little, if any, inferior, and may be preferable for the raising of wheat.

Next in order of fertility, is the limestone, and after this the black loam. Apart from the bluffs along the rivers and several low ridges, the main portion of the county is comparatively level. Along the south-eastern boundary, however, the Unaka, or Smoky Mountains rear their lofty heads more than 6,000 feet high, and along these the Chilhowee stretches its whole length. Between these two mountains small level valleys are found of extraordinary fertility. Chief among these valleys may be named Miller's Cove, Cade's Cove, Chilhowee and Happy Valley, all of which are specially adapted to the raising of fruit and vegetables.

Along the mountains the rocks are chiefly sandstone, slate and quartz; along the streams, limestone in great abundance; in the south-west and western portions of the county, different kinds of marble of excellent quality are found in abundance, and are lately begun to be worked.

Iron ore crops out in many parts of the county, and along Chilhowee Mountain this ore, of a superior quality, is found in great quantities, but the want of capital, and particularly the want of enterprise on the part of the native inhabitants, have left this boundless source of wealth almost untouched. The same kind of copper ore as that which is dug in the rich mines of Ducktown, some fifty miles south, is also found along the mountains in this, and only needs the energy of the

capitalist to make it a great source of wealth to the county. Gold, silver, lead, and various other metals have been found along these mountains. At this writing, an excitement is prevailing over supposed coal found in these mountains, by parties prospecting for the same.

Montvale Springs, well known through various parts of the south, and to which hundreds of invalids and pleasure-seekers resort during the summer months, are situated in this county. The water is impregnated with iron, Epsom salts, and various other minerals, and is highly recommended for chronic diseases and general debility of the system. Near these are the Black Sulphur Springs, quite noted during *ante bellum* times, but now much neglected for want of proper accommodations. Other mineral springs are in existence, but not generally known.

The streams of Blount county are numerous. Chief among these is Little River, which rises in the Unaka Mountains, and runs northwest into the Holston. Some of the richest bottoms and finest farms are along this stream. Having its source in the mountains, it descends with great rapidity, forming sites for mills or factories at short distances. It receives the waters of Crooked Creek, Pistol Creek, Nail's Creek, Ellijoy, and several smaller streams, along all which good land is found, and abounding in springs of pure water. On the southern and western part of the county are Abram's Creek, Nine Mile, Six Mile, Four Mile Creeks, Baker's Creek, and Boyd's Creek, all of which have good land along their banks and contain numerous mill sites.

Manufacturing in this county is in its infancy. First in importance may be mentioned the cotton factory at Rockford, under the excellent management of R. I. Wilson. The machinery is of the latest and most improved kind. The operatives are paid liberal wages. About sixty hands are constantly employed, and about 1,600 spindles kept running. This factory is chiefly engaged in making yarn for domestic use, but is eagerly sought in northern markets.

A woolen factory has lately been erected in Maryville, by A. J. Stone, a gentleman from Massachusetts, but has hardly been tried sufficiently to test its value. Three wool-carding machines are also in active operation in different parts of the country. Spinning and weaving by hand is yet very extensively carried on throughout the county.

A number of tanneries are located in different parts of the county, capable of supplying its demands for leather.

Some farming implements of a fair quality are also produced here,

but the demand for improved implements is rapidly increasing, so that large sums of money are yearly sent north for these articles, which ought to be made here, giving employment to our citizens, and keeping the money among us.

There are sixteen grist mills and about twenty saw mills, propelled by water, and sites for fifty more in the county. Three steam saw mills, cutting, in the aggregate, from fifteen to twenty thousand feet per day, are now in active operation.

The county everywhere is well supplied with timber, though not always of the best quality, for fencing. On the upland, the black oak predominates, while hickory, post oak, white oak and yellow pine are abundant, the latter of a superior quality for building purposes. Along the streams may be found walnut, wild cherry, ash and poplar; on the ridges the chestnut, and along the mountains the white, yellow and spruce pine, locust, all the varieties of oak, poplars of enormous size, and forests of chestnut.

The ruinous method of farming practiced in this county has given to most of farms the appearance of unthrift, while on others, especially those on which clover is cultivated, a more hopeful appearance is presented. On the whole, the system of farming has been much improved since the war, both by using better implements and by rotation of crops and cultivating clover. The greatest drawback to successful farming is working too much land and too imperfectly. Very many farms have been divided since the war, but the majority are too large yet, ranging from 200 to 800 acres. Those of less extent are usually worked by the owners, the larger sized farms are let out to renters, on one and two years' time, who pay the owners one-third of the grain produced.

Improved farms sell, at this time, at from three to twenty-five dollars per acre, though in a few instances good river bottoms may bring higher prices. There is quite a large amount of land for sale. Many of the farmers would dispose of part of their land in order to improve the remainder.

The county can boast of excellent schools, as good, perhaps, as anywhere in the State. Maryville has two or three superior institutions for the education of both sexes and of both colors. The free school system is working admirably, and the citizens throughout the county are favoring this system of popular education.

There is one newspaper published at Maryville, called the "Maryville Republican."

(For other statistics, see First Part, chapter xxii.)

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## BRADLEY COUNTY.

COUNTY SEAT—CLEVELAND.

Bradley county was organized in 1836. It will rank favorably, in every respect, with any of the counties of East Tennessee. The population is an excellent one—industrious, provident, moral and intelligent. There is little litigation among them, and consequently good order prevails. Many of them are superior farmers; keep their estates in fair condition; do thorough work, and raise improved stock.

The county is bounded on the north by McMinn and Meigs, on the east by Polk, on the west by James, and on the south by Georgia. The face of the country is made up of long, straight valleys, with ridges between them. The soil is productive, of a red mulatto color, and well adapted to all the grapes. Among the noted valleys of the county, are Big Chatata, Little Chatata, Walker's Valley, Mouse Creek Valley, and Candy Creek Valley. They run north-east to south-west, and will average about three-quarters of a mile in width. They are generally productive, but have been badly used by improper cultivation. The Mouse Creek Valley is quite noted on account of its fine lands. There are but few better anywhere. The lands, in all the valleys named, produce fair crops of wheat and corn, averaging of wheat about eight bushels to the acre, and of corn about twenty-five to the acre. But few of these lands are devoted to the culture of grass or meadow, comparatively speaking, and yet there are but few sections that excel it, naturally, for meadows. The size of farms runs from 320 to 800 acres. They are mostly worked by the owners and hired labor. They range in price from twenty to twenty-five dollars per acre. There are lands that can be bought for a much lower figure, and, perhaps, there are farms that could not be bought for less than fifty dollars per acre. They are in a worse condition than before the war. This part of Tennessee was greatly torn up and destroyed during the war, and the people were so badly crippled that they have had no chance to recu-

perate since ; they are, however, at work, and it will not be long until they will once more be themselves. Steel-turning plows are mostly used in breaking up the soil—bull tongues sometimes used. Horses and mules do all the farm work, or the most of it. The farmers are paying considerable attention to the improvement of their stock ; they have some pretty good cattle, nice horses and mules, and a fair breed of sheep. There is, however, much room for improvement, which will follow in due time. The sheep business could be made profitable but for the ravenous dogs ; they devour the sheep on all hands, and there is one general complaint all over the county against them. The farmers want some sort of dog law to protect them against this nuisance. One of the best farmers of the county suggests that it ought to be made a penitentiary offense to keep a sheep-killing dog.

The value of taxable property is \$2,585,820, and the number of acres assessed 185,137. Land rents for one-third the products where the renter furnishes his own stock, provisions, etc. Bottom lands rent for one-half of the products. The county is not thickly settled. There is an earnest demand for immigrants, and they would be received most kindly ; nor are there many places in East Tennessee where they would do better. It is an exceedingly healthy region, entirely free from all malarious diseases, with a climate unsurpassed for mildness. The county has good society, excellent schools, and churches of all sects. Lands can be bought on reasonable terms, and are of easy access to market. Timber abundant, consisting of pine, chestnut, hickory, walnut, white and black oak, etc.

Bradley county affords a vast deal of very fine water power. There are, at least, fifty sites where the most efficient power could be had, and would drive any sort of machinery. There are any number of saw and grist mills in the county, but no other manufacturing establishments. Cotton and woolen factories could be operated to great advantage in various parts of the county. Capital and enterprise are badly needed.

The East Tennessee, Virginia and Georgia Railroad runs entirely through the county, affording transportation to the best and most reliable markets in the country. Most of the shipping is done in the direction of Georgia, as that State is only a few miles distant. Atlanta is reached in a few hours, and that is one of the best markets in the south. But the eastern markets are also open—Lynchburg, Richmond, Baltimore, Philadelphia, and New York.

Labor is scarce and not reliable. For this reason wages are low. An average hand is worth about ten dollars a month, the year round. Many of the most prominent citizens of the county think the greatest drawback is, that the rates of interest on money are too high, and that they ought to be reduced. All surplus capital is withdrawn from farming pursuits, and loaned out at high rates of interest, when it should be used in prosecuting farm work. Many of them also maintain that there ought to be a law compelling the children of the county to attend the public schools.

Cleveland is the county seat of Bradley county. It is situated on the East Tennessee, Virginia and Georgia Railroad, and at the junction of a branch road leading to Dalton, Georgia. It contains a population of about 2,000. There are but few prettier towns in Tennessee. It is well laid off. The streets are wide and roomy. It has excellent sidewalks. The grounds consist of a level plateau, and rolling enough to drain the town. Palatial residences are seen in all parts of the place. Yards are handsomely laid out, tastefully ornamented with rare flowers and evergreens. The churches are costly. Hotels are good. Two newspapers are published—the Cleveland Banner and Republican. Number one schools, and the very best society are found. Charleston is another town of this county, situated on the Hiwassee River, and on the East Tennessee, Virginia and Georgia Railroad, and containing a population of about 600. It drives a brisk business, and is a moral place.

The prevailing rocks of the county are limestone, some sandstone and marble.

(For statistics, see chapter xxii, Part First).

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## CAMPBELL COUNTY.

• . COUNTY SEAT—JACKSBORO.

Campbell county was erected September 11, 1806, and is one of the extreme northern counties of East Tennessee, being bounded on the north by Kentucky, on the east by Claiborne and Union counties, on the south by Anderson county, and on the west by Anderson and Scott counties. Walden's Ridge strikes it at its southern extremity, and runs a north-eastern course through it. Hence there is about as much ter-

ritory on the western side of it as on the eastern side, though the land is not so valuable in the former case as in the latter, for it must be borne in mind that the great valley known as Powell's Valley runs through the entire county on the eastern side. Perhaps this is one of the finest and most productive valleys in East Tennessee. Its average width is about two miles, and it extends for sixty miles or more to the Virginia line. There is scarcely an acre of it but that is tillable, and the most of it is exceedingly fertile. As a general thing, the land of this valley is gently rolling, now and then a little broken, with thousands of acres finely adapted to meadows, and all of it producing heavy crops of corn, wheat, rye, oats, etc., and this, too, under an injudicious system of farming; for it cannot be disguised that the farmers, for the most part, have, and are still pursuing an unwise course in the management of the soil. They have only a small percentage, say fifteen per cent., in clover and grass, when they should have vastly more. All this wonderful valley needs to make it one of the very best in the country, is to produce more grass and less corn. It is eminently a grass region. The soil is strongly impregnated with lime. The limestone rock crops out in all directions. The finest timothy and bluegrass could be grown by only a small effort. Indeed, the latter is indigenous, and takes the land everywhere. Of course there are some farmers who are turning their attention to these crops, and they are successful, but by far the greater proportion are neglecting them. The average of corn to the acre is about thirty bushels; of wheat, about ten; of oats, about twenty-five or thirty.

On the opposite side of Walden's Ridge there is another extensive valley, but, as before remarked, not so valuable as the one just described. In the first place, it is cut off by the mountains in question. Walden's Ridge is an immense barrier. It is high and rugged, and miles across it. In the next place, it is not so wide nor so long. The land, perhaps, is equally as productive, and quite as good grass is produced. It has one marked advantage, that of affording a wide range for the grazing of stock. The mountain is so near that it can be easily reached, and cattle and sheep economically kept upon it from early spring to late in the fall. It is a fine fruit region. Apples of almost unsurpassed flavor and of fine size grow there. Limestone is the prevailing rock. Iron ore and stone coal are found in quantity.

The physical character of the county, upon the whole, is mountainous. There are a number of hills and ridges making through it in various places, and between them lie fertile valleys. Many of these

hills and ridges are productive. The soil is rich, sometimes mixed with gravel, and well adapted to fruit, wheat and Irish potatoes. The soil of the valley is a dark mulatto in color, with a substantial clay subsoil. It is exceedingly tenacious, and will stand oppressive cultivation. There are acres upon acres that have been in cultivation for more than half a century, that produce fair crops to-day. Nor have they been aided by grassing or clovering, nor by manuring or fertilizing, nor, indeed, by rotation of crops. For years, in succession, they have yielded the very same crops, and, at the present time, will produce fair crops of corn, wheat and oats. No soil in the State is more generous than that of Campbell county, especially when the fact is considered that so little care has been taken with it. Once inaugurate a systematic and intelligent mode of culture, and there is no soil that would more amply repay the proprietor. It is admirably adapted to all the crops peculiar to this latitude. Tobacco has never been tried to any extent, but enough is known on this subject to warrant the assertion that there is no better section for its growth.

The average size of farms is from 100 to 800 acres, and they are mostly cultivated by the owners themselves. The tenant system does not prevail to any extent. Where it does prevail, the landlord receives, as rent, one-third of the entire crops, the tenant furnishing everything. The farms are not in as good condition as before the war, for the good reason that this county was at the mercy of both of the contending armies, and was badly treated. It was almost desolated. Fencing was destroyed, stock was taken, and the principal men on both sides of the contest were compelled to abandon their homes. It is rapidly recovering, however, from its prostration, and will soon be itself again. The population is an industrious one. Before the war, there was scarcely a county in East Tennessee more noted for the number and character of its stock. Here could be found fine cattle, hogs, mules, horses and sheep. Thousands were annually fattened and sent off to the southern markets. Its hog crop was always unusually large. It was but little trouble to raise corn, and this was fed to this stock. There are obvious indications among the farmers that they will in the future change their mode of farming in this regard, and turn their attention to grazing. They are beginning to find out that the most profitable system of farming they can adopt is to put down their lands to grass and raise cattle, mules, horses and sheep.

The average price of lands in this county ranges from one to fifteen and twenty dollars per acre. Unimproved lands can be had as low as



one and two dollars per acre, but, of course, not valuable. Improved farms, in some localities, are worth as high as forty and fifty dollars per acre, but, in others, from fifteen to twenty. The terms of sale are usually one, two and three years' time, six per cent. interest, a lien retained upon the property, and about one-third of the purchase money paid down at the time of sale. Even longer time than this is often granted, and, occasionally, no interest exacted from the purchaser. At the present time there is a great deal of land for sale, in various parts of the county, and much of it very valuable. Bargains could be had and excellent homes secured.

The principal markets for this county are Knoxville, Chattanooga, and Atlanta, Georgia. They are reached by the Knoxville and Ohio Railroad, which taps the extreme southern portion of the county and intersects the East Tennessee, Virginia and Georgia Railroad at Knoxville. Powell's River drains a portion, or rather, one corner of the county, and during tides or freshets, considerable quantities of produce are rafted down this river.

There are important mineral deposits in the county, such as iron ore and stone coal. These, in many localities, exist in abundance. There are also fine clay for making furnaces, and limestone for fluxing.

There are valuable water-powers in various parts of the county, and timber of almost all sorts, such as pine, hickory, oak, walnut, maple, dogwood, poplar, etc. There are likewise excellent mineral waters. Near the town of Jacksboro, the county seat, there is a fine chalybeate spring which is attracting some attention on account of its medicinal virtues.

Immigration from the north, or anywhere else, is strongly desired. The citizens take a very proper and liberal view of this matter. They are painfully conscious of the pressing want of more population. They need men and money, brains and enterprise. Persons from abroad, therefore, would be kindly and warmly received by them. There has been no systematic effort made to induce them to come, as yet, but it is to be hoped that something will be done in this direction in the future.

The principal town is Jacksboro, the capital of the county. It is a small place, with a population of about three hundred. Fincastle is another small village, situated in Powell's Valley, and some miles north of Jacksboro. There is a flourishing school here. The country around it is rich and beautiful. Caryville is at the present terminus of the

Knoxville and Ohio Railroad. Buck-eye Town is another village. At Caryville coal is mined to a considerable extent, four companies operating at this place. There are two small bloomeries in this county, which manufacture an excellent article of bar iron, which is mostly consumed by the blacksmiths of the county.

Other items of information can be obtained by consulting chapter **xxii.**

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## CARTER COUNTY.

COUNTY SEAT—ELIZABETHTON.

Carter county was created in April, 1796, and was taken from Washington county, the oldest county in the State. It is bounded on the north by Sullivan and Johnson counties, on the east by Johnson and North Carolina, on the south by North Carolina, and on the west by Washington. It is a mountainous region, at least a considerable portion of it. Along its southern boundary the Unaka mountains extend its whole length. Though broken, there is a large quantity of fine lands on the Watauga and Doe rivers, perhaps equal to any in this portion of Tennessee. The bottoms are wide and productive; the soil consisting of a black loam, intermixed to some extent with sand. Corn and wheat are the great staples upon them. The Watauga lands produce an excellent quality, and a large quantity of wheat per acre; they are, in fact, noted in this particular. They will average as high as fifteen bushels to the acre, and with judicious culture, they would probably reach thirty bushels to the acre. They are, likewise, finely adapted to corn. The Doe River bottoms produce heavy crops of wheat and corn.

All these lands rate very high, and are regarded by the owners as exceedingly valuable. The Watauga bottoms are held at one hundred dollars per acre, while the Doe River lands are equally as high.

Away from these rivers the land is generally broken; and up next to the Unaka mountains it is unfit for agricultural purposes. In some of the coves, and on some of the more depressed spurs, fruit might be advantageously produced. Apples, no doubt, would do well. Irish potatoes could be profitably raised. Grapes would thrive, as the native grape is found in abundance all along the base of these mountains.

Bee culture could be carried on successfully. The most profitable use, however, to which they could be applied, would be the grazing of sheep and cattle, for which they have a peculiar fitness. The most of the coves produce a luxuriant growth of grass, while the mountains are covered with a native grass which cattle are fond of, and which possesses fattening qualities to a high degree.

But this section of Carter county is more particularly noted for its iron interest. The iron of this county has become celebrated throughout the country. It is equal to the Cranberry iron of North Carolina, close to the Tennessee line. The car wheel manufactory of the city of Knoxville uses this iron altogether in the manufacture of car wheels. All along the southern boundary of the county the ore exists extensively, but, as yet, but little has been done to develop it, owing to the fact that transportation is difficult. It has to be hauled from six to twelve miles to the railroad. The East Tennessee, Virginia and Georgia Railroad runs through the north-western corner, Carter being the only depot in the county. There is no prospect of building a road through the county at present. One was projected just after the war, and most of the grading done, but it fell through. The car wheel company of Knoxville have a cold-blast furnace in operation, and are supplying their factory with the iron. There are six forges in various parts of the county engaged in manufacturing bar iron.

Mineral springs are abundant, consisting mostly of sulphur and chalybeate waters. There are no doubt valuable mineral waters in the town of Elizabethton, which have never yet been tested. The Jenkins' white sulphur and the yellow sulphur springs are regarded as possessing superior medicinal qualities.

There are many different kinds of rocks in the county, among which sandstone, limestone and granite are the most valuable.

The average size of the farms is from fifty to one hundred acres, and are mostly worked by the owners. Prices of improved lands, excepting those mentioned, are as follows: First bottom lands, fifty dollars per acre; second quality, from twenty to thirty dollars per acre; and the third quality, from five to ten dollars per acre. The staple crops are wheat, rye, corn, oats, and hay. Timothy is the prevailing grass. It is an excellent fruit region. For apples, it cannot be easily excelled. Vegetables of all kinds grow well. There is scarcely any improved stock in the county. There are some improved hogs, and but few sheep of any sort; they are annoyed by the dogs, and the farmers are

not inclined to embark in sheep husbandry. There is considerable attention paid to making butter and drying fruit. There are no dairies, although a dairy region by nature. This could be made a paying as well as a pleasant business. But few of the smaller fruits are cultivated.

The county is sparsely settled. It would bear an additional population of ten or fifteen thousand. More people are badly needed. Hence, immigrants are invited from every portion of the country, and would be kindly received by all classes. The taxable property amounts to \$1,004,450. The timber is oak, poplar, wild cherry, hickory, walnut, white pine, spruce pine, locust, and maple.

The principal streams are Watauga River, Doe River, Buffalo Creek, Indian Creek, Stony Creek, Elk Creek, Gap Creek, Laurel Fork, and Sinking Creek. None of them are navigable. There is water power to any reasonable extent in any portion of the county. Doe River furnishes a vast deal. There is a woolen factory on it, and quite a number of mills. There are some ten merchant mills in the county.

Elizabethton is the county seat. It is situated on Doe River, and six miles from Carter depot. Its population is about three hundred. It contains three churches—Presbyterian, Methodist, and Baptist. One school of about one hundred pupils, and there are fair schools throughout the county.

(See chapter xxii for statistics.)

The scenery of this county demands a passing notice. The northeastern part is a splendid valley, lying between two huge sandstone mountain ranges, the Holston Mountain on the north-west, and the Iron Mountain on the south-east. This valley may be regarded as a continuation of Shady Valley, in Johnson county, though separated from the latter by a cross ridge. Indeed, the county is nearly hemmed in by high rugged mountains, with outlets to the west and south, and the enclosed valley is of enchanting beauty and fertility. These mountains are built up of Chillowee sandstone, almost invulnerable to the elements of decay, while the valleys present the limestones and dolomites of the Knox formation. Altogether, it is a county characterized by magnificent scenery, in which towering, massive ridges rise in majestic proportion on all sides, sublime in their grandeur and untamed in their beauty.

## CLAIBORNE COUNTY.

COUNTY SEAT—TAZEWELL.

By far the larger portion of Claiborne county lies in the Valley of East Tennessee, only its northwestern corner resting upon the Cumberland Table Land. The law authorizing the organization of the county was passed at Knoxville, October 29, 1801. It was formed from parts of Grainger and Hawkins counties. The Justices of the Peace appointed by Governor Roane, were qualified on the 7th day of December, 1801, the first day of the first term of the court of quarter sessions for the county. For several years after its organization, there was no court-house, the courts being held at the houses of the different magistrates, in turn. Walter Evans was elected the first Clerk of this court David Rogers was the first Sheriff for the county; Ezekial Craft, Register; Luke Boyer, Solicitor; Nathaniel Austin, Ranger; and John Sumpter, Constable. The first settlements in the county were made at Big Spring, near Sycamore Creek, in 1794-5.

*Boundary and Topography.* This county is bounded on the north by the Kentucky line, on the east by Hancock, and the South by Grainger and Union, the Clinch River forming the line, and on the west by Campbell. It comprises about 360 square miles. The physical features and surface conformation are a good deal diversified. Broad stretches of comparatively level land and abrupt bluffly highlands and swelling protuberances make up the general face of the country. Powell's River runs diagonally through its center, from north-east to south-west, and forms the great highway of commerce. During the season of freshets, the crops of various kinds are shipped in flat-boats to Chattanooga and other points. North of Powell's River, and running parallel with it, are three or four belts of land differing in quality, kind and condition. The most northward of these is triangular in shape and forms a part of the Cumberland Table Land. The soil of this is sandstone, porous and poor. The next strip southward is Poor Valley, which lies between the steep escarpments of the Table Land and Walden's Ridge. This valley is well named, for its surface is covered with blocks of sandstone, and it has low marshy spots, some of which are drained and cultivated, but the great proportion of this valley is totally unfit for cultivation. Then comes Poor Valley Ridge, a low ridge skirting the base of the mountain for many miles, forming with Poor Valley a moulding to the

base of the Cumberland Table Land. Then we have Walden's Ridge, with its high, comb-like, serrated, wooded crests. It rises steeply and is only passed by transverse cuts, which occur at various intervals, from one to four miles. Between Walden's Ridge and Powell's River is Powell's Valley, one of the finest in East Tennessee. This remarkable valley does not lie on Powell's River, but is separated from it by a high belt of table land, from two to four or more miles in width. The valley itself is 400 feet above the river, and extends continuously from Virginia to Wheeler's Gap, a distance of about sixty miles. It preserves its parallelism with the river, whose name it takes, and has a width varying from two to five miles. Through the center of this valley a high "hog-back" ridge, that is, a ridge in which the strata of the rocks are nearly perpendicular, runs for a distance of eight or ten miles. Running out at right angles to Walden's Ridge, are a series of swollen protuberances that project themselves into the valley, giving to the surface, near the ridge, a tumid and rolling appearance.

The next belt is the high wooded region that separates the river from the valley. It falls off in a steep escarpment on the river banks, but descends gradually into the valley on the north-west side. It is heavily timbered.

Between Powell's River and Tazewell is a barren, chestnut-covered plain, comparatively level, which has an open, gravelly soil. South of Tazewell the country is very broken, rising into massive ridges and hills, among which, towering above all the rest, is Wallen's Ridge, with its wide rounded summit. This ridge is made up of Knox dolomite, limestone and cherty masses. Immediately south of Tazewell, its swelling form may be seen for miles, as it runs north-easterly into Hancock and south-westerly into Union. Its sides are marked by numerous coves, with the intervenient spurs, and often interlocking with these are the spurs shooting out from the chestnut plain on the north. Lone Mountain appears in the southern part of the county. Its north-western face is covered with green fields and dense woods, in which the clambering vines, receiving sustenance from rich limestone soil, make the surface dark with their rank luxuriance. On the south-eastern side of the same mountain huge layers of sandstone sheet the surface in tilted masses, and the vegetation is sparse and the trees small and scraggy. With the exception of Powell's and Sycamore bottoms, the whole country is high, rough and broken, for the most part fertile, but almost everywhere the tilted limestone rocks rise to the surface, forming glades and rendering the soil difficult of cultivation.

In this county is Cumberland Gap, a spot made memorable by recent events, and is the great pass from the blue-grass region of Kentucky to the cotton States of Georgia and Alabama. The picturesqueness and grandeur of the scenery are imposing. On either side of the gap, high, rocky, weatherstained ramparts, rising to a perpendicular height of 1,500 feet above the valley, fill the mind with awe and sublimity. Standing upon the pinnacle 2,680 feet above the sea, and looking southward, the view is one of magnificence and beauty. The long parallel ridges of East Tennessee, cut by innumerable gaps, are distinctly traceable, forming a billowy sea of mountains, while far beyond tower up grandly the majestic domes of the Unakas, wrapped in mist, the universal expression of the sublime, the type of the infinite and unchangeable, standing out as "landmarks on the vast and shoreless sea of the azure heavens."

The gap is 500 feet above Poor Valley, and 1,000 below the pinnacle. A road, by a series of gentle curves, passes from the valley below up through the gap. Beyond the gap the slope is less abrupt.

*Streams.* Besides the Clinch, which washes the southern limit of the county, and Powell's River, there are numerous small streams tributary to these rivers. Russell's Creek, Indian Creek, Gap Creek and Town Creek empty into Powell's River. Sycamore Creek, Big Barren and Bald Creek empty into Clinch. All these tributary streams furnish good water-powers, many of which have been utilized. The streams are rapid in their descent, and the banks, being of limestone, are admirably suited for the erection of dams. Mills are usually driven by over-shot wheels, to which the water is conducted from a point above by flumes. Very little expense is incurred in the making of dams. Sometimes the natural dip of the rock can be made to answer the purpose. In many places the dip of the strata is in the direction from which the stream flows. In such situations many beautiful natural dams occur, over which the water falls with glassy smoothness.

*Lands, Soils and Timber.* The soils of Claiborne county are almost as varied as the topographical features. On the Cumberland Table Land is a sandstone soil, thin, porous and unproductive. In Poor Valley the soil sometimes runs into quicksand. The finest and most productive soils are found in the Sycamore bottoms and in Powell's Valley. In the latter it has a reddish cast with a deep red ferruginous subsoil. There is no better soil in the State than that found in Powell's Valley, especially when we add to its fertility its durable properties.

It is the garden spot of the county. Lands are remarkably high in this valley, when their remoteness from market is considered. The entire products are shipped out by Powell's River, a stream that is navigable for flat and keel-boats, and only then for one or two months in the year. The best improved farms bring from forty to fifty dollars per acre. On Chestnut Ridge the soil is thin, and lands sells for about four dollars per acre. The lands immediately north of Wallen's Ridge, though rocky and rolling, have a rich limestone soil, and are highly productive. They are held at thirty and forty dollars per acre. South of this ridge, though nearly as fertile, the lands are not so valuable, except those in close proximity to Clinch River. The exceeding ruggedness of the surface of the county, and the difficulty of making good roads, make the nearness or remoteness from the river quite an important element in the estimates of the value of farms.

*Timber.* There are but few counties in East Tennessee better timbered than Claiborne. Walnut and sugar trees are abundant and grow to enormous sizes on the rich slopes of the ridges and in the elevated bottoms between. In places chestnut prevails, especially on the chestnut plateau north of Tazewell. In the north-eastern part of the county, on Powell's River, are some good groves of cedar. Birch is met with on the streams. The prevailing timber, however, is oak, poplar, hickory and pine. Of the latter, none is found east of Tazewell, but white oaks of fine size, black oaks, suitable for boards, and walnut trees are abundant. In this portion cedar bushes grow up in the old fields and relieve them of their barren aspect. At least three-fourths of the county is covered with valuable timber. The walnut is more abundant than is found in contiguous counties, and would yield a fine revenue if the means of transportation were better. Rafts are sometimes carried down Powell's River.

*Crops and Farms.* The average size of farms in Claiborne county does not exceed thirty-five acres of tillable land. By the census report of 1870 there were 1,100 farms in the county of all sizes, nearly half of which had more than twenty and less than fifty acres. There was not a farm reported in the county as having five hundred acres. Most of them are worked by their owners, with a little help during the summer. Farm hands are not hired by the year, but from about the 1st of March to the 1st of August, and again from the 1st of October to December.

The usual crops are corn, wheat, oats, rye, and hay, and some farm-



ers raise flax for domestic use. By far the largest proportion of corn is fed to hogs and sold in pork, but a considerable quantity is shipped out in flat-boats. The hay crop has been greatly increased during the past few years. The valleys that lie at the foot of the limestone ridges produce timothy well. Receiving fresh accessions to their fertilizing elements by every rain, the soils, in these low places, are among the most durable in the State. Outside of Powell's Valley these areas are small, though they produce from two to three tons of hay per acre. It is claimed, by leading farmers, that the north hillsides, especially of Wallen's Ridge and Lone Mountain, are as well adapted to the growth of hay as the bottoms themselves. This statement is not incredible; for of all the corn crops which came under our observation during the past summer, we saw none surpassing in luxuriance of growth those seen on the northern slopes of the hills and ridges of Claiborne county. The only trouble about growing hay on the hillsides is the difficulties which have to be encountered in the use of suitable machinery for saving it. As pastures, these lands would be unexcelled, for the hot suns of summer are attempered by the uprising hills on the south, and the moisture, so necessary to the rapid and luxuriant growth of grass, is not so readily evaporated. Besides timothy, clover is also sown as a hay crop. The limestone soils grow it with surprising rankness. Three and four tons are sometimes taken from a single acre. Here, as in other counties in East Tennessee, the practice does not prevail of giving the land the benefit of the clover crop. It is either pastured or cut for hay. Diligent inquiry failed to find more than two or three farmers who habitually sow clover for the purpose of benefitting the soil. Fields are often cultivated until the fertility of the soil is destroyed and then turned out to grow up in pine forests, or alder and persimmon bushes. Upon Chestnut Ridge this practice is quite common, and instances were given where the same rails, made of chestnut timber, had outlasted the fertility of two or three fields. But as the turned-out fields in this chestnut region soon grow up into pines, the effect upon the appearance of the country is not so bad as in many other portions of the State.

The condition of the farms is not so good as it was before the war. The fences are badly neglected. Many of the fence rows are tangled masses of briars and bushes. Crops are not so well cultivated, nor do the out-buildings receive the care and attention they demand. Of course there are many noticeable exceptions to this condition of things. The farms on Syeamore Creek, and on the slopes of Wallen's Ridge,

by their strong enclosures and neat farmhouses, show, unmistakably, the industry and thrift of their owners.

*Stock and Implements.* Stockraising is considered by far the most profitable branch of husbandry for this county. Many farmers are introducing improved breeds of cows from Kentucky. Sheep would find here a congenial home among the sheltering rocks, and in the coves of the hills and mountains; but the great number of dogs, which is said to equal at least one for each person in the county, would make sheep-raising an unprofitable and unsatisfactory business. However much a farmer might wish to improve his breed of sheep, he is deterred from importing high-bred bucks, because of the imminent risk he would run on account of these pets of society. Numerous cases are mentioned where fine sheep have been killed by dogs, while the scrub stock remained unharmed. There is about one sheep for every person in the county.

Mules and horses are raised in sufficient quantities to supply the home demand, and some for export. Both are used in the cultivation of crops, though the number of horses is much greater than of mules. Oxen are employed in hauling over the rugged hills, and to some extent, in spring, for breaking up land. Hill-side plows are coming into use, much to the advantage of the land. The cultivation of the crops is done with shovel-plows or bull-tongues, which are favorite plows with the hill-side farmers of East Tennessee. With this simple implement many of them assert that a crop is more easily worked upon a steep hillside than upon level land, and this same opinion prevails in Claiborne county. Some of the fields in this county have an ascent of nearly forty degrees, and upon such places the corn always looks well, if well tilled. Usually the corn rows are run with a long bull-tongue plow on nearly a water-level, and in some instances we have remarked one long spiral row from the base of a conical hill to its apex.

On the more level farms reapers, mowers and horse-rakes are extensively used by the farmers. In Powell's Valley the farmers keep abreast of all the recent improvements in agricultural implements. All the fertile parts of the county are tolerably thickly settled. In Powell's Valley, the population will average fifty to the square mile, while the average for the whole county will not exceed twenty-six.

*Rents.* Renters are numerous, notwithstanding the great surplusage of land and the desire of many farmers to sell. This class fur-

ishes everything, and gives the proprietor one-third. If the land is very fertile the owner claims and receives one-half.

*Minerals.* It would be difficult to estimate the mineral wealth of Claiborne county. The iron ore is very abundant. The dyestone, or red hematite, is found sheeting both sides of Poor Valley Ridge, and also in considerable quantities in Walden's Ridge. Poor Valley Ridge is within a few hundred yards of the Cumberland Gap Iron Works, which are situated within a quarter of a mile of the gap, just under the frowning brow of the Cumberland Table Land. The vein, in Poor Valley Ridge, has been traced ten miles east and ten miles west. It is from eighteen inches to three feet in thickness, and runs with the inclination of the ridge. It is thought to average, in width, fully a half mile. This ore, it is said, yields in working from the furnace from fifty to seventy-five per cent. of good pig iron, tough and of great tensile strength. It is much sought after for car wheels and boiler plate.

On the spurs of the main range of the Cumberland Table Land are brown hematites. In other places are found the black oxide.

The red hematite is so abundant that it is mined and delivered in the furnace loft at one dollar per ton. Limestone, fire-clay, and sand-rock, suitable for making furnace hearths, are found in the same vicinity. The sand-rock has, in practice, proved better in the furnace, and more able to resist heat than the fire-brick.

Between Poor Valley Ridge and the Cumberland Table Land runs a vein of the black oxide of manganese, which would supply this ore in considerable quantities. This mineral, in the market, is worth from thirty to forty-five dollars per ton. It is extensively used in the mechanical arts, especially in the manufacture of glass. Lead, in pockets and in veins, has been discovered in some places, but never in workable quantities. It occurs in the great anticlinal (or upheaval of the strata in which the rocks dip in opposite directions) that passes through the county and occupies one-half of it. In this anticlinal is also found zinc-blende.

In relation to the quantity of coal in the county, enough has been ascertained to know that it exists in abundance, but there have been no efforts made for its development. The coal-measures attain, in this county and Campbell, a much greater thickness than in any other portion of the Tennessee coal-fields. The aggregate mass of coal must be very great in that part of the county included within the limits of the

Cumberland Table Land. A few places have been opened near Cumberland Gap, and coal of good quality has been mined, but only for domestic purposes.

Millstone grit is found in many places; and at Big Spring, where the first settlements in the county were made, an extensive manufactory of them was carried on before the war.

Numerous mineral springs are in the vicinity of Cumberland Gap, consisting of both sulphur and chalybeate. There are also caves in the same neighborhood, in which occur beautiful incrustations. One known as the Newlee's cave, from which the dashing stream of water issues that drives the blast and mill at the furnace, has been explored for many miles. The stream, from the point of issuance to the valley below, has a fall of 150 feet, though the distance is scarcely more than one hundred yards.

*Roads and Transportation.* The roads of Claiborne county are exceedingly rough. No pains have been taken and no expense incurred by the citizens to make good roads, though they are greatly needed. The nearest point to the railroad is Morristown, in Hamblen county, a distance of twenty-eight miles from Tazewell, the county seat. It would be worth a load of corn or hay, oats or wheat, to haul it over the road between these points. Between these points there is what is called a State road, yet the roughest in the State, one on which toll is still demanded, and yet it would be difficult to say for what purpose, unless for the privilege of riding over the worst possible road. The material for the construction of roads is abundant. Good McAdamized roads could be built as cheaply in Claiborne county as in any county in the State.

The Clinch and Powell's rivers are the only available outlets for the various commodities of the county. Four railroads have been surveyed and located through Cumberland Gap—the Cincinnati, Covington and Cumberland Gap Railroad, the Lebanon Branch of the Louisville and Nashville Railroad, the Bristol and Cumberland Gap Railroad, and the Cincinnati, Cumberland Gap and Charleston Railroad. The latter will doubtless be extended from Morristown to this point when the demands of trade shall justify it. It now runs from Morristown to Wolf Creek, in the opposite direction, a distance of thirty-nine miles.

*Schools.* Very few, if any immigrants come to the county, doubtless owing to the want of railroads and good schools. The county has suffered

quite as much for want of the latter as the former, and the indisposition of the people to levy a tax for that purpose is a harbinger that broods no good for the future industrial and moral development of the county. There is an excellent school at the county seat, but aside from this, we could learn of no other, though doubtless a few peripatetic teachers will now and then come to the county and stay long enough to gather the small sum semi-annually disbursed by the State. The county has levied no tax for school purposes, and has by vote of the people refused to do so.

*Furnaces.* There is at present only one in operation. This is at Cumberland Gap, and its daily product is about three and one-fourth tons. This furnace is cold blast. It uses charcoal as fuel, the cost of which is six cents per bushel. Cost of raising ore, fifty cents; cost of delivering fifty cents. Two hundred bushels of charcoal and two tons of ore are required to make a ton of iron. Labor at the furnace for each ton of iron, costs \$3.35. Flux costs one dollar per ton delivered. Forty cents per cord is paid for cutting wood. The estimated cost of making a ton of cold-blast charcoal pig-iron at this point is as follows:

200 bushels of charcoal, at 6 cents.....	\$12 00
2 tons of ore, at \$1 per ton.....	2 00
One-fourth ton limestone, at \$1 per ton.....	25
Superintendence and labor, per ton.....	3 35
Interest on investment.....	80
Incidentals and repairs, per ton.....	2 00
	<hr/>
Total.....	\$20 40

The cost in Pennsylvania and Ohio is over \$30.00 per ton.

The iron made at this point is shipped out by Powell's River.

*Towns.* Tazewell, the county seat, has a population of 400. It has six general stores, three hotels, one grocery, six physicians, two lawyers, a tan-yard, blacksmith shop, etc. This place was nearly destroyed during the war, and has not since been rebuilt.

Barre Forge, Cumberland Gap, Pleasant and Little Gap are all small villages, with one or two stores each. Scattered all through the county are little stores that barter goods for beeswax, dried fruit, ginseng, feathers, eggs, butter, chickens, turkeys, maple sugar, bacon, lard, corn, wheat, potatoes, onions, beans, peas, rags, wool, socks, hides and domestic manufactures. When a considerable quantity of these articles are gathered, they are sent to Knoxville, Chattanooga, and points fur-

ther south. The largest demand for chickens comes from Atlanta Georgia.

*Farmers.* The farmers of Claiborne county are said to be the best contented people in the State. They are not ambitious of wealth or distinction, but make what they live upon and live upon what they make. They work for a competency and are satisfied with it. No visions of princely wealth in the future beguile them into a neglect of the enjoyment of the present. Life to them is a thing to be enjoyed, not merely to be endured. If in discharge of the duties of the farm any social pleasures can be interwoven, it is always done. Neighbors help each other in harvest, in the clearing of land, and oftentimes in the planting of the crops, and what would be a dry, hard, irksome labor for one is made a pleasant pastime for the many. Even the burning of the briers from a field is made a season of sportive enjoyment by the young of both sexes. The habits, manners and customs of other days prevail to a great extent among the farmers of Claiborne. The lofty virtues of simplicity, frugality and honesty are cultivated and appreciated, but there is a woful lack of enterprise.

*Cost of Living.* In no part of the State can the necessaries of life be obtained so cheaply. An income of five hundred dollars in Claiborne would supply almost as many comforts as three thousand dollars in Nashville. The following prices for the chief articles of domestic use were gathered in the county :

Lumber, per 1,000 feet.....	\$10 00
Eggs, highest price per dozen.....	10
Butter, " " " " pound.....	16 $\frac{3}{4}$
Beef " " " " .....	4
Pork, " " " " .....	4
Corn, average price per bushel.....	40
Wheat, " " " " .....	1 00
Hay, per 100 pounds.....	50
Chickens.....	10

Horses and mules are cheap. The best work-horses can be bought for \$125.

*Farm Labor.* Men, \$8 to \$12 per month and board; women, \$3 to \$4 per month and board; carpenters, \$1.50 per day and board. The price for splitting rails is fifty cents per hundred and board; getting out staves, fifty cents per hundred; boards, thirty-three cents; shingles, drawn, \$2.50 per thousand.

House rent, with fire-wood, is cheap. Comfortable houses can be

rented in this county, and in the adjoining county of Hancock, for \$25 per year.

*Exports and Statistics.* The exports from the county for the year ending July 1, 1873, as gathered by a gentleman engaged in the river trade, consist of the following articles: wheat, 30,000 bushels; butter, 45,000 pounds; dried fruit, 20,000 pounds; corn, 50,000 bushels; eggs, 60,000 dozen; wool, 5,000 pounds; maple sugar, 2,000 pounds; bacon, 18,000 pounds; feathers, 3,000 pounds; besides various articles not estimated, such as ginseng, honey, socks, home-made cloth, etc. From Lee county, Virginia, Hancock and Claiborne counties, the exports annually are: wheat, 100,000 bushels; bacon, 600,000 pounds; corn, 120,000 bushels—all shipped by Powell's River.

The amount of land assessed for taxation in 1873 was 195,867 acres, valued at \$818,919. The number of polls, 1,057.

The population of the county in 1870 was 9,321, of which 758 were colored, showing only about eight per cent. colored.

(For other statistics, see chapter xxii.)

Claiborne and Hancock counties differ but little in the configuration of the surface, in the quality and quantity of products, the price of labor and of living, and in the manners and customs of the people. Claiborne raises more stock, Hancock more orchard products; Claiborne more wheat, Hancock more tobacco. In all other products except domestic manufactures, of which Claiborne has forty per cent. more, the two counties are about equal, though Claiborne reported a fourth more tillable land, farms and population than Hancock. The size of the farms is about the same. The description of the farming operations in one will apply to the other.

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## COCKE COUNTY.

### COUNTY SEAT—NEWPORT.

Cocke county is bounded on the north by Hamblen and Greene, on the east by Greene and North Carolina, on the south by North Carolina and Sevier, and on the west by Sevier and Jefferson counties. It was created October 9, 1797, and therefore is one among the oldest counties of East Tennessee. It embraces a vast territory, considerable portions of it exceedingly broken, while there is a large quantity of very superior

lands. The southern portion is bounded by the Unaka chain of mountains, and all this is unfitted for agricultural purposes. In some of the coves and gorges of the mountains the lands are productive, but too contracted to render them valuable for producing grain crops. They are adapted to the grasses and to the raising of fruits, though there is nothing done, or comparatively so, in this direction. They might be made available if there was more enterprise among the citizens who live in them and who cultivate them.

The agricultural and mineral resources of the county are scarcely inferior to those of any county in East Tennessee; and yet these great natural advantages are not made available to that extent which they deserve. There is a lack of stirring enterprise. Was there more of this, it could be made equal to any county in the State. There are a few men of enterprise, who are doing what they can to advance and push forward the work of progress and steady improvement, but they do not meet with sympathy and vigorous co-operation on the part of the great body of citizens.

There are four towns in the county—Newport, Parrottsville, Sweetwater and Clifton. The first having a population of 800, the next 300, the third 150, and Clifton about 200. Newport is an old town, and has not improved any. Parrottsville is in the midst of good lands and has a fine population. Clifton is immediately upon the Cincinnati, Cumberland Gap and Charleston Railroad, and is a flourishing place. More business, perhaps, is done there than by all the other places put together. The principal part of the trade of the county concentrates there.

The principal valleys are French, Broad and Pigeon valleys, taking their names from the French Broad and Pigeon rivers. The former is about forty miles long and about one mile wide, and the latter twenty miles long and one wide. These are exceedingly fertile valleys, the soil equal to any in the State. It is alluvial and deep. With anything like fair cultivation, it will produce from fifty to one hundred bushels of corn to the acre. It is not so good for wheat. Oats grow well. Owing to the prevalence of sand, meadows do not succeed, but clover does. These bottoms have been cultivated in corn from time immemorial, with scarcely a change, and still they are enormously productive, as already indicated. Corn, of course, is the great staple upon them, and this is fed mostly to hogs. Recently, however, some of the largest farmers are turning their attention to the



cattle and mule business, and much of the corn is fed to them. This, no doubt, will lead to a radical change in the raising of so much corn, and bring about a new era in the cultivation of the grass crop, a change that certainly would be beneficial to the county.

The average size of farms in this county, as in all the counties of East Tennessee, is, by far, too large. Many farmers have more land than they know what to do with, but these are wild lands. Some of the farms are very large, and there are a number of wealthy farmers in the county. Before the war, this was especially the case. They owned a large number of slaves and cultivated immense tracts of land. The quantity of corn produced was great, and the number of hogs fattened and sent to the southern markets was equally so. Many shrewd and far-seeing men of the county now see the folly of attempting to cultivate so much land, and a more judicious public sentiment on this subject is likely to take root, and to produce its legitimate fruit. Unquestionably, it would be better for all concerned if these large estates were reduced to at least one-half of their present size, especially in view of the fact that labor is not so reliable as in other days.

The tenant system is not much in vogue. The owners of the soil cultivate it mostly themselves. When they rent at all, they require tenants to give one-half of the products of bottom lands and one-third of the up lands.

The price of land ranges from five to fifty dollars per acre, and in some special instances even higher. The bottom lands referred to are not for sale. They have been retained in the same families for generations, and are not likely to pass out of their hands in the future. There are some very superior lands on Big Creek, in the eastern portion of the county, and are owned by some of the best citizens and farmers. These lands are duly appreciated by their owners, and rate pretty high on account of their fertility.

Improved implements of husbandry are not, by any means, in general use, comparatively few, in fact. This is owing to two causes: First, they are enormously high, and second, the farmers have not been inclined to buy them. There are a few reapers and mowers, no wheat drills, and the plows generally in use are the bull-tongue and shovel.

But little advance from primitive times has been made in raising stock. The same old breeds raised fifty years ago are still raised. Here and there there has been some improvement, but too superficial

to benefit the county at large. All kinds of stock partake of the scrub species, except hogs, and they are fair, though not thorough-bred. It is an excellent region for sheep, but on account of the extensive prevalence of sheep-killing dogs, very little is done towards raising them. Hundreds of farmers are in favor of a stringent dog tax law, or of any plan that will exterminate this deadly foe to their interests. But again, there are many more who are fond of hounds, and run the risk of having their sheep destroyed, in order to have some idle sport in hunting the fox.

We should have remarked, in the proper connection, that there is a vast amount of waste land in the county. This is owing to the fact that the Unaka chain of mountains makes into it deeply. The southern side of it is densely packed with ridges and with spurs of the mountain. On this account, more perhaps, than from any other cause, the county is not thickly settled, and, we suppose, never will be.

The taxable property in the county amounts to \$1,362,032. Its financial affairs have been judiciously managed, though but little, comparatively, has been done to advance the cause of education, by a reasonable tax upon the people, and in this undoubtedly lies one of the marked errors of this county. No people on the face of the earth can advance to a high plane of civilization in the absence of education, and no people could spend a portion of their means more profitably than by appropriating money in promoting and fostering a liberal system of education in their midst.

The timber of this county is remarkably fine. Every variety known in this section abounds here—white oak, chestnut oak, black oak, post oak, sugar tree, maple, hickory, walnut, beech, cedar, white pine, spruce, yellow pine, poplar, dogwood, ash, &c. There is an extensive trade carried on in the shingle business, which are made out of white pine.

The principal streams of the county are the French Broad and Pigeon rivers, and Big Creek. Their capacity to drive all sorts of machinery is almost, if not altogether, without a parallel. The water-power is truly immense, especially that offered by the two rivers mentioned, and yet this power remains undeveloped to a great extent. There are not many mills in operation, and no factories of any description. Enterprise and capital could find, in this direction, ample scope.

The facilities for transportation are favorable. As already indicated, the Cincinnati, Cumberland Gap and Charleston Railroad runs through

the entire county, and through the richest portion of it; and, besides, the two rivers mentioned are navigable for flat-boats. Live stock is driven across the mountain into North and South Carolina.

There is no way of estimating the mineral wealth of this county. It abounds to a great extent. Iron ore is found in paying quantities—the hematite, brown and specular. Baryta and lead exist. Nothing is now being done to develop these minerals. Lands containing iron ore deposits can be bought at reasonable rates.

The prevailing rocks in the valley lands are limestone and shales, and there are numerous springs of chalybeate and white, black and yellow sulphur in the county.

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## GRAINGER COUNTY.

### COUNTY SEAT—RUTLEDGE.

Grainger was the second county that was organized after the State of Tennessee was received into the Union, Carter having preceded a few days only. By an act of the Legislature, passed on April 22, 1796, contiguous portions of the extensive and unwieldy counties of Hawkins and Knox were severed from those jurisdictions, and “created into a separate and distinct county, by the name of Grainger.” The name was given in compliment to Mary Grainger, the wife of Governor William Blount, who, according to Dr. Ramsey and tradition, was a woman of vigorous intellect, highly esteemed for her rare virtues, personal accomplishments and address. It is said of her, that her influence on the robust manners of the day was most happy, and that she was often able to soften even savage ferocity in the persons of the chiefs who at times visited her husband. The seat of justice was located on the waters of Richland Creek, in the great central valley of the county, in the month of October, 1798, and received the name of Rutledge, in honor of George Rutledge, a name well and honorably known in the early days.

Grainger, by the creation of the younger counties of Union and Hamblen, has been shorn of much of her ancient territory, but there is still left to her an ample domain, with, perhaps, improved symmetry of boundary and shape. The southern boundary of the county, as now established, is the waters of the Holston, *ad filum aquae*,

the stream not being navigable, according to the rule of the civil law, which has been adopted in Tennessee. We write the Holston, for by that historic name, all along its course, from its source away in the green, grape clad hills of south-western Virginia, it is still and ever will be designated. Arbitrary legislation cannot change the names of natural objects, that are endeared to the hearts of the people by honorable association, grateful recollections, and which came to their ears in infancy from the lips of their ancestors. Let the name of Holston still be spoken, in memory of the brave pioneer who first explored the waters of the noble stream. It was he who led civilization to its shores, and there permanently planted its advance; and now, to consign his very name to forgetfulness by a mere legislative fiat, void of meaning or solid purpose, is to deprive him of the only reward by which his services were ever requited, and to incur the national shame of ingratitude for disinterested service to the State, which, at the time it was rendered, was at once profitless, perilous and unknown. The Clinch River, for a considerable distance, limits the territory of the county on the north. This stream, more rapid and boisterous than the placid Holston, obtained its name from a very trivial and ludicrous incident, which happened in one of the earliest explorations of its course. An Irishman, afloat upon the stream, in company with others, upon a rude raft, by an unlucky step was precipitated overboard. Rising to the surface, he vociferously called upon his fellow-voyagers to "clinch" him; and from that day the stream, and a mountain which holds its turbulent waters in their place along its course for several hundred miles on the south, have been known by the name of Clinch, and are so designated both in popular local nomenclature and upon the maps of geographers. Neither of these streams is navigable, in the legal sense of the term before alluded to, but during the winter and earlier spring months are of sufficient volume and depth to safely float, under the direction of practiced and skillful steersmen, large flat-bottomed boats, heavily laden with the agricultural products of the country, thereby affording access to the markets and railroads on the waters of the Tennessee. Not only is the agricultural surplus of the country thus cheaply and safely transported, but when the waters of the Holston are in freshet, which generally happens several times during the period mentioned, of every year, large fleets of boats, loaded with salt and plaster from Virginia, and with iron and castings from upper East Tennessee, convey immense quantities of these staple manufactures, of superior quality, stopping at convenient points to supply local demands

on the way, and finally landing the remainder at points accessible to the demands of the south and west. These natural means of transportation, while they conduce greatly to the health, and enhance the beauty, and lend an indescribable charm and interest to the scenery of the land—for no landscape, however limited or extended, is perfect without water, still and placid, or moving and resonant—are of immense aid to the national interests of the country. The boats are easily and cheaply constructed. The forests abound with the material, and in every locality are to be obtained, on reasonable terms, persons competent to construct them and also to manage them after they are afloat. Indeed, there is something in life upon the river that is fascinating; there is something in the majestic, onward march of the swollen tide; in the wild roar of the shoal; in the arrow-like speed of the rapids; in the deep, fretted agitated whirl; and in the lofty, beetling crags and cliffs, heavy with the undying verdure of the native evergreens, that here and there overhang, or loom up beside the way, that has a charm for the most uncultivated sensibility, and “a trip down the river,” with all its minor perils and deprivations, is an undertaking that requires but small pecuniary inducement. The transportation thus obtained is much cheaper than that obtained by rail, and almost as secure—the difference in cost amply compensating the increased risk. Before the day of railroads, these were also channels of emigration, and scattered over the great west are many natives of East Tennessee whose last recollections of their native hills are as they appeared from the bosom of the waters of the Holston and, to this day, it is not an extraordinary sight to witness the passage of a solitary covered boat, laden with the all, the hopes and fears of a self-expatriated family, on their winding way to the great West.

Hawkins, Hancock, Claiborne, Union, Knox, Jefferson and Hamblen are the coterminous counties. The county may be said to be divided by natural objects into three sections, longitudinal, and lying in three great channels, or flutes. The formation of the county is an approximate miniature representation of East Tennessee. He who traverses East Tennessee from south-east to north-west, or *vice versa*, will find emphatically “a hard road to travel,” and form a most erroneous and inadequate conception of the character of the country. His way will be over a succession of mountain ranges, of varying altitude and difficulty of passage, with only glimpses between of the better parts, sometimes confined and narrow, but sometimes in wide stretches of beauty and fertility. But to the traveler passing at right angles to

this direction, or up and down the country, is opened an inviting land. In the direction first named, scenery, wild, rugged and romantic, is on every mountain's side, and shades the deep, lonely glens that lead to their feet; but here are valleys, at places spreading into considerable plains, that have not only features of exquisite picturesque beauty in profusion, but the soil of which is, for the most part, either naturally fertile or susceptible of being made so, and this, too, without other means than those afforded by the country itself. Nor are the farmers here as ignorant, as unskillful, and as poor as it is the fashion of the day to represent them. There are numbers of farms in East Tennessee under the direction of as much science, intelligence and practical skill as are to be found even north of the line of Mason and Dixon. There are homes here which are as elegant, as sumptuous, and which are as much the abodes of comfort, taste and refined and cultivated enjoyment, as any that grace and make happy any other section or country, in which there are books to be read, pictures to be seen, music to be heard, virtue to be loved, beauty to be admired, intelligence to be communed with, hospitality to be enjoyed, and, above all and beyond all, incorruptible honesty and high-toned honor to constitute the true gentleman. The best improved agricultural implements find ready sale, and are used with skill and success by large numbers. There are, it is true, a large number of farms here, perhaps the larger number, in a low state of cultivation, worn, exhausted, and reduced from their virgin fertility; but such is also the case in almost every section of the United States. Prejudice against innovation, proneness to the way the ancestor trod, here as elsewhere, have been great obstacles in the way of improvement in agriculture. Want of the necessary means, resulting in part from this unwise adherence to the traditional dogmas and modes of the past, and in part from the loss of slaves and other property during and at the close of the war, is now the great hindrance to advancement, to renovation and to success. These lands, as has been already intimated, are capable of improvement to the extreme productive capacity of soil. Their owners now have the will—they see the way, but the means to pursue they have not, at present, as a general rule. They are not ignorant dolts. They understand and see, some with a dim vision only, it is true; but yet they see, that after all there is not any great mystery in scientific agriculture, or, as it is derisively termed, “book farming;” that the leading facts and principles are few and simple, and that common men can understand and carry them into practice in the field. When this is more generally done,

when every valley is made to teem with its appropriate productions, and when the hills, clad in living green, become the haunts of the Short-horn, the South-Down and Cotswold, East Tennessee will surely advance to the front in the great march of the material and social prosperity of the nineteenth century.

What has been generally said of East Tennessee, is applicable to the county of Grainger. We started out with the remark, that the county in its physical configuration was like the general section; and the remarks made in the digression are equally applicable—what is true of the whole in these particulars, is also true of the part.

The course of the sections we have mentioned are north-east and south-west, with slight variations. The section, or flute, we may call it, on the north-west side, lies between the Clinch Mountain and the Clinch River, and is several miles in width. The surface is broken; hill succeeds hill, in every variety of shape, regular and symmetrical, rugged and fantastic, now extending away before the eye in a regular range, and then looming up in isolated peaks. But around the bases, and snugly ensconced between these elevations, are numerous small vales, and wild glens, and gorges, the contemplation of which never fails to bring vividly to the mind of the writer the scenes of many a well-remembered story of the Highlands.

The soil is productive, large portions of it exceedingly so. Indian corn, the greatest of feeders among all the cereals, is seen flourishing on the steep hill-sides, with all the pride of luxuriance so characteristic of that lordly plant in the richest alluvial bottoms. The other cereals flourish nearly as well. We have observed but few attempts at the cultivation of the grape, but have no doubt that they could be grown to perfection. The hog here finds a congenial and a bountiful home. He can, as a general rule, subsist himself the whole year in the forests. Large numbers of this animal are reared and fattened for market. One of the industries of Clinch, as the section is called in local speech, the manufacture of maple sugar, is not now prosecuted with as much energy nor as extensively as in former years. "Old times are gone, old manners changed," even in Clinch, whose hills have not yet echoed the sound of the steam-whistle. There are many tender associations and dear recollections clustering around the old camps in the deep maple forests, which now, alas! are rapidly yielding to the remorseless axe of the woodman. "Woodman, spare *this* tree," should be inscribed on every fine old rock maple that adorns the land-

scape. The inhabitants are a hardy, industrious, sober, frugal people. Honesty in the discharge of debts is their prominent moral trait, and this rare virtue is possessed by them in an eminent degree. There is another one of the virtues for which these people are pre-eminently distinguished—hospitality. Theirs is no niggard hand. Their doors are ever open to the homeless wanderer, their roofs a shelter to the uncovered, their boards spread to the weary and hungry. Remote from the strife of the more busy and enterprising world, they live to a green old age, in health, in peace and with plenty, serving God in the good old primitive way, and ever ready, at their country's call, to go forth with their brave hearts and stalwart arms to fight her battles.

Between a long, regularly formed ridge, known by the name of the Big Ridge, of nearly uniform elevation, and the Holston River, lies the south-eastern section or flute. It bears the euphonious and suggestive appellation of Skin-foot. How dubbed, we know not; but so it hath been, "time whereof the memory of man runneth not to the contrary." But let not the reader draw an unfavorable inference from the name; for, although an unshod foot, venturing upon some of its fields, might remind its owner that the name was not inappropriate, yet in this instance, it may be truly said, there is nothing in a name. In this wide and long region are situate some of the finest farms in the eastern end of the State. Even those portions that may be designated as stony, are quite productive. All the grains, and particularly wheat, are produced in abundance. There are large forests of superior pine trees, which are easily reduced to "saw-stocks," and which, floated down the river Holston in rafts, find a ready and a remunerative market below. The river is the most convenient outlet to trade; but a few miles beyond, and so near that the sound of the passing trains is distinctly audible, is the line of The East Tennessee, Virginia and Georgia Railroad, stretching its rails away north-easterly and south-westerly, in almost a parallel course with the boundary of the country we are describing. The facilities of transportation and travel are abundant. Morality, industry, thrift and intelligence are the leading characteristics of the inhabitants.

We come now to a brief sketch of the great central valley, which, in our plan of the county, forms the remaining section. Clinch Mountain, of which we have spoken, is first seen as a distinct elevation emerging from among the mountains of South-western Virginia, and it then extends, in wedge-like form, in a direction generally south-



west, through upper East Tennessee, to the waters of Flat Creek, in Knox county, where it abruptly terminates. Immediately at its south-eastern base, which is four hundred feet lower than its north-western base, and between it and a parallel range of hills, known as the Poor Valley Knobs, is a narrow valley, bearing the appropriate name of Poor Valley. This valley, sterile, sandy, with desolation presiding over its whole length, and these knobs, covered with melancholy stunted pine, are the constant companions of the lofty mountain the whole extent of its existence, and from its north-eastern to its south-western extremities both are known by the same name. Poor Valley, however, if we are correctly informed, has the honor of holding within its bosom the celebrated salt-wells of Western Virginia. At the foot of the Poor Valley Knobs, and between them and the Big Ridge before mentioned, lies the central portion of Grainger county, about thirty-three miles in length, and of varying breadth. The valley in its whole length, which north-eastwardly extends much beyond the limits of the county, may be properly termed the Valley of the Clinch. But within the territorial limits of the county, it, in its two sections, has separate and distinct names. The western end, watered by Richland Creek, is called the Richland Valley; the eastern, watered by German Creek, and its many confluent streams, the Bean's Station Valley. Through this general valley, down to the time of the construction of the East Tennessee, Virginia and Georgia Railroad, passed the great stream of trade, travel and emigration from the east to the west. It was the great thoroughfare of East Tennessee. Over this road goods were transported in wagons as far west as Nashville, and into northern Georgia and Alabama, from the eastern cities; and over it the sons and daughters of Virginia and North Carolina wended their toilsome way in the march of civilization. But they have passed, and neglected now, and silent, is the ancient way.

Bean's Station, the point of intersection of the two great roads that traversed upper East Tennessee—the one we have just mentioned, and the other the thoroughfare from Kentucky to the Carolinas, over which was annually driven several hundred thousand mules, horses, cattle and hogs—was one of the first permanent abodes of the white man. During the whole of the first half of the present century, it was the most "public place" in the country. We doubt whether Knoxville, during that period, was visited by as many strangers. Its history is a strange, eventful story, but we cannot here recount it. For some years before the war, railroads having completely revolutionized the courses of travel and trade, the fortunes of the place seemed to wane; during the war

it was frequently occupied by large armies, and finally was torn and wasted by battle, leaving it, and the surrounding country, at the close of the war, a sad, silent scene of desolation. But, such is not now the aspect of the place, for the present proprietor is rapidly restoring it to its former condition, and making many handsome improvements.

The Bean's Station Valley proper is one of the most beautiful spots in the world—so pronounced by the visitor and traveler, without exception. From whatever direction approached, the fact is at once recognized and conceded. Seen from the passage of the lofty Clinch, with the distant elevations of four States on the horizon, the myriad intervening hills appearing like the broken waves of a vast ocean in tempestuous agitation, it lies below, wrapt in all those charms of landscape loveliness which are so pleasing and soothing to sensibility, a scene of peace, a home of rest and health. The valley is now visited by large numbers of persons, from many States, during the summer months, on account of its mineral waters, for whose accommodation three very large hotels have been erected within a space of two miles. The springs are numerous, and furnish every variety of mineral water that has any sanitary reputation, and of the most superior quality. One of them yields, on a quantitative analysis, as much as two hundred and seventy-three grains of solid matter to the gallon. There are not less than twenty of these springs within easy reach, and the actual experience of hundreds of invalids has demonstrated that they possess curative properties of wonderful efficacy. These waters, with the accessories of easy transit in several lines of hacks from the railroad, ten miles distant, daily mails, splendid drives, pure air, rural quiet, pleasing scenery, abundant facilities for innocent amusement, and the most wholesome country fare, together with three spacious hotels, supplied with every convenience and comfort, have rare attractions to the sick, the weary, and the fugitive from infection and pestilence.

Grainger, as has already been stated, in age, ranks among the oldest counties in the State in wealth and population, she is the tenth in East Tennessee. Her past history is honorable. Her sons have shone conspicuously on the bench, in the pulpit, and in the legislative halls of her own and of other States, and in the councils of the nation have not been unheard, or without distinction. They rest, with the soldier's honor, on every field from the city of Mexico to the Potomac. Her people are emphatically good citizens. Morality and sobriety are the rule. Good order prevails. The laws are respected and enforced. Grainger juries are proverbial for convictions, with merciful exercise of

discretion, in criminal prosecutions. They make punishment *certain*, but exclude not the elements of mercy from their verdicts. But there has always been, and there still is, a lamentable lack of public spirit in the county. It is to be hoped that more liberal, enlarged and ambitious views in this respect will be taken in the future. It is not liberality, but corruption in the use of public money that is to be condemned. A county that is worth between three and four millions of dollars, though as compared to others poor, yet is rich enough to act a prominent part in all works of public improvement, adornment, charity, and patriotism.

If we were called upon to express an opinion as to the branch of industry and production to which this county should be chiefly devoted, we should, without hesitation, answer—breeding and grazing. The words are used in their technical sense. There are many farms in the county highly adapted to tillage husbandry, some portions are pre-eminently suited to horticulture, particularly to the growth of the apple and the peach, the hills of Clinch to the apple, and the dry elevations of Skin-foot to the peach; and it is said that the southern acclivities of Clinch Mountain, the soil being dry, warm and porous, are admirably suited to the culture of the vine. The native vine grows there with great luxuriance; and we have no doubt that, with some amelioration of the virgin soil, held in position by terraces or other contrivance, which would not be generally necessary, the cultivated varieties would do even better. These mountain heights, swelling away to the north-east, wild and blue, thus draped would contribute something more than the background of beautiful scenery, and become as valuable as the more fertile plain lying below. Neither of these branches of agriculture should, then, be abandoned or neglected, but the area devoted to tillage should be greatly reduced. All the more valuable grasses can be cultivated to perfection. The orchard grass, which is the very best of all grazing grasses, is easily set, and grows well on nearly all soils of medium fertility. There are here large tracts of calcareous soil, the delight of blue-grass, and the great forage grasses, timothy and red-top, nowhere, under proper cultivation, the latter, indeed, almost without care, yield better crops. Red clover, sometimes called a grass, but which is, properly speaking, a leguminous plant, happily for the country, here performs its double mission of supplying food, green and dry, for all gramivorous creation, and of supplying the soil with plant food, with wonderful efficiency and certainty. Aided by a liberal dressing of plaster, it yields immense crops of hay

and seed, and at the same time is the most rapid, sure and cheap of all the means of soil renovation. Yet, when the late Judge Powell, of Hawkins county, many years ago introduced its culture upon his estate, he was formally waited upon by some of his neighbors, and requested to desist, as they had been informed it was a most pestiferous plant, and would soon so propagate itself as to infest all the fields in the country. But Hawkins farmers are wiser now, thanks to the persistency of the well-informed Judge, and annually derive a large income from the sale of seed alone.

Pastures, herds and flocks should be the specialties of the agricultural industry, of not only this particular section, but of all the region round about. Sheep, of the improved breeds, should predominate. Beyond all question, under proper management, this is the most profitable stock that can be reared. The climate is precisely that in which they do best; it is neither too cold in winter, nor too hot in summer. The food that brings them up most rapidly to the perfection of wool and mutton, can be made most abundantly, with little labor and cost. They make an ample return to the field from which they draw their sustenance. They enrich it, they extirpate brambles, and brier, and bush, and keep it in perfect order. Their wool will compensate their owner for the care and expense of them during the winter, and their increase and flesh, more and more sought after every year, afford a most handsome profit. Mr. Randell says it is scarcely possible for a sheep to die in debt to his owner. And then, the ease, the beauty, the simplicity, the innocence of pastoral life!

But, what a revulsion! The cur, and his friend and protector, the solon of the day, stand before us, to warn us that there is not yet much profit, and less poetry, in the shepherd's vocation in this fair land of Tennessee.

“'Tis true, 'tis pity, and 'tis pity, 'tis true.”

How long will our legislators value more a re-election to a position, which is profitless, and when its duties are not faithfully discharged, not only without honor, but disgraceful, than the true material and social interests of their State? The passage of a well-considered and efficient law for the protection of the mutton and wool interest, would be a monument to the memory of the Legislature, more durable than marble, for, not upon the statute book alone would it appear, but everywhere, all over the land, and in every mart, in the enhanced prosperity and happiness of the great central commonwealth.

This interest has the peculiar protection of law in almost all the countries of the old world, and now in many of our American States. "The dignity and importance of the shepherd's vocation," says Allen, "have ever been conspicuous. Abel, the supposed twin brother of the first born of the human race, was a 'keeper of sheep;' and from this it may be fairly inferred, that there is no animal which has so long been under the control of man. Abraham and his descendants, as well as most of the ancient patriarchs, were shepherds. Job had 14,000 sheep. It is said of Rachel, the favored mother of the Jewish race, 'she came with her father's sheep, for she kept them.' The seven daughters of the priest of Midian came and drew water for their father's flocks. Moses, the statesman and lawgiver, who was learned in all the wisdom of the Egyptians, kept the flocks of Jethro, his father-in-law; and David, the future monarch of Israel, the hero, poet, and divine, was a keeper of sheep. It was to shepherds, 'while abiding in the field, keeping watch over their flocks by night,' that the birth of the Savior was announced. The root of the Hebrew name for sheep signifies fruitfulness, abundance, plenty—as indicating the blessings they were to confer on the human race. With the sacred writers they were the chosen symbols of purity and the gentler virtues; they were the victims of propitiatory sacrifices; and, finally, they became the type of redemption to fallen man." Yet, in Tennessee the dog, the remorseless enemy and wanton destroyer of the sheep—the dog, the most worthless, vilest, meanest of the inferior animal creation—is allowed by our Legislature to continue his ravages, unrestrained and unchecked.

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## GREENE COUNTY.

### COUNTY SEAT—GREENEVILLE.

Greene county was created by the State of North Carolina, from a portion of Washington county, in 1783. It is one of the very best counties of this section of the State, and its farmers are leading off in the work of agricultural reform. They are organizing, all over the county, in associations for mutual benefit and improvement, and preparing for vigorous action in every department of their vocation. Already the fruits of their labors are beginning to show themselves in the adoption of a better system of farming, and in introducing a higher bred race of animals into their midst. Go into any portion of the county

and it will be found that they are waking up to their interests and making bold and manly strides in recuperating their exhausted lands. They are filling up the gullies, righting up their fences, repairing their dilapidated houses and building new ones, plowing deeper, sowing more clover and grass, and producing more remunerative crops. They are housing their cows, economizing their manures, bringing into use improved implements of husbandry and exerting themselves to elevate their vocation.

Especially are they alive to the importance of popular education. Greene county was one of the first counties in East Tennessee to lead off in the adoption of the free school system, and now its children, rich and poor, white and black, have the glorious boon of receiving a liberal education.

The people throughout the county are kind, industrious and provident. They are generous to strangers, and always glad to see honest, active and intelligent citizens settling in their midst. They invite more population among them, and will sell them good and cheap homes. They are anxious to develop the wealth of their county, and they feel the need of a denser population to do it.

Greene county is bounded on the north by Hawkins, on the east by Washington, on the south by North Carolina, and on the west by Hamblen and Coeke counties. Some portions of it are much broken, and mountainous.

This county may, for description, be divided into three belts, in accordance with its geological formations, running north-easterly and south-westerly. Beginning on the north-western side, we first have the Lick Creek country, in which the prevailing rock is a calcareous shale or slate. This belt varies in width from four to six or eight miles, being much wider in the south-western corner. The soil of this belt is generally adapted to wheat, but more especially to grass. It is well watered and occasionally low white "spouty" or "crawfishy" spots occur. The best soil of this belt is in its northern portion, at the foot of Bay's Mountain.

Passing over, for the present, the middle belt, we reach the ridges of the Unaka Mountains. These occupy a belt from three to six miles wide on the north Carolina line. Upon the tops of the mountains, here and there, may be found cultivated areas. The rocks are sandstones, hard slates, rough conglomerates approaching granites in struc-

ture and appearance. The soil is generally thin, gravelly and unproductive, but in spots it is a dark color and prairie-like, and yields buckwheat, potatoes and oats, with remarkable prodigality. Sometimes buckwheat attains a height of six feet. Fruit trees also do well, and especially peaches. Generally, however, the mountains are wild, uninhabited, rugged and covered with dense forests of pine and hemlock, with an undergrowth of thick laurel, through which it is difficult to pass. The inexpressible solitude of these airy elevations awes the mind, while it fills the soul with emotions of sublimity.

Between the mountains and the first belt described, the surface of the country is greatly diversified by hills and valleys, but the soil is very strong and fertile, being based upon calcareous rocks, limestone and dolomite. On this belt all the cereals grow well. Greene county takes the second rank among all the counties in the State in the growing of wheat, Wilson being first. It is first in hay and flax, and besides wheat, is second in wool, flaxseed and maple sugar.

The Nolichucky courses through this middle belt, which, with its tributaries, supplies it well with water, and upon these streams are many fine alluvial bottoms. The water-power afforded by the Nolichucky is very valuable, the descent of the stream being rapid, the banks solid and the bed rocky, abundance of material for the construction of dams being convenient and accessible.

The Unaka or Smoky Mountains, which form its southern boundary, is indeed a valuable part of the county, on account of the immense deposits of iron ore of the best quality. The ore is a brown hematite or limonite, containing a large per cent. of manganese. An eastern company, with ample means, has developed an iron interest here, some eleven miles from the town of Greeneville, and has expended a considerable amount of money in the manufacture of pig metal. This company is still actively engaged in the business, and is quite successful. It labors under the disadvantage of having no railway communication. The metal is hauled to the town of Greeneville, from whence it is shipped to market. In the course of time, no doubt, a railroad will be constructed to this region.

The best lands of the county lie on the Nolichucky and Little Chucky rivers and Lick Creek. These lands will compare, in fertility and in the variety of their productions, with any lands in the State. They produce unusual yields of corn, from fifty to seventy-five bushels

to the acre, and are equally as favorable in the production of wheat and oats. The Lick Creek bottoms are superior grass lands. Of course all these lands are very valuable and command high prices, ranging from twenty-five to fifty dollars per acre. The wheat of Greene county is noted for its excellent quality. The uplands are remarkably well adapted to its growth. The farmers, since the war, have wisely turned their attention to the grassing of their lands. They are doing more grazing and raising more cattle and mules.

Of course, there are some poor lands in the county, some of them naturally poor, but by far the most of them have been made so by injudicious cultivation. Stock and spring water is abundant. The timber is large and plenty of it, consisting of white and black oak, spanish and red oak, chestnut oak, hickory, maple, walnut, wild cherry, &c. Labor is reasonably abundant, and wages run from eight to ten dollars per month, when the hand is boarded, and from fifteen to twenty, when he boards himself. The facilities for transportation are very favorable. The East Tennessee, Virginia and Georgia Railroad runs through it. The great drawback upon the county, is the lack of capital and enterprise. Close attention is paid to the smaller industries. Considerable quantities of land are for sale in every portion of the county, ranging from five to thirty dollars per acre. For the most part the farmers are contented. The county has an Agricultural and Mechanical Association, well organized and succeeding admirably.

The principal town is Greeneville, situated on the East Tennessee, Virginia and Georgia Railroad. It contains a population of about 1,000. It is a moral, energetic and intelligent community. There are flourishing schools in the place, and two excellent institutions of learning in the county. Rheatown is also in this county, but not immediately on the railroad.

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## HAMBLEN COUNTY.

COUNTY SEAT—MORRISTOWN.

This, with the exception of Union, is the smallest county in East Tennessee, embracing only about 160 square miles. The number of acres assessed for taxation for the year 1873, amounted to 101,687. The law creating the county was passed May 31, 1870, and the county was organized during the same year.



To Mr. J. C. Hodges, of Morristown, we are indebted for the following statements in regard to this county, and our own observations fully sustain the truth of his assertions:

“While Hamblen county has existed as a county less than four years, it consists of territory by no means newly settled. The county is composed of fractions taken from Grainger, Jefferson and Hawkins, three very old counties.

“Morristown, the county seat, is located at the crossing of the East Tennessee, Virginia and Georgia and the Cincinnati, Cumberland Gap and Charleston Railroads. It is comparatively a new town, but is thriving and prosperous, and very fortunately situated. The great air line from New York to the south-west passes through the town, and a glance at any correct map will show that a line drawn from Louisville, Kentucky, or Cincinnati, Ohio, to Charleston, South Carolina, covers Cumberland Gap, Morristown, Paint Rock, etc. Then, when it is remembered that the Cumberland range may be crossed at Cumberland Gap with a short tunnel, and that the French Broad cuts the Unaka or Alleghany range entirely through, and that by actual survey this route is found to be more than seventy-five miles shorter than any other route from Cincinnati to the sea-board, and that a road on this route may be constructed at less cost by millions of dollars than on any other route, it will be conceded that Morristown is to be a railroad center of no mean importance. Already we have from 1,200 to 1,500 inhabitants, and improvements going up all around.

“Russellville and Whitesburg, on the East Tennessee, Virginia and Georgia Railroad, are thriving villages of a few hundred inhabitants each.

“Hamblen can boast of no great attractions in the shape of mineral springs and mountain scenery, nor do I know of any great mineral wealth in the county, except her quarries of marble. But of this there are indeed exhaustless quantities, and of varieties the finest on the continent. The red variegated, pink and gray are more plentiful than any other varieties. Limestone and marble are the prevailing rocks.

“While this county is generally pretty well watered by many small streams of no note or importance, and while it is washed on the one side by the waters of the deep, sluggish Nolichucky, and the rapid French Broad, and on the other by the majestic old Holston, it cannot, like many counties in East Tennessee, boast of its vast water-

powers. There are, however, many sites for mills and other machinery, many of which are utilized to a greater or less extent. There are, aside from these, no manufacturing establishments of any importance.

“The county includes within its limits much of the very best portion of the famous New Market Valley, the soil of which is known as mulatto clay, and is underlaid with limestone. This valley is a continuation of the Valley of Virginia, and in many respects resembles the latter valley. The land is adapted to the growth of the grasses, including red clover, timothy and blue-grass, all of which produce very remunerative crops. Wheat and the other cereals also do well here. Then, along the rivers and large creeks are many hundreds of acres of rich alluvium, whose productive capacity is equal to the best prairie of the north-west. Then, again, there is in the county much land different from and inferior to either the valley or bottom lands. It would be hard, indeed, to tell the average fertility of our lands. Some will produce sixty, eighty, or even one hundred bushels of Indian corn per acre. Then, there are hundreds of acres too badly worn by bad farming to produce a paying crop of anything.

“Farms in this county vary in size from a few acres to a thousand. Some are worked by hired labor, but much the greater number by the owners. There is also a great range in the price of lands. Some lands may be bought at \$5 per acre, others could not be bought for \$100 per acre.

“There is perhaps as great a variety of crops grown here as in any county in the United States. Corn and wheat were in former years the leading crops. They are perhaps so yet. But grass is rapidly coming to the front, especially red clover and timothy. This county last year shipped a considerable amount of hay, and produced enough clover seed, perhaps, for home consumption. This year much more hay will be shipped, and much more clover-seed saved. Tobacco is now receiving some attention, and the country is found to be well suited to its culture. Upon our higher lands all kinds of fruits prosper, including the grape. Much more attention is now being paid to fruit-growing than formerly.

“Upon the whole, the outlook is more favorable, agriculturally, than ever before. Our people are beginning to see more and more clearly the propriety of plowing deep with the best improved plows and sub-soilers, and of raising more hay and less grain. It is apparent to every observer among us that grass crops are more profitable than any others.

“One thing our people seem slow to learn—that it costs no more to feed a blooded horse or ox than a scrub. True, there is some fine stock in the county, and the breeds are gradually improving, but we do need badly some farmers of means and enterprise enough to show the contrast between fine and common stock.

“While we have a population of about forty-five to the square mile, the lands of our county are fully half lying idle and uncultivated. Much of the land in cultivation is poorly farmed, and is wearing out. On this account there are many of our poorer farmers dissatisfied, and desirous to sell their lands. Among the better farmers, and the tradesmen, few, if any, are discontented. They find no reason (especially the farmers) to be so; for the soil responds kindly to the plow and harrow, the climate is equable and healthy, the products of the farm are various and abundant, and a ready market awaits all surplus products. Then, we have in our midst some excellent schools, and many churches in all parts of the county.

“Indeed, with our abundant facilities for transportation, consisting of the railroads and rivers above spoken of, the productiveness of our soil, the healthfulness of our climate, there is nothing to render the farmer discontented, except, perhaps, the lack of reliable labor. In this respect, many farmers find some trouble. This, and the lack of “agricultural information,” are the great drawbacks upon farming in this county.

“Our farmers are waking up. They are inviting capital and industry from any source they may come. The old fogies are, many of them, offering their lands for sale. Our better farmers are giving more attention to fruit culture, butter making, and the smaller industries, and organizing into clubs all over the county, and in the march of improvements we are determined, many of us, not to be found lagging behind.”

While Mr. Hodges has given a good account of the state of agriculture in this county, we deem it necessary to add some remarks in relation to its physical features. The topography and geology of this county are quite simple. A very considerable ridge, the so-called Bay's Mountain, traverses centrally this county in a north-easterly and south-westerly direction. It is the dividing ridge between the waters of the Holston and the waters of the Nolichucky. This ridge and the country north-west of it as far as the Holston River, its boundary, are made up of Knox limestones and dolomites, which include several

strata of light-colored marble, in the vicinity of Morristown and elsewhere. South-east of this ridge, much of the county is underlaid by blue limestones and calcareous shales belonging to the Trenton and Nashville formation and is a part of the great knobby slate region in the western parts of Cocke and Greene counties. It may be added that there is very little waste land in the county, and the soils are as fertile as any in East Tennessee.

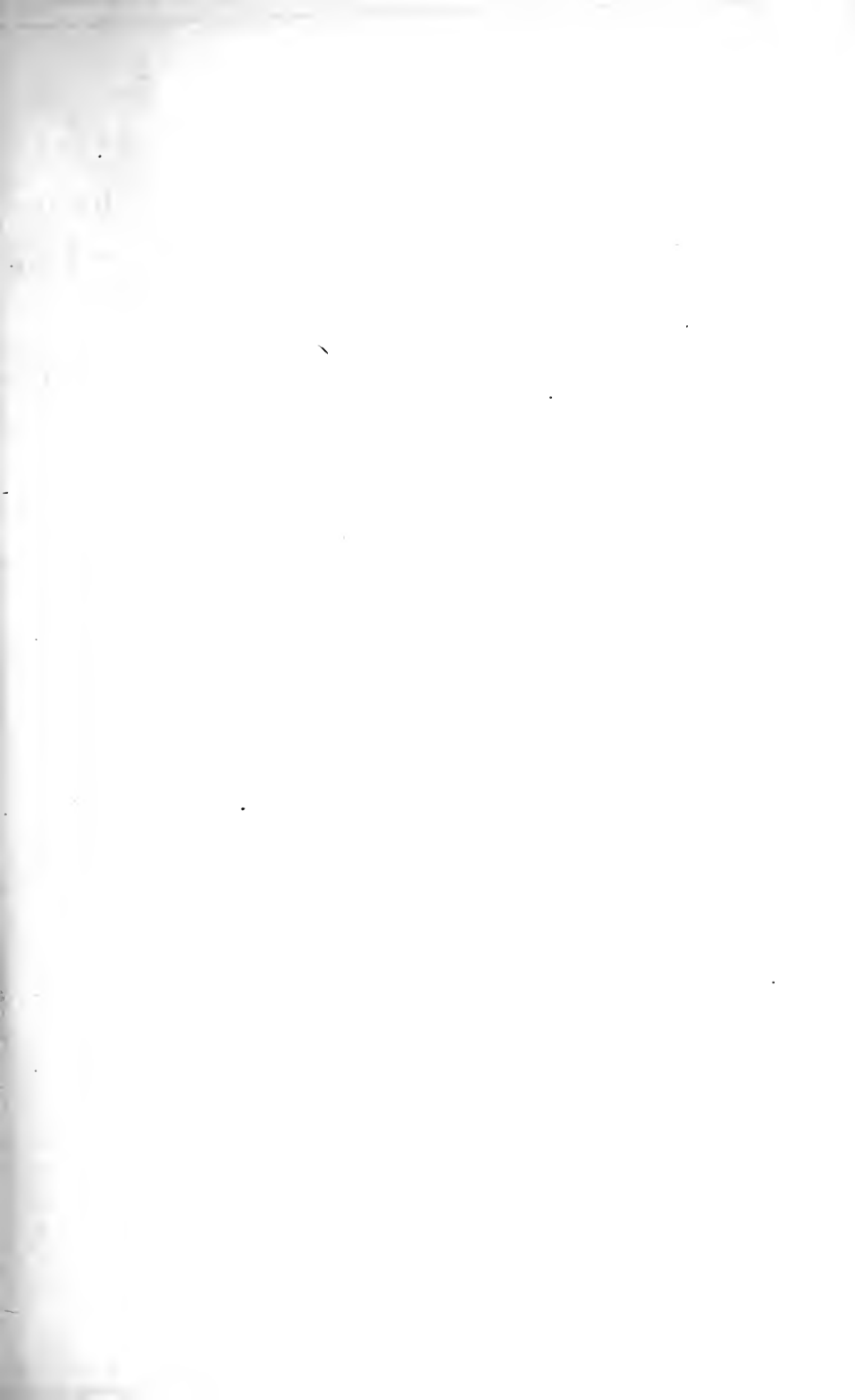
The population—estimated from the number of polls, 1,057, and the number of voters, 1,712—is about 8,000.

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## HAMILTON COUNTY.

### COUNTY SEAT—CHATTANOOGA.

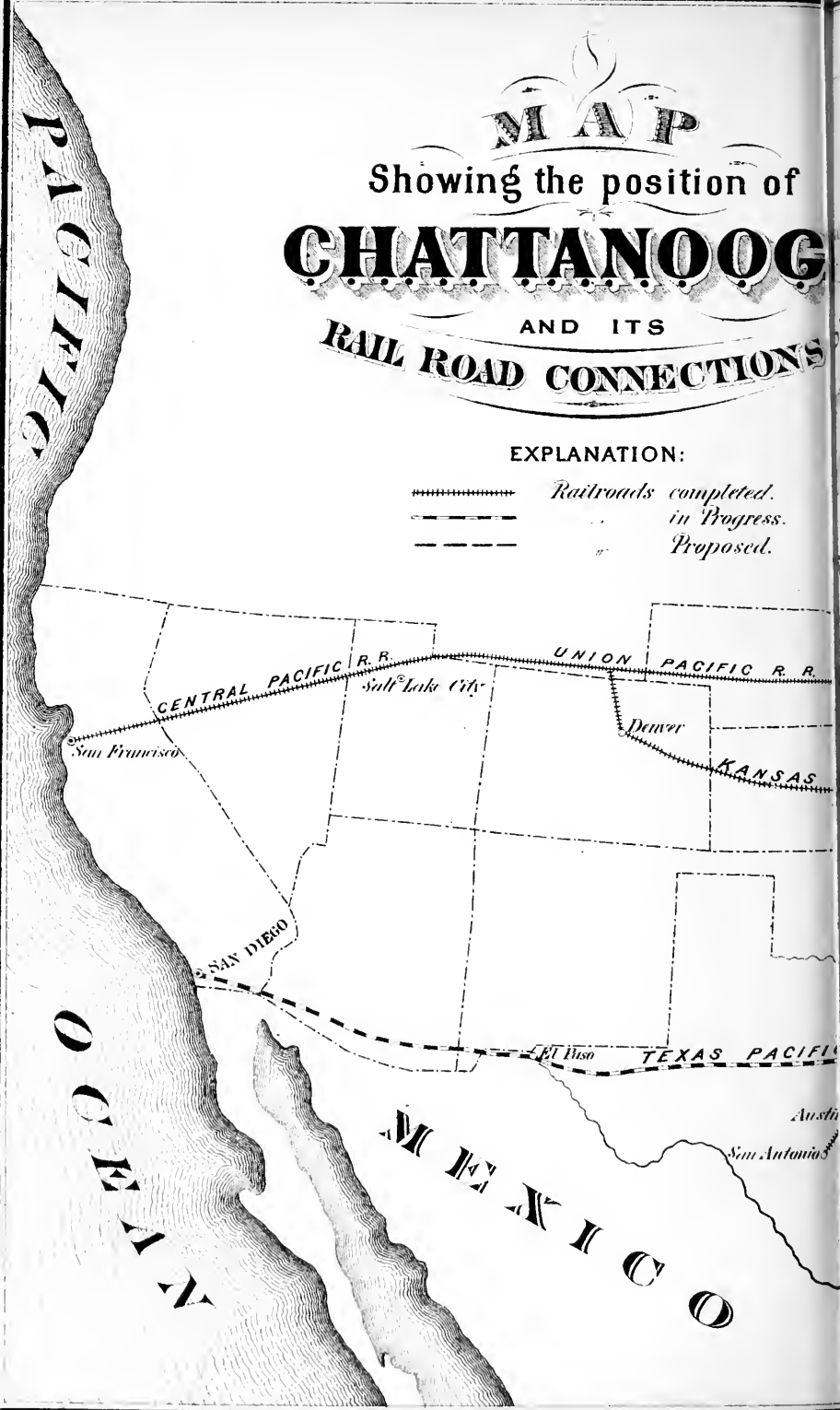
Hamilton county was erected out of Rhea county, under an act of the Legislature, passed October 25, 1819, which provided, "that the territory south-west of Rhea and south and east of Bledsoe and Marion counties, should constitute a county by the name of Hamilton, in honor and to perpetuate the memory of the late Alexander Hamilton, Secretary of the Treasury of the United States." The said act further provided, "that the said county of Hamilton shall be bounded as follows, to-wit: Beginning at a point at the foot of Walden's Ridge, of Cumberland Mountain, on the east side thereof; thence running to a point on the Tennessee River, two and one-half miles below the lower end of Jolly's Island, so as to include Patrick Martin, in the county of Hamilton; thence south thirty-five degrees east to the southern limits of this State; thence west to the point where the Marion county line intersects said southern boundary; thence north-eastwardly with Marion county line to Bledsoe county line; thence with Bledsoe county line to a point opposite the beginning, and thence to the beginning." The seat of justice was subsequently established at Dallas. About half of the county thus formed, and all of the county on the left banks of the Tennessee River, lay within the territory of the Cherokee Nation. The white inhabitants of the county continued to occupy the lands on the north side of the Tennessee, until the removal of the Indians, which was effected under a treaty concluded between the United States and the Cherokee Nation, December 29, 1835. After the extinguishment of the Indian title, the lands south of the Tennessee River were rapidly taken up.



  
**MAP**  
 Showing the position of  
**CHATTANOOG**  
 AND ITS  
**RAIL ROAD CONNECTIONS**

**EXPLANATION:**

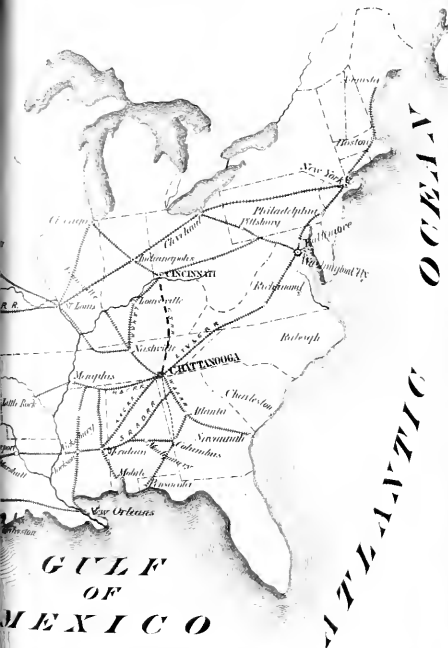
- |   |                             |
|---|-----------------------------|
|  | <i>Railroads completed.</i> |
|  | <i>in Progress.</i>         |
|  | <i>Proposed.</i>            |





Scale of Miles  
0 10 20

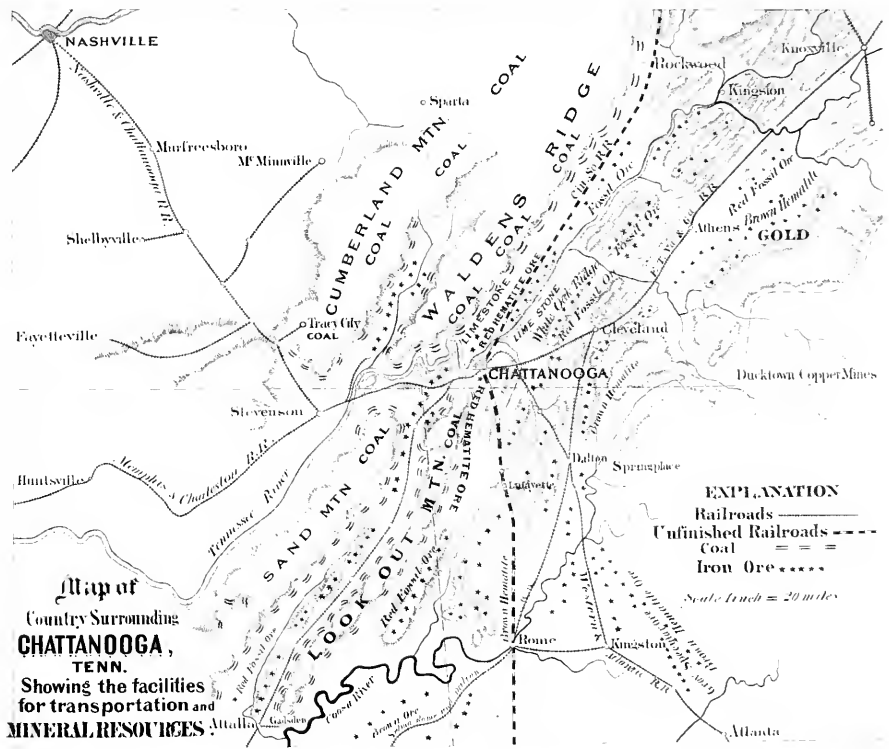
Drawn by R. HOOKE



GULF OF MEXICO

ATLANTIC OCEAN

Level Eastman & Hays



Map of  
Country Surrounding  
**CHATTANOOGA,**  
TENN.  
Showing the facilities  
for transportation and  
MINERAL RESOURCES.

**EXPLANATION**  
Railroads ———  
Unfinished Railroads - - - -  
Coal = = = =  
Iron Ore . . . . .

Scale: 1 inch = 20 miles

Level Eastman & Hays



By an act of the Legislature of January 3, 1840, it was provided that the electors of the county should determine, by vote, where the permanent seat of justice of the county should be located, "namely, whether it should remain at Dallas, or be removed to the south side of the Tennessee, at or within one mile of the framed house lately occupied

Joseph Vann, a Cherokee Indian, in said county." It was also provided that a majority of twenty-five should be necessary to authorize the removal to Vann's house, and that, in case such majority resulted in favor of Vann's house, then certain commissioners therein named should proceed "to fix a suitable and eligible site for the seat of justice and for a county town at or within one mile of the locality named, to purchase the necessary land, to lay out a town into lots, and to sell the lots and apply the proceeds to paying the cost of the public buildings."

The result of this election was the removal of the seat of justice to a town selected and laid off as directed under the provisions of said act, and which was named Harrison, after General Wm. H. Harrison, subsequently President of the United States.

At an election held November, 1870, pursuant to an act of the Legislature, approved June 29, 1870, the people decided, by a two-thirds vote, in favor of the removal of the seat of justice from Harrison to Chattanooga, and the change was made accordingly.

By an act of the Legislature, approved January 30, 1871, that portion of the county lying east of a line running south-west from the mouth of Harrison Spring Branch, on Tennessee River, to the Georgia State line, was cut off and united with a portion of Bradley county, to form the county of James.

*Geography and Topography of the County.* Hamilton is one of the southern tier of counties situated near the south-east corner of the State, and north of the north-east corner of the State of Georgia. The county is bounded as follows: On the north by the county of Rhea, on the east by the county of James, with the Tennessee River separating the two counties from Harrison to the northern boundary, on the south by the States of Georgia and Alabama, and on the west by the counties of Marion, Sequatchie and Bledsoe. The county is oblong, extending about twice as far from the north to the south as from east to west, and embraces about 360 square miles. So far as the general topography is concerned, it may be remarked that the valleys and ridges all have a north-easterly trend, preserving a marked parallelism throughout.

*Principal City and Villages.* Chattanooga, the county seat, is one of the most important cities in the State. A description of this place is given in subsequent pages. Wauhatchee is situated in the south-west corner of the county, at the junction of the Nashville and Chattanooga Railroad with the Alabama and Chattanooga Railroad, six miles from Chattanooga. Tyner and Chickamauga are growing villages, with considerable local trade, located in the south-east portion of the county. The former is situated on the East Tennessee and Virginia Railroad, nine miles from Chattanooga, and the latter on the Western and Atlantic Railroad, twelve miles from Chattanooga. Villages will spring up at several points on the Cincinnati Southern Railway, where the agricultural products need an outlet, and where mining operations are now progressing, and blast furnaces are contemplated. This railroad runs through the whole length of the county, north of the Tennessee River, and is to be finished within two years.

*Principal Streams.* The Tennessee River, after running along the eastern border of the county for about fifteen miles, turns its course through the county from north-east to south-west for fourteen miles, until it strikes the base of Lookout Mountain, from which it turns and pursues a north-west course for about seven miles, until it breaks through the mountain range, at what is known as the "suck," on the Marion county line. From this point the river pursues a winding, but a south-west, course, forming the boundary between Marion and Hamilton counties. The Tennessee has an average width of 1,500 feet, and in this county is navigable for steamboats during the year. The obstructions at the suck and other points have been removed, or nearly so, by the General Government. All the other streams of the county are tributary to the Tennessee River. The principal streams are Lookout, Chattanooga, Citico and South Chickamaga Creeks, from the south-east; and Suck, Mountain, North Chickamaga, Soddy (Sauda), Possum, Rocky and Sale Creeks, from the north-west. The larger of these creeks are navigable for flat-boats and rafts, and are made use of for taking out timber, minerals and produce.

*Principal Mountains and Ridges.* Lookout Mountain commences at Gad-den, Alabama, eighty miles from Chattanooga, and terminates abruptly in what is known as Point Lookout, near the south-west corner of the county, about two and a half miles from Chattanooga. This mountain is about 1,600 feet in elevation at its extreme height above the Tennessee River at low water. The mountain spreads out as it extends south into an undulating surface, a large portion of which can

be cultivated, and is well timbered land, watered by numerous springs and small streams. Walden's Ridge extends the whole length of the county, and bounds the Valley of the Tennessee on the north-west. It rises abruptly to an elevation of about 1,000 feet. The county line runs on the top and near the center of the ridge, which is from five to fifteen miles wide. The land is cultivated, and is well timbered and watered. Lookout Mountain and Walden's Ridge are outliers of the Cumberland Table Lands. White Oak Mountains occupy a small space in the south-east corner of the county. Raccoon Mountains extend into the south-west corner of the county. Missionary Ridge, commencing at South Chickamauga Creek, near the Tennessee River, rises to the height of 300 to 500 feet, and extends in a southerly direction into Georgia, approaching within two and a half miles of Chattanooga. Its elevation is gradual, its top rounded and its soil generally fertile. The Valley of the Tennessee, between the river and Walden's Ridge, is broken by ranges of hills, known as first and second ridges, which follow the general course of the valley, and which are separated from the Table Lands by the "Back" Valley. South of the Tennessee, and beyond the valley of the river, the country is broken by minor ridges.

*Principal Valleys.* The famous and fertile Valley of the Tennessee is first in importance. This extends the whole length of the county on the right bank of the river, and on both sides of the river from Harrison to the Georgia line. Lookout Valley, on the west side of Lookout Mountain, extends from the Tennessee River, at the point of this Mountain, near Chattanooga, in a south-west direction into Alabama. Chattanooga Valley, between Lookout Mountain and Missionary Ridge, extends from Chattanooga in a southerly direction into Georgia. Chickamauga Valley, to the east of Missionary Ridge, extends from the Tennessee River into Georgia, and constitutes in that State what is known as McLemore's Cove. The Back Valley lies between Walden's Ridge and a group of minor ridges running parallel therewith.

*Roads and Bridges.* One of the best natural roads in the country is the "Dry Valley road," running through the county on the north side of the Tennessee River. The other roads on this side of the river are in better condition than elsewhere in the county. Sufficient labor has not been expended upon the roads throughout the county. The important matter of roads has not received in this State, the attention it demands, but there is a marked disposition to advance in that direction

in Hamilton county. With respect to bridges, the county is not behind the times. All the principal creeks will soon be spanned by the most substantial structures, where they are needed. There are now constructed, or in the process of erection, six wrought-iron arch bridges. They have a span of seventy-five feet to one hundred and fifty feet. The six bridges will cost the county \$30,000.

*Railroads.* The following railroads terminate at Chattanooga: The Nashville and Chattanooga, the Memphis and Charleston, and the Alabama and Chattanooga, passing through the south-western portion of the county; the Western and Atlantic, and the East Tennessee, Virginia and Georgia, running through the south-eastern portion of the county. The Cincinnati Southern Railway, now in course of construction, enters the county from the north and runs nearly its whole length. Thus every portion of the county has railroad facilities.

*General Features.* The main stream, the Tennessee, and the main ridges and valleys of the county, have the general course of the Appalachian range, and present the general features of that region. The sharp deflection of the Tennessee at Chattanooga, to the north and west, changes somewhat the configuration of the southern portion of the county. The tributaries of the Tennessee River, rising in Walden's Ridge on the right of the river, run from north-west to south-east, and cut through the minor ridges of the main valley. On the left of the Tennessee River, the tributaries flow into it from a south-westerly direction. In the south-eastern portion of the county the elevations are generally continuous; in the north-western portion they are more "knobby." The valleys and coves formed by the different ridges are generally susceptible of cultivation, and frequently their soil is very productive. The valleys and ridges together present a variety of soils and conditions, suited to all kinds of agricultural and horticultural products.

*Geology of the County.* The geological formations of this county are exceedingly varied, commencing with the Knox dolomite, and ending with the Coal-measures. They embrace ten distinct groups or divisions, viz: Beginning with the Knox dolomite, the lowest, which we find in the valley lands, we next come to the Trenton and Nashville limestones, in the valleys and Missionary Ridge; then the dyestone or red iron ore group, mainly in small ridges, followed immediately by the Niagara limestone, black shale, and the siliceous or St. Louis limestone, mountain limestone, which forms the base of the

mountain, and lastly, the Coal-measures, which cap Lookout and Raccoon mountains and Walden's Ridge. It may be noted here, that Lookout Mountain rests in a synclinal trough, or one in which the strata dip from both sides to the center, forming a trough. It may be further remarked, that on each side of this mountain, is a skirting ridge, rough and sharp, formed by the tilting outcrops of the siliceous group, the dyestone or red iron ore and the black shale, just as if the weight of the superincumbent mountain had bent this flexible mass in the center, and caused the edges to turn up. Missionary Ridge is formed by the outcroppings of the Knox limestone and dolomites, its eastern slope and contiguous knobby belt of country to the east of the ridge being covered with the flinty masses and gravel of this formation. Between Missionary Ridge and Chattanooga, the rocks are Knox dolomite, Trenton and Nashville limestones, forming a wide rolling valley. This valley belt further north is covered with rounded flinty hills, making it a knobby region. Will's Valley, on the western side of Lookout, shows mainly outcrops of Trenton and Nashville blue limestone rocks. On the west side of this valley, at the foot of the Table Land, and forming a skirting ridge, the dyestone group again appears. Perhaps more than one-fourth of the county belongs to the Coal-measures, which furnish a large amount of good coal. For particulars, the reader is referred to the chapter on coal.

*Soils.* The soils of the county may be classified, generally, as *river and creek bottom, second bottom, upland and table-land*. These general classes are not uniform, but present a number of varieties.

*The bottom lands* are alluvial, generally with a clay sub-soil. Some bottom land, known as "Crawfish bottom," is regarded as having little value. This land, in its natural condition, is wet and acid. It only needs to be drained and supplied with lime, or other alkaline fertilizers, to be made productive and valuable. Some bottom lands have been cultivated year after year without rest or rotation; then, again, only the surface has been used without any mixture of the subsoil, by deep and thorough plowing. With these exceptions the bottom lands are very productive. With respect to the exceptions named, the lands can easily be restored to their original productive capacity by correct management. Little or no fertilizing is needed.

*The second bottom*, in some places, is a clayey loam, and in other places, a sandy loam. The remarks above in regard to the condition of the first bottom lands, apply also to these lands. The soil of the

second bottom is not so deep nor strong as of the first bottom. Manures can be used to advantage. Compost is especially beneficial to the sandy loam, and "summer fallowing" and the turning under of clover, to the clayey loam of these lands.

*The uplands or ridge lands* constitute a large portion of the county. The soil is thin, and in some places poor. These lands are not so much affected by a dry season as naturally would be supposed. With careful tillage and intelligent management, they can be made to produce well. For stock farms and grazing purposes they are well adapted. The soil on the ridges north of the Tennessee River is frequently impregnated with iron, and by the addition of the proper ingredients, is fitted for special crops.

*The table-lands* constitute the plateau of Lookout Mountain and Walden's Ridge. Notwithstanding their elevation, the soil is a sandy loam. Fine crops are raised on these lands, although they can be much improved by fertilizers of the proper kinds. These lands are especially valuable for the raising of stock, particularly sheep, for grazing purposes, and for the cultivation of fruit and potatoes.

*The Climate and the Seasons.* The climate throughout the year is mild and invigorating. The extremes of heat and cold are not known. During the winter there is usually, but not always, a light fall of snow, which disappears in a day or two. Throughout the summer the nights are cool and comfortable. Lookout Mountain and Walden's Ridge are noted resorts for invalids and pleasure seekers from different parts of the country, during the summer season. Chattanooga is becoming more and more the home of those who require a mild and healthful climate during the winter. The beautiful weather of autumn usually extends to Christmas. From that time to the middle of March there is some cold and considerable rainy weather. The spring and summer seasons are at least a month earlier than in the northern and eastern states, which gives the advantage of an early market to those engaged in agricultural and horticultural pursuits.

*Agricultural Products.* Corn, wheat, oats, barley, beans, peas, tobacco, the different grasses, broom corn, sorghum, cotton, potatoes, sweet potatoes, and almost every variety of produce can be cultivated with success. Certain localities are better adapted to certain crops.

Corn yields most on the first bottoms, where seventy-five to one hundred bushels per acre can be raised. Corn is also cultivated on all the other classes of lands.

*Wheat* is raised to the best advantage on the second bottom and table-lands, yielding from fifteen to twenty-five bushels per acre.

*The grasses*, especially timothy and herds-grass, are very successfully cultivated on the first and second bottoms, yielding from one and a half to three tons per acre.

*Clover* grows too rank on the first bottoms, but does finely on the second bottoms and uplands, yielding two to two and one-half tons per acre.

*Cotton*, although not receiving so much attention as formerly, has been very successfully cultivated in the county.

*Tobacco* is grown principally for home consumption.

*Potatoes* (the Irish potato, so called) do not yield well in the valleys, except for early use, but they grow to perfection on the table-lands. Potatoes grown on Lookout Mountain and Walden's Ridge have all the flavor, dryness and "keeping qualities" of any produced in northern climates. Their cultivation, in the localities named, for the home and southern market can be made the source of much profit.

*Sweet potatoes* do well in the valleys. The other products named can all be cultivated successfully.

*Garden vegetables* of all kinds, except cabbage, do well, but are not produced in sufficient quantity to supply the Chattanooga market. Their production for this and the more southern markets would be a permanent and remunerative business.

*Horticultural Products.* Apples, peaches, pears, apricots, quinces, cherries, grapes, plums, berries, and figs are produced in the county. The most of these do well. The lower bottom lands are not adapted to fruit culture, but the uplands and table-lands are.

*The apple* does not do so well here as in a more northern climate. This fruit does not keep well.

*The peach* is regarded as well adapted to this climate, but the nature of the fruit, and the proper manner of taking care of the tree, must be well understood in order to make it equal, in quality and yield, that of more northern localities, where its cultivation is a study. Many fruit trees are brought from the far north. If fruit trees were acclimated by being first produced in nurseries in our own latitude, our orchards would be more successful and profitable. The constant demand and ready market for all kinds of fruits render their production very remunerative, and is leading to more attention to their culture.

*The grape* is deserving of special mention.

*Grapes and Wine.* The cultivation of the grape, and the production of wine, are destined to become very important and extensive occupations in this locality. Fully one-half of the lands of this county are peculiarly adapted to the cultivation of the grape. On the light sandy soil of Lookout Mountain and Walden's Ridge, on the rich red soil of Missionary and other ridges, and on the white and rocky soil of lower hills, grapes are grown superior to any produced in the northern states. The soil and the climate combine to produce grapes in greater abundance, containing more saccharine matter, yielding more wine, and with a richer "boquet" than can be produced in the celebrated vineyards of Ohio and Missouri. So far as investigation has gone, the Hartford Prolific, Concord, Ives' and Delaware do the best, although other varieties do well.

*The Catawba*, which is regarded as making the best wine, is liable to the oidium, or vine-mildew, which has proved so troublesome elsewhere. This difficulty, in regard to the Catawba, can be overcome, to some extent, by frequent renewals, as young vineyards are less affected. Seven hundred and fifty gallons of pure juice to the acre have been obtained from the Catawba grape in this county. Thirteen pounds of grapes make a gallon of wine. With respect to grapes generally, each kind of soil and each elevation has its advantages. On the tops of the highest ridges, and on the sides of the mountains, at an elevation of three hundred to five hundred feet, immunity from early frosts is secured, and early grapes can be obtained for shipment to northern markets. The Hartford Prolific matures by the 15th of July on the eastern slopes. For the southern markets, the Concord can be grown on the elevated table-lands, and kept on the vines until the middle of October.

*The Concord* is regarded as the most healthy and productive of all varieties. With good care and cultivation, 10,000 pounds to the acre can be produced. Its quality is very much improved in this climate. Grape-vines should be set further apart here than is usual in the north, and trained on wires, on account of their rank growth.

*Timber.* This county is well supplied with white and black chestnut, red and post oak, with yellow and long-leaf pine, with cherry, hickory, ash, birch, locust, iron-wood, gum, black walnut, maple, beech, red cedar, holly, and white and yellow poplar.

*Oak* grows quite generally over the county. The white oak of this section of the country is pronounced, by experienced mechanics, to be



superior for wagons and implements to that found almost anywhere else.

*Long-leaf pine* is found at the base of the Raccoon Mountain, in Lookout Valley, and on Soddy Creek. It is especially valuable for bridge and ear timber, for flooring and joist.

*Chestnut* abounds on Walden's Ridge, and is found in other places. From it the most durable shingles are made.

*Hickory* is found on Raccoon and Lookout mountains, on Walden's Ridge, and in north Chickamauga Valley. It is of superior quality for manufacturing purposes.

*Ash* abounds in all the valleys. It works easily and finishes well. The blue ash is superior material for wagon-wheel rims.

*Locust and iron-wood* are found on the north side of the Tennessee River, and are valuable timbers.

*Black walnut, bird's-eye maple, and cherry* are found in the north-east portion of the county. They are valuable for the manufacture of furniture, and for the inside work of houses.

*Red cedar and cypress* abound, particularly on the north side of the Tennessee. The former makes the most lasting fence-posts, and both make the most durable wooden-ware.

*Holly*, of large size, is found in the north-west portion of the county. It makes choice veneering.

*Poplar* is plentiful in the county. It makes excellent finishing lumber for the inside work of buildings. Gunwales from sixty to ninety feet long have been split out of poplar trees.

*Chestnut-oak knees*, for ship-building, can be obtained along the base of Walden's Ridge, which are said to be of very superior quality. The bark of the chestnut-oak is rich in tannin.

*Rocks. Limestone* is the prevailing rock of the county. It is found in strata of any desired thickness for building and flagging purposes, and quarries are easily opened and worked. The color is blue, red, dove and variegated.

*Sandstone* is found on the slopes and top of Lookout Mountain and Walden's Ridge. Some of this rock makes superior furnace hearths, and has been shipped to different parts of the county for that and similar purposes.

*Minerals.* Coal is found in the greatest abundance in Walden's Ridge and Raccoon Mountain, of excellent quality for heating, manufacturing and smelting purposes. There are several strata varying in thickness, those now worked averaging about four feet. "Pockets" and "folds" are frequently presented, swelling out from eight to fifteen feet in thickness. Mines have been opened near the base of the mountain range, also about 300 feet from the base, and on the top. These coal strata do not present a uniform composition. Analysis of the coal at different points in this and adjoining counties presents different results. These results may be stated as follows:

Fixed Carbon.....	64 to 76
Volatile matter.....	27 to 18
Ashes.....	9 to 6

Sometimes sulphur is present in the proportion of .25 to .35, then again it is not found at all.

The veins of coal are generally in a horizontal position, with a slight dip to the north-west. The elevation of the beds above the valley makes the drainage of the mines very easy.

The coal banks are two and a half to four miles from the Tennessee River. The Cincinnati Southern Railway will run between them and the river. Coal has been mined in different places in the county. During the year 1873 about 240,000 bushels were taken out, seventy men being employed in and about the business. This coal yields good illuminating gas, but not so largely as some other coals. It cokes very well. The analysis of the coke from the coal of Dade county, Georgia, adjoining this county, shows—

Carbon.....	82.800
Ash or Clinker.....	16.200
Sulphur.....	.098
Undetermined.....	.902

(For additional information in regard to coal, see chapter xiii.)

Iron ore extends through the county. It is known as fossiliferous red hematite or dyestone ore. It is found in the "dyestone" ridges running parallel with Walden's ridge, and between the coal veins and the Tennessee river. Two of the well known strata of this ore which extend from Virginia into Alabama, run through this county, one of them crossing the river at Chattanooga. These veins lie in different

positions, and their thickness varies from two and one-half feet to five feet. The following is an analysis of this ore:

Silica.....	5.36
Peroxide of iron.....	93.21
Lime.....	.61
Alumina.....	.27
Phosphorus.....	.21
Moisture.....	.17
Loss.....	.17
	---
	100
Per cent. of metallic iron.. .. .	65.39

Iron mining is not carried on at present within the county. The ore that has been used in this vicinity has been principally surface ore. This county, with coal, iron ore and limestone lying side by side, all of excellent quality, very accessible, with convenient means of transportation by river or rail, and having within its borders one of the best distributing points in the south, presents a most inviting field for the investment of capital in iron manufacturing enterprises.

(See chapter xiv, on the subject of iron ore.)

*Price of Lands, Rents and Wages.* The valley lands are valued at \$8 to \$25 per acre; occasional farms, which have been well cared for, at \$30 to \$40 per acre. Good lands, near Chattanooga, command higher prices, and some have been sold as high as \$200 per acre. Ridge and mountain lands are valued at \$1 to \$5 per acre. The size of farms ranges from 200 to 1,000 acres. Good farm-houses and buildings are not common. With some notable exceptions, the farmers have not cultivated their lands to the best advantage. With the proper attention and study given to agriculture, the farms will be made more productive and valuable. Good grape-growing land can be bought for \$5 to \$15 per acre. Very favorable locations, near Chattanooga, are valued higher. Mineral lands are very cheap in some places, being nothing more than wild lands. Mineral lands in the vicinity of good sites for furnaces, and with means of transportation near, are held at higher, but not uniform prices. A large portion of these lands have been rented for the purpose of mining, or the mineral right has been purchased. These "leases," or "rights" are often on the market.

Without any exodus of the people, there is a large quantity of land for sale and for rent, in the county. Rents, when for cash, are from \$3 to \$5 per acre. Usually the landlord receives half the products of

the land, when he furnishes the material and stock, and one-third when the tenant furnishes the same.

Wages of farm hands vary from \$8 to \$16 per month, when they are boarded, and \$16 to \$25 when they board themselves. Farm labor is not abundant. The wages of mechanics, in the city, range from \$2 to \$4 per day, according to the season and the demand. In rolling mills and manufacturing establishments skilled workmen receive from \$3 to \$8 per day. Laborers in same receive from \$1 to \$1.50 per day. House servants are paid from \$4 to \$8 per month.

*Population.* At the time of the organization of the county in 1819-20, the inhabitants numbered 821, including 39 slaves and 16 free colored persons. In 1860 the population numbered 13,258, consisting of whites 11,641, slaves 1,419, free colored 192, Indians 6. According to the United States census of 1870, Hamilton county contained in that year 17,241 inhabitants; of this number 13,053 were white, and 4,188 colored. Those of foreign birth numbered 582. The excess of males over females was 69. The same report shows that the city of Chattanooga contained at that time 6,093, and the county, outside of the city, 11,148. Since that time the population of the city has largely increased, and the population of the rest of the county has increased considerably. The number of inhabitants of the county is now considered to be 23,000 to 25,000, including Chattanooga, the population of which is set down at 10,000 to 12,000.

*Schools.* The public school law of 1873 has operated very beneficially in this county. Under this law schools have been established in every civil district. The city of Chattanooga has a system of public schools of its own, as provided for under the general law. The number of persons enrolled, between the ages of six and eighteen, in 1873, was, in Chattanooga, 2,387; outside of the city, 2,146. Total enrolled in the county, 4,633. About half of this number have been in attendance upon the public schools.

The schools of the county are established upon a firm basis; public feeling is favorable to their support and improvement. The facilities offered thereby are constantly increasing, and will be equal to all demands for fundamental education. In Chattanooga the principals of public schools are paid \$80 to \$90, assistant teachers \$40 to \$50 per month. Outside of the city teachers are paid \$30 to \$40 per month. There are four academic institutions in the county—the Lookout Male and Female Institute, located at the foot of Lookout Mountain; the

Rock Creek Academy, in the north-west portion of the county; the academy at Tyner's Station, and the Chattanooga Female Institute.

Assessed value of property, taxes and liabilities of the county. The assessment of 1873, shows:

Number of acres assessed.....	191,881
Number of village and city lots.....	1,828

Assessed value of real estate:

Outside of Chattanooga.....	\$1 723,648
In Chattanooga.....	3 457,513
Total in county.....	<u>\$5,181,161</u>

Assessed value of personal property:

Outside of Chattanooga.....	\$ 245 241
In Chattanooga.....	1,586 500
Total in county.....	<u>\$1,831,741</u>
Aggregate of real and personal property.....	<u>\$7,012,902</u>

Rate of taxation for 1874, on the hundred dollars:

By the State for general purposes.....	.40
By the State for school purposes.....	.10
Total State Tax.....	<u>.50</u>
By the county for general purposes.....	.30
By the county for poor-house.....	.05
By the county for bridges, &c.....	.10
By the county for schools.....	.05
Total county tax.....	<u>.50</u>
Total State and county tax.....	<u>\$1.00</u>

Number of polls assessed:

Outside of the city.....	1,126
In the city.....	2,101
Total polls in county.....	<u>3,227</u>

The poll tax levied by the State is one dollar, and by the county the same, all of which is devoted to school purposes. The county is in excellent financial condition. It now has, out of the taxes of 1873, about \$24,000, over and above all due liabilities. There are some contracts for bridges which will require payment in 1875 and subsequently.

*General Observations.* The cultivation of the money crops pays the best on farms consisting exclusively of bottom land. On the uplands and table-lands stock and fruit are the most profitable. In most cases the cultivation of the grains and grasses, and the raising of stock, can be advantageously combined.

Improved farming implements are coming into general use, with marked beneficial results. Mules and horses are generally used. Improved cattle, sheep and hogs have been introduced by a number of farmers, and there is a growing interest in this respect, with room for much advancement in the county generally. Dogs are a curse here as elsewhere, and kill many sheep annually, to what amount is not known. There is need of legislation to remedy this evil.

"Homespun" is worn quite generally by the farmers. There is considerable attention given to the smaller industries. A large quantity of berries and fruit is dried, and considerable honey produced, but the making of butter is one of the lost arts.

The farmers and manufacturers are so mutually dependent that the prosperity of the one indicates the prosperity of the other. There is no drawback to the success of either class. The advantages for manufacturing are unsurpassed, and where manufactories flourish, there farming is profitable also. This section will undoubtedly become a great manufacturing district.

There is only one small nursery in the county. The nursery business would undoubtedly be profitable.

Mills for making flour and meal supply the home demand very well, still an additional number would be an advantage to the people and profitable to the owners. Saw mills could be multiplied to advantage.

Mineral springs are common in the valleys and on the mountains. Alum, sulphur, saline and chalybeate waters are found.

The county has a poor-house, and farm of 200 acres. This institution has twelve inmates at present.

The Hamilton County Agricultural, Horticultural and Mechanical Association is a successful and well established organization, having grounds and buildings located at Chattanooga.

Sectional nor social prejudices do not disturb the prosperity of the people. Good citizens are coming from all parts of the country to

make their homes in this county. The population of Chattanooga is largely made up of people from the north. All classes dwell together in harmony. Immigrants are not only desired but sought after, and they will find here many inducements which do not exist elsewhere.

*Chattanooga.* The country in and around the present city of Chattanooga was occupied by the Cherokee Indians until 1837. In 1837, a post-office was first established at this point, which was then called Ross' Landing. In the same year, a town was laid off and divided into lots, and the Indian name of Chattanooga given to the place. In 1841, Chattanooga was incorporated as a town.

For the next twenty years, until the commencement of the civil war in 1861, Chattanooga increased in importance as a trading point and railroad center. During that period, all the railroads now leading to the city were completed, except the Alabama and Chattanooga Railroad, which, however, had been commenced at this place under the name of the Wills' Valley Railroad. Chattanooga was incorporated as a city in 1851, at which time the population was about 3,500.

During the civil war nearly all the business houses and private residences were destroyed, and the inhabitants scattered. The close of the war left Chattanooga nothing more than a military post, without business, without buildings, and without inhabitants. What the city is at present it has become since 1865. During the last eight years the population has increased to 10,000, and probably 12,000. Invited by the genial climate of this region, and influenced by the importance of this point as a future trade center, the increase of the population, and the development of the business of the city has been rapid. At the same time, the growth of the city has not been spasmodic, but substantial. During the year 1873, just passed, there was invested in the erection of manufacturing establishments, the sum of \$175,000, and as much more in the construction of dwellings. The inducements offered by Chattanooga and the surrounding country for every kind of enterprise, are as real as they are unusual and flattering.

*Railroads and Depots.* The railroad facilities of this city will be spoken of under the head of "Chattanooga as a distributing point." There are two large union passenger depots, and three freight depots. The accommodations for the vast amount of freight handled at this point are not sufficient, and additional freight houses are soon to be erected.

*Hotels.* Chattanooga boasts of one of the largest and finest hotels

in the south, with all the modern conveniences and improvements. There are six hotels in the city which afford good accommodations to the traveling public.

*Churches.* All the leading religious denominations have one or more churches. Sunday-schools receive much attention and are in a very prosperous condition.

*Schools.* The public school system of Chattanooga is well perfected, and in a prosperous condition. It is in the hands of an efficient board of Education. Ample facilities are afforded for all who desire to avail themselves of its advantages. (See "Schools" under Hamilton county, *ante*.) The Chattanooga Female Institute affords ample facilities for female education in all the higher branches of learning. An academy for males is all that is needed to make the educational facilities of Chattanooga complete in all departments. It is expected that this want will soon be supplied.

*The Press.* The press is represented in Chattanooga by two daily, two weekly, and two monthly publications.

*The Professions.* In the several professions are found men of experience and ability. All the different schools of medicine are represented. There are at present twenty-six physicians in the city. The members of the legal profession number thirty. The pulpit is honored by scholars and earnest workers.

*Banks.* There are now in Chattanooga two national banks and one private bank, with an aggregate capital of about \$500,000, which is used in the commercial transactions of the city, and in moving the large quantity of stock and grain shipped south from this point. In the shipment of produce, liberal advances are made upon railroad receipts, and thus is secured the advantage of distant markets. But the business of the city demands a large addition to the banking capital, as is indicated by the high rates of discounts.

*Gas-works, water-works and street railroads.* The city is supplied with gas; price \$4.50 per thousand. The gas is made from Tennessee coal. This coal, when used to good advantage, yields about four cubic feet of gas to the pound.

*The water-works* afford an abundant supply of water. The water is taken from the Tennessee River, and elevated to reservoirs on Cameron hill. A considerable higher elevation than is now made use of can be obtained. Hydrants, supplied from the water-works, are made



use of for fire protection. Water from the fire-plugs can be thrown to the height of sixty feet on the main street.

A street railroad has been chartered, and the stock subscribed. It is expected to be in operation very soon.

*Chattanooga as a distributing point.* Chattanooga commands the great valleys of the Appalachian region, which extends through Virginia, Tennessee, Georgia, and Alabama. The ridges and valleys of this region converge at the point where this city is located, and are there cut through by the Tennessee River. The topography of the country is such that no practical connection of the northern and southern system of railroads is presented, except through Chattanooga. This city is also situated upon that part of the Tennessee River which must form a part of a through line of water communication between the North-western and South Atlantic States.

By a glance at the accompanying maps, it will be seen that Chattanooga already has direct railroad connections with all parts of the Union. By the Nashville and Chattanooga Railroad direct and through connections are made with St. Louis, Louisville, Chicago and Cincinnati. By the East Tennessee, Virginia and Georgia Railroad, Norfolk, Washington, Baltimore, Philadelphia and New York are reached by an air line. By the Western and Atlantic Railroad Chattanooga has direct connection, via Atlanta, with the sea-ports of the South Atlantic. By the Alabama and Chattanooga Railroad the most direct connection is made with New Orleans, Mobile and the other gulf ports. By the Memphis and Charleston Railroad direct connection is made with the Mississippi River, and with several important north and south railroad lines. By the St. Louis, Nashville and Chattanooga railroad line, Chattanooga has direct connection with the Northern Central Pacific route, and by the Alabama and Chattanooga, and the Memphis and Charleston railroads, direct connection with the different termini of the Southern Pacific Railroad. The Cincinnati Southern Railway, now in the course of construction, has its southern terminus at Chattanooga. Other railroad connections have been surveyed, their construction being demanded by the rapid development of the country.

Seven steamboats are now engaged in the Tennessee River trade above Muscle Shoals. The upper Tennessee, and tributaries extending into Virginia and North Carolina, bring to Chattanooga large quantities of produce.

The following statistics, appertaining to the trade of Chattanooga for the year 1873, are as full as space will admit, and have been selected and prepared with care :

Local miscellaneous freights received at and shipped from Chattanooga, for the year 1873, not including grain, stock, iron, lumber, coal, cotton, nor hay :

Forwarded, pounds.....	97,444,469
Received, " .....	35,352,606

Through freights:

From the north, pounds.....	552,645,661
From the east, " .....	82,424,297
From the south, " .....	46,462,395
From the west, " .....	66,411,500
<b>Total. ....</b>	<b>747,943,853</b>

Produce and mineral products received at Chattanooga, from the upper Tennessee River and tributaries, for the year 1873:

Corn, bushels.....	609,266
Wheat, " .....	116,023
Oats, " .....	121,404
Hay, pounds.....	1,763,568
Bacon, " .....	1,717,058
Pig iron, " .....	4,544,000
Coal, bushels.....	240,000
Saw-logs, number....	10,500

Value of goods, wares and merchandise brought to Chattanooga for the trade of the city, for 1873:

Amount.....	\$4,339,404
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Distributed from Chattanooga over the Atlantic and Gulf States in 1873:

Horses and mules, number. ....	13,380
Hogs and sheep, " .....	35,700
Cattle, " .....	9,640
Corn, bushels .....	2,538,325
Wheat, " .....	604,100
Oats, " .....	507,274
Flour, barrels.....	132,135
Hay, pounds.....	25,763,568
Bacon, " .....	62,753,000

Lumber shipped to the Northern and Eastern States from Chattanooga, 1873:

Number of car loads ..... 864

Cotton shipped from and through Chattanooga, 1873:

To the east, number of bales.....	112,850
To the north, " " .....	2,997
To the south, " " .....	11,669
	<hr/>
Total.....	127,516

Coal and coke received at Chattanooga, for consumption there, or re-shipment south, 1873:

Number of bushels coal.....	1,193,000
Number of bushels coke.....	150,000

Iron shipped from Chattanooga, 1873:

Pig, pounds.....	26,788,000
Merchant bar, pounds.....	5,772,373
Railroad, pounds... ..	25,800,000

*Chattanooga as a Manufacturing Point.* Chattanooga possesses all the elements necessary to make it a great manufacturing center.

1. It has a healthy location and a salubrious climate.
2. It has ample facilities for transportation and distribution.
3. Its market for all manufactures is near and large, and the demand constantly increasing.
4. It is immediately surrounded by all the materials, inexhaustible in quantity and superior in quality, which enter into the production of the leading manufactures.

After what has been said elsewhere, it is not necessary to specify all the advantages offered by Chattanooga and the surrounding country for almost every kind of manufacturing enterprise.

With reference to the manufacture of iron, the advantages are so unusual that it seems as though nature, in the combination of the material elements here made by her hand, intended this point to be the great center for its production.

Chattanooga, situated near the Alleghany coal fields, possesses the element first in importance in the economical production of iron, viz: good coal, abundant and cheap.

Veins of iron ore underlie the very city, divide the surrounding hills, and stretch away into the regions beyond, side by side with the veins of coal.

In juxtaposition with the coal and iron are found the sandstone and fire-clay necessary in the construction of furnaces, and the limestone necessary for the smelting of the ores. Over these treasures grow forests of valuable timber. These wonderful mineral deposits have already attracted the attention of manufacturers and capitalists, both in this country and in Europe, and large investments have been made and important enterprises have been organized.

The cost of transporting the iron ores to the manufacturing centers of the Northern States, and the changed condition of the coal supply in England, will make Chattanooga, in no distant future, the Pittsburg of the South, and the Birmingham of America.

The cost of the production of pig iron in the vicinity of Chattanooga, whether by hot or cold blast, and whether with charcoal or coke, ranges from \$15 to \$25, the average being below \$18. The result depends somewhat upon surroundings, but more on scientific knowledge and judicious management.

The following shows the capital invested, value of machinery, value of products, and number of hands employed in manufacturing in Chattanooga in 1873 :

Capital invested.....	\$2,142,000
Value of machinery.....	1,060,500
Value of products .....	1,977,300
Number of hands employed .....	1,207

The following are some of the principal manufacturing establishments in Chattanooga :

*Chattanooga Foundry and Machine Works.* This is one of the oldest manufacturing establishments in the city, having been started in 1849. It has been very much enlarged within the last eight years, and is now one of the largest and most complete establishments of the kind in the South.

It has a foundry of fifteen tons daily capacity; a machine shop supplied with lathes, planes and all the modern machinery necessary to do the heaviest iron work; a blacksmith shop containing five forges; a fully equipped boiler shop, and a pattern shop. These works are at present engaged in the construction of the largest engines ever

built south of the Ohio River. Three engines have just been completed of 300 horse-power each, with blowing cylinders of seven feet diameter and four feet stroke, for different smelting furnaces in that vicinity. A large amount of work is done here for railroads, mills, bridges, water and gas-works. Heavy work and large castings are a specialty.

*Vulcan Works.* This establishment has been in operation about eight years, and manufactures bar iron, bolts, hammered axles, fish-plate, wrought iron work for railroad bridges, and railroad forgings generally; also, light T rail for narrow gauge railroads, and rails for street railroads. There is a full supply of all the necessary machinery, together with five heating and eight puddling furnaces.

*The Alabama and Chattanooga Railroad Machine Shops.* The shops of this important road are located in this city. They contain a large amount of first-class machinery necessary for the repair of engines and the construction of cars.

*The Wason Car and Foundry Company* have eight commodious brick buildings, well arranged for their several purposes. Framing shop, two stories, 58 by 122 feet; pattern shop, two stories, 52 by 55 feet; erecting shop, one story, 42 by 265 feet; blacksmith shop, one story, 47 by 133 feet; machine shop, one story, 47 by 61 feet; boiler room, one story, 21 by 47 feet; foundry, one story, 60 by 133 feet; annealing room, one story, 52 by 55 feet.

The machinery in the works is all of the latest and most approved kinds. The car shop has a capacity of six freight cars per day, besides all kinds of car work. The foundry has a capacity of fifty car wheels per day, besides turning out other kinds of car castings. Other castings made to order.

*Roane Iron Company.* This company has two blast furnaces in operation on their mineral lands at Rockwood, with a capacity of fifty-five tons of pig iron per day. The rolling-mill of this company, located at Chattanooga, manufactures railroad iron only. The rail mill is 80 by 650 feet, and contains ten of Dank's rotary puddling furnaces and five common puddling furnaces, nine heating furnaces, four trains of rolls, fifteen steam engines, from 25 to 300 horse power, one Winslow's squeezer, one steam hammer, together with all the other machinery in use in first-class rolling-mills. Capacity, 100 tons railroad iron in twenty-four hours.

*Chattanooga Iron Company.* This company has erected the first blast furnace in the city limits since the war, and it is the only one now in the city. The blast stack is sixty feet high, iron shell, eighteen feet in diameter. Diameter of bosh, thirteen feet four inches. Four tuyers. Cast house 36 by 65 feet, engine house 24 by 38 feet, boiler house 20 by 52 feet, stock house 50 by 200 feet. Four boilers, length, 50 feet, diameter, 32 inches. Steam cylinder 32 by 48 inches. Blowing cylinder 6 feet diameter, 4 feet stroke. Draft stack 90 feet high, 50 inches inside. Capacity of furnace, 30 tons pig-iron daily.

The cost of material delivered will not exceed—

Ore, (over 50 per cent. metallic iron,) per ton.....	\$3 00
Limestone, per ton.....	1 00
Coke, per bushel.....	10 $\frac{1}{2}$

The expenses entering into the cost of production of pig iron not more than elsewhere.

*Saw-Mills, Planing-Mills, etc.* There are five steam saw-mills in the city, with capacity for the production of 40,000 feet of lumber per day. There are also five establishments for the manufacture of all kinds of dressed lumber, doors, sash, blinds, and every variety of house finishing materials.

*Chattanooga Steam Wagon and Implement Works.* This establishment makes a specialty of heavy wagons, and of turned handles, spokes, and similar work. Manufactures entirely from Tennessee timber, which is found to be of superior quality.

*Chattanooga Steam Carriage and Wagon Works* manufactures buggies phaetons, carriages, hacks and wagons. Sewing machine wagons and livery work a specialty.

*Flouring Mills.* The Lookout Steam Mills have five run of stones and an eighty horse-power engine. Capacity, 250 barrels flour per day. The Chattanooga Steam Mills have three run of stones. Capacity, 50 barrels flour per day.

*Chattanooga Fire-Clay Works.* This establishment manufactures fire-brick, drain pipe, and fire-clay work of all kinds. Has capacity for 4,500 fire-brick per day. The products of this factory have stood the severest tests.

*Chattanooga Soap Factory.* This is a new enterprise, but is starting out under auspices which bid fair to make it an important addition to the rapidly increasing number of manufacturing enterprises in the city.

*Southern Pump and Pipe Company.* Superior wooden pumps are made at this factory. There is also made here wooden pipe for aqueduct purposes, and especially adapted for mines, water-works, and railroads. This pipe is made to sustain an equal pressure with iron pipe made for the same purpose, and is much cheaper.

*Chattanooga Steam Bakery.* This manufactory is supplied with improved machinery for making crackers and similar products. Has capacity for using twenty barrels of flour per day. There are two other bakeries in the city.

*Chattanooga Steam Leather Manufactory.* Main building, 38 by 290 feet, three stories. Bark mill will grind twenty cords per day. Steam engine forty horse power. All necessary machinery complete. There are 112 vats, 20 limes and soaks, six large leaches, one ten-cord Allen and Warren leach. Capacity, 26,000 sides per annum.

*The Novelty Machine Works* manufacture brass and iron articles in large variety.

*The Chattanooga Fertilizer Works* are engaged principally in the production of bone fertilizers.

*The Chattanooga Steam Furniture Factory* has large capacities for making all kinds and quantities of household furniture.

*Chattanooga Brewery.* This establishment makes lager beer, and has capacity for 20,000 kegs per annum.

*Mountain City Cotton and Woolen Factory.* This factory has all the necessary machinery for making cotton yarns, rope and cloth, and also for making woolen goods. The factory at present consists of one main building, 50 by 105 feet, three stories, with wing 50 by 80 feet, one story. Three thousand spindles are now set up. Engine forty horse power. The buildings and machinery are so arranged as to increase the capacity at any time.

*The Future of Chattanooga.* The lumber trade of this city will necessarily swell into large proportions. It is estimated that, within the region of country tributary to Chattanooga, there are 5,000,000,000 feet of lumber of the more valuable varieties. This trade already extends to the Northern and Eastern States.

A cotton market of importance would be established at once in Chattanooga upon the erection of a cotton compress, with a supply of

capital to make purchases or advances. A large amount of business which now goes through and around the city would then be transacted here, this being the natural center for collection and shipment.

The foregoing statistics show the vast amount of grain, live stock, and provisions distributed over the country south of Chattanooga, and indicate, not only what will be done in the future of this rapidly growing country, but also what opportunities there are for producers in Tennessee.

The opportunities and prospects in regard to manufactures, and especially with respect to the production of iron, have been fully set forth.

The railroad facilities which Chattanooga possesses, and which give the city direct communication with every section of the country, have been mentioned, and are shown by the accompanying maps.

By the removal of the obstructions to the navigation of the Tennessee River at Muscle Shoals, this river will be open throughout its whole length to the trade of the country. Thus cheap transportation will be afforded for all the heavy articles of commerce, and a line of water communication can be provided between the great North-west and the South Atlantic and Gulf States.

The time is not far distant when the varied products of the soil, the mine, and innumerable furnaces and manufacturing establishments, and the commerce which will course through the natural channel of trade, will make Chattanooga the metropolis of the central South.

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## HANCOCK COUNTY.

### COUNTY SEAT—SNEEDVILLE.

This, one of the northern counties of the Valley of East Tennessee, has approximately the form of a right-angled triangle, the hypotenuse resting in part on the summit of Clinch Mountain, and the longer leg coinciding, for nearly thirty miles, with the Virginia line. It contains about 230 square miles, and had a population in 1870 of 7,148, of which 585 were colored. This was but a small increase over 1860, when it was 7,020.



Hancock is remarkable for the number of ridges and mountains it contains. Its surface is indeed a succession of crowded straight ridges, trending in a north-easterly and south-westerly direction, and separated by intervening valleys, some of the latter of which are rich, populous and beautiful.

The act establishing Hancock county was passed January 7, 1844. It was, however, not organized, owing to some constitutional objections, until 1846, when A. P. McCarty, Anderson Campbell, Richard Mitchell, William Nichol, of Hawkins county, and James Ritchie, James Fulkerson, John Farmer, Marshall Brewer, and Alexander Bates, of Claiborne County, were appointed commissioners and authorized to have the county re-surveyed, so that its establishment might not interfere with the rights of other counties. These commissioners were likewise empowered to organize the county. It was named in honor of John Hancock, one of the patriots of the revolution, and the prominent signer of the declaration of independence. The county was formed out of Claiborne and Hawkins.

The general topographical characteristics of Hancock have been given. From high points, its surface presents the appearance of an extended and congealed billowy sea, the great waves of which succeed each other in parallel lines. The waves are the ridges and mountains, which, with the valleys and the beds of the streams, run across the county from the south-west to the north-east, or, more accurately, in an east north-easterly direction. While this billowy and parallel feature is characteristic of the whole Valley of East Tennessee, it is particularly so of Hancock county. Its south-eastern boundary is the crest of the straight and high Clinch Mountain, except where too close a proximity to Rogersville throws the line a few miles to the north-west. From this mountain across the county to its north-western corner, the traveler intersects many ridges and valleys. Of the former, the principal ones are, in the order of their occurrence, Copper, Chestnut, Comby, Newman's, Powell's and Wallen's ridges. Newman's and Powell's ridges are good sized mountains; the first, in fact, is known as Powell's Mountain. The two lie close together, being separated by a very narrow valley, which is, indeed, but little more than the bed of Sycamore, a creek of respectable size. Comby Ridge is a curious line of sharp shale and sandstone knobs. Chestnut Ridge, so well defined in the counties to the south-west, is here much broken up by the Clinch River and its tributaries. The parallelism and direct course of these

ridges, would at once attract the attention of a person not familiar with the characteristics of this country, and no one without the proper geological knowledge could explain the peculiar topography. It is enough to say, that the strata of the county have been so disturbed as to have a tilted or inclined position, their edges being exposed to the wear and tear of the elements. These long, straight outcropping edges, when of hard rocks, like sandstone, have resisted erosion, and formed ridges and mountains, while the edges of softer rocks, as of limestone and shales, have yielded to the action, their materials being removed and valleys formed.

There are a number of rich valleys in the county. Clinch Mountain Valley, lying between the north-western base of Clinch Mountain and Copper Ridge, is based on limestone, and presents the best wheat lands in Hancock. In seasons sufficiently wet, the soil grows large crops of corn, but there are portions in which the rocks are so near the surface that, in dry seasons, the corn is withered before coming to maturity. The north-western slope of Clinch Mountain is very fertile, and is to be regarded as continuous with the valley, both together making the widest and most desirable belt of land in this portion of the county. There is also much good land on the slopes of Copper Ridge.

Extending in a north-easterly and south-westerly direction nearly through the center of the county, and lying along the south-eastern base of Newman's Ridge, is Sneedville Valley. This will average throughout about two miles in width. Its soil is marly and sandy, and is well adapted to grass. Its more westerly lands are not considered the best, but as we approach Clinch River they become much better, and grow corn and wheat as well as any lands in East Tennessee.

Sneedville, the only town in Hancock, is located near the south-eastern base of Newman's Ridge, and gives name to the valley. It may be added here that, though Sneedville is the only town, there are stores or trading centers at convenient intervals throughout the county.

Between Clinch Mountain Valley and the one just mentioned, the country is for the most part rough and hilly. There are some valley lands. Much of the country, both lowlands and hills, is very rich, and will produce all the crops suited to the latitude. The steepness of the hills is often such as to make the cultivation of them difficult. The best disposition to be made of these would be to put them in grass,

which might be made to yield in the end a better return, in the way of stock, butter, and cheese, than they do now in corn and wheat.

Next west of the Sneedville Valley, and lying between Newman's Ridge and Powell's Mountain, is the narrow Valley of Sycamore, of which we have spoken. It is a cold trough, of little agricultural importance, but opens out at the south-western end of Powell's Mountain into a wide, desirable country.

Proceeding north-westerly across Powell's Mountain, we find between the latter and Wallen's Ridge, another wide valley of marked fertility and interest, much like the Clinch Mountain Valley. It is called Mulberry Valley, from the name of the stream which flows through it. The north-west side of Powell's Mountain, like the same side of Clinch Mountain, is rich, and more or less in cultivation. Indeed, the two mountains, Powell's and Clinch, each with its blue limestone valley on the north-west side, are counterparts of each other. The mountains have the same formations, and in the same order, and the valleys are also alike in rocks, and, to a great extent, in soils and agricultural characteristics.

Beyond Wallen's Ridge lies the Tazewell Valley of Claiborne, which has geological and other features much like the two valleys that have just been compared. The western line of Hancock runs so as to cut off and throw into the county the extreme north-eastern end of the Tazewell Valley, that immediately on the Virginia line. Wallen's Ridge has much good land upon it; on the north side it is rich. It is wide and rounded on top, being in this respect quite in contrast with Powell's Mountain, which is sharp and roof like.

As in Claiborne county, the prevailing rocks in Hancock are limestone and dolomite, the latter differing from limestone in containing magnesia as well as lime. Sandstones occur conspicuously on the south-eastern slopes of Powell's and Clinch mountains, though this slope of the latter is not to be included in the county. The Black Shale presents two linear outcrops, one in Sycamore Valley and the other in Sneedville Valley. This formation yields several sulphur and chalybeate springs. There are two outcrops of the dyestone, or red fossiliferous iron ore in the county, one on the east side of Powell's Mountain, and the other on the same side of Wallen's Ridge. Both supply some ore, but the latter is far the more valuable, and has supplied much ore in times past for forges. Patches of brown hematite, or limonite, may be found on Wallen's Ridge and at other points.

In a comparison of this county with Claiborne, it has been said that, for agricultural purposes, Claiborne is the better of the two. In Hancock, farms and farm-houses are not so good, nor is the same attention given to the management of the farm. The farms average about the same size as in Claiborne, and are generally worked by the owners, though, during the summer months, most of them hire laborers. The crops grown are the same as those grown in Claiborne, and the prices and supply of labor much the same. More attention is being given to the raising of grass and stock than formerly. The use of clover in the improvement of land has begun to attract attention, and a manifest advance is taking place in this direction. But the farms generally have deteriorated; fences are bad, and the dense growth in the fence-corners shows a want of neatness in the farming. No attention, excepting in the rich valleys, is given to beautifying homes or in making them attractive. Hill-side plows and mowers and reapers are coming slowly into use. Mules are not common, the reliance being placed on horses and oxen.

Great complaint is made here, as elsewhere, in regard to dogs. The best farmers desire that some law should be enacted by the Legislature to diminish the number of dogs that make sheep-raising next to impossible. Get rid of these, and soon the mountains and ridges of this picturesque county would be covered with flocks of the best sheep, and large areas of what is now useless territory made to yield comfort and wealth to its inhabitants. There is a large amount of waste land growing up in persimmon, "broomsedge," briars and other noxious vegetation.

The valleys are thickly inhabited. At short intervals dwellings are seen, but on the ridge and mountain slopes houses are comparatively scarce. Every farmer has his spring, near or over which is the spring-house, containing abundant supplies of milk and butter.

The terms of leases and rents are the same as in the county of Claiborne, to the account of which the reader is referred. The best and most abundant timber is poplar, all the oaks, chestnut, sugar tree and walnut. The county abounds in timber, the hills, ridges and mountains being covered with forests.

The county is remarkably well watered. Clinch River traverses the county, and there are a number of large creeks. Four Mile and Morton's Creek flow from the north into Powell's River, and Big Mulberry from the south, all supplying good water-power. Big Syc-

more empties into Clinch River in Claiborne county, and like those mentioned, is a good milling stream. Swan and Blackwater creeks empty into Clinch River within the county and from the north side of the river. On the south side are Richardson's, War and Big creeks, also respectable streams, affording many excellent mill or factory sites. On the smaller streams of the county there are many over-shot mills. There is a goodly number of saw-mills, and lumber sells for ten dollars per thousand feet.

Hancock is without railroads. Produce is shipped down the Clinch and Powell's rivers in flat-bottomed boats. Want of transportation is the greatest drawback to the farmer. No accession is made to the county by immigration, while there is some loss by emigration, families now and then moving off to the west. The schools are poor.

Apples, peaches, pears, plums and berries grow well. The knobby lands on the Clinch River are especially suited to apples, and much attention is being given to the improvement of that fruit. Peach trees are short-lived. The seedling is relied on for a crop. A large amount of fruit is dried every year, and brings the farmer oftentimes his greatest income; especially has this been the case since the war. Honey is produced by the citizens for their own use, but little being offered for sale. Large quantities of butter are shipped during the winter months to Knoxville, Atlanta and Augusta. Both apple and peach brandy is made in the county.

There is much land for sale, the best being offered at \$25 to \$30 per acre, medium \$10 to \$15, common from \$1 to \$6. Farmers complain of hard times and want of facilities for getting their produce to market. A lack of enterprise is apparent among them. No organizations are in existence. They have no fair grounds, and no opportunities are presented for conferring together and improving their condition by a concert of action.

Living is very cheap, and much the same as in Claiborne. The following list will give information on this point:

Eggs, highest price, 10 cents; butter, 16 $\frac{2}{3}$  cents; beef, 4 cents; pork, 4 cents; corn, 40 cents per bushel; wheat, average, \$1; chickens, 10 cents; labor, \$8 to \$12 per month; carpenters, \$1.50 per day; splitting rails, 50 cents per hundred and board; making staves, 50 cents per hundred; shingles, drawn, \$2.50 per thousand; making boards, 33 cents per hundred. hay 50 cents per hundred.

## HAWKINS COUNTY.

COUNTY SEAT—ROGERSVILLE.

Hawkins county is situated in the north-eastern portion of the Valley of East Tennessee, which valley constitutes the Tennessee portion of the great valley extending from the Susquehanna, in Pennsylvania, to the Coosa and Black Warrior rivers, in Alabama. This county was the sixth out of seven counties organized by the State of North Carolina. Its original boundaries, in 1786, embraced all that portion of Tennessee between the north fork of the Holston River on the east, the top of the Cumberland Mountains on the west, and the Kentucky line on the north, and Bays Mountain and the French Broad, lower Holston or Tennessee rivers on the south. At the organization of the State of Tennessee, although the counties of Knox and Grainger, and a portion of Jefferson, had been carved out of its territory, which reduced it nearly to its present dimensions, it contained the largest population, and, with the exception of Knox county, very much the largest slave population, of any of the eleven counties then comprising the State of Tennessee. Its white population was composed of citizens from North Carolina and Virginia, with a strong infusion of Pennsylvanians and Protestant Irish, and a few New Englanders of the best stamp. The establishment of the town of Rogersville, the county seat of Hawkins, was one of the last acts of the Legislature of North Carolina. It was called after Joseph Rogers, an Irishman, the first settler in the place. The second settler was Richard Mitchell, a member of the first convention, an intimate friend of the Governors William and Willie Blount. The brook which runs through the town still bears the name of Crockett's Creek, called after the father or uncle of Colonel David Crockett. At the old Rogers tavern, as it was called, many of the old celebrities of the day were wont to gather, and it was there that General Jackson made the dandy, who wanted a separate room and bed, sleep in the log corn-crib. In Rogersville, in 1791, the first newspaper ever published in Tennessee, "The Rogersville Gazette," was issued, and in 1832, "The Railroad Advocate," the *first* newspaper *exclusively* devoted to internal improvement published in the United States, was issued at Rogersville. Hawkins county furnished one of the two senators first elected to the United States Senate from the State of Tennessee, and one of the earlier governors, and from its earliest organization has held the position of one of the leading counties in the State.

*Topography.* The surface of the county is divided into rich valleys and ridges. Its northern boundary includes a portion of Clinch Mountain, and its southern, a portion of Bays Mountain. The Holston River runs through the entire length of the county, and on its banks are bottom lands wide and extremely fertile.

*Productions.* The native growth of timber is yellow pine, poplar, hickory, walnut, all the oaks, beech, buckeye, cedar, ash, elm, cherry, locust, mulberry, sugar tree, sweet gum, (much used in the interior finish of churches, &c.) and many other trees. Every fruit known to the continent, except those purely tropical, and all the grains and grasses grown in the State are found here. Before the war the hog product was made a specialty, but since then the grasses and live stock have been the order. Wheat is extensively raised, and forty bushels per acre has been produced without other aid than home-made fertilizers and clover. Much attention is given to stock-raising, and thoroughbred and trotting stallions. Herdbook, Short-horn and Jersey cattle, Berkshire, Chester White and Essex hogs, improved sheep and Cashmere goats are numerous. Sheep could be raised by the thousand without interfering with our grain and grass crops, but unfortunately we have no dog law.

The Holston affords good boating facilities for the shipment of produce. The Rogersville and Jefferson Railroad, fifteen miles long, connecting with the East Tennessee, Virginia and Georgia Railroad at Bull's Gap, two turnpike roads crossing the Clinch Mountain and River, one running to the Virginia, Lee county line, and the other to the county seat of Hancock county, with the various county roads, afford good commercial and mail facilities. Two other railroads are projected, which, if completed, will give additional railroad facilities. The Shenandoah Extension Railroad, of which Colonel Tom Scott is President, being an air line from Hagerstown, Maryland, to Russellville, Tennessee, where it will intersect the East Tennessee, Virginia and Georgia Railroad, has been surveyed; and in the able report of General Haupt, the chief engineer, the marble, timber, grain and stock of Hawkins county are largely looked to as affording prospective freight. This road, if built, will traverse the county from east to north-east to south-west. General Mahone has also had a preliminary survey made from Bristol, in Sullivan county, to Bean Station, in Grainger county, with a view, it is understood, to a connection with the Tennessee and Pacific Railroad at or near Clinton, in Anderson County, Tennessee. These two

roads, Scott's and Mahone's, run in parallel lines, as projected through Hawkins county.

*Minerals, Marbles, &c.* Gold, silver(?), lead and iron ore are found in the county, but not in paying quantities as yet. The variegated marble of Hawkins is unrivaled. This marble outcrops for about twelve miles. Its extraordinary beauty attracted the attention of Mr. Troost, State Geologist, and in 1838 a company of gentlemen, in and near Rogersville, commenced working it. Two blocks of it are in the Washington monument, at Washington city, one sent by the State of Tennessee and the other by Hawkins county. Large quantities of it were used in adorning the interior of the capitol extension at Washington city. The balustrade and columns of the stairs leading up to the House and Senate galleries, the walls of the marble-room and other parts of the building are of Tennessee marble. Four large quarries are worked, and blocks weighing eighteen thousand pounds are shipped by railroad. It is used for a great variety of purposes. Barytes is found, but has not been worked as yet. Salt was made in Hawkins county as early as 1820, and two new wells are being bored at this time, with very favorable prospects. The water is found in the same valley in which the Smyth county, Virginia, salt wells are situated.

*Mineral Waters.* An alum well, with an abundant supply of water, is five miles east of Rogersville, and the same distance north of the town are Hale's red and white sulphur springs, a place of great repute and beauty, and largely attended as a summer resort, while other sulphur and chalybeate springs abound in the county.

*Towns and Villages.* Rogersville is a place of one thousand inhabitants, and has always been justly celebrated for the intelligence, refinement and genuine hospitality of its citizens, but in these respects the town has only worthily represented the county at large, a county which, in the enterprise, refinement, and hospitality of its people, the comfort and elegance of their dwellings and other surroundings, has always challenged the admiration of passing strangers. The town has three fine schools, well attended. It has five churches—two Presbyterian, two Methodist, and one Baptist—in which the white population of the town and vicinity worship, and two are being erected—Presbyterian and Methodist, by the colored people. One of the branches of the Bank of Tennessee was located here, in what was said to be the best arranged banking house in the State. A private bank is soon to occupy this fine building. There are four other towns or



villages in the county. Morrisburg, St. Clair, Stony Point, and Rotherwood. The county is well supplied with churches—Baptist, Methodist, Presbyterian, and, in a few localities, Dunkards of Pennsylvania origin, and comprising a steady and industrious people. The common school system is well established, and the county has good mail facilities, having twenty-two post-offices, and seven mail routes.

*Woolen Mills, Water-power, &c.* There are two woolen mills in operation. The Rotherwood Mill on the north fork of the Holston, twenty-six miles east of Rogersville, and Kirkpatrick's Mill, five miles south-west, operated by steam power. They manufacture blankets, and cloths of every quality. Flouring mills, saw-mills, and tanneries are to be found in every neighborhood. The Holston River and tributaries afford ample water-powers for any amount of machinery. In 1825-6, Cloud's Shoals on the Holston River, five miles west of Rogersville, were reported upon by Colonel Long, United States army, then surveying a military road, as a proper location for a government manufactory of arms. That the county is well watered, is evidenced by the fact that the old stage route, traversing the county from north-east to south-west, is crossed by twenty-four distinct and perpetual streams, and twelve of these afford water-power sufficient to operate numerous mills. Limestone springs are innumerable.

*Population.* The population of the county was, in 1870, about sixteen thousand. Taxes, State and county are one dollar and fifteen cents on the one hundred dollars, upon a very reasonable valuation of property. Immigration greatly desired, that is, of the right kind, which means peaceable, industrious persons, who were good citizens where they came from. Hawkins county has already received and welcomed some such additions to its population, and earnestly desires more. One gentleman from New York has established one of the woolen mills referred to above. Another from Vermont has introduced, and is breeding and training, trotting horses. Others from Pennsylvania are taking hold of our fine farming lands. More of this stamp are thrice welcome, and can come and reside amongst us without our people asking or caring to know their politics or religion. Farm wages are reasonable, from eight to ten dollars per month. Labor is both white and colored. Colored population of the county, represented by about three hundred voters, is quiet, orderly, and well disposed. Lands range from five to seventy-five dollars per acre, according to location, quality and improvements. The climate, as to health and comfort, is

all that could be desired. Fifteen of the citizens of Rogersville are between the ages of seventy-five and ninety-two years, and this is but a fair sample of the good health and longevity of the people generally. The county has lost but few citizens by emigration since the war, and many of these are returning to "Old Hawkins."

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## JAMES COUNTY.

### COUNTY SEAT—OOLTAWAH.

This is a new county, the law creating it having been passed and approved January 30, 1871, when it was immediately organized. It is bounded on the east by Bradley county, on the north by Meigs, on the south by the State of Georgia, and on the west by the Tennessee River and Hamilton county. It contains about 285 square miles, has a voting population of about 1,000, and a total population of near 5,000.

The principal towns are Ooltawah, Harrison and Birchwood. Ooltawah is the county seat. It contains a population of about 400. It is situated on the East Tennessee, Virginia and Georgia Railroad. The citizens are enterprising and intelligent. Harrison was formerly the county seat of Hamilton county, but fell into James county when it was formed. It is an old town, and contains a small population. Harrison College is located here, an institution of high grade, and doing an important work. Birchwood is a small village, with a population of about 200.

There are some excellent farming lands in this county. The Savannah Valley, which runs through it, is exceedingly fertile. It is three miles wide on an average. The soil is supported by a strong clay subsoil.

The prevailing rocks are limestones and dolomites. Sandstones and shales occur in White Oak Mountain, in which also are strata of the red fossiliferous iron ore. Mineral waters of various kinds abound. There is no lack of pure spring water, and no healthier region anywhere. The climate is mild. The winters are short, and the summer seasons are not oppressively warm.

Farms are of various sizes, but mostly in tracts too large for success-

ful cultivation. They are generally worked by the owners. The terms of leasing are one-third of the crop of the uplands and one-half of the bottom lands. The cultivation of the grasses is too much neglected, and there is but little meadow. Both the soil and climate are favorable to the successful culture of all the grass crops. The farmers continue the old system of raising too much corn, which has exhausted the soil. Here and there one has broken the crust of this fossilized system, and adopted the more sensible one of cultivating less, and of fertilizing his soil with an eye to meadows and grazing.

Although this section was greatly injured by the war—stock destroyed, fences burnt up, and the lands neglected—farms are now in a more hopeful condition than they were antecedent to the war, which proves that the farmers have been industrious and fully alive to the importance of recuperating their soil and of repairing the waste places. They are using better implements of husbandry, are plowing deeper, and paying more attention to their duties.

There is a deficiency of improved breeds of stock throughout the county. There is very little thoroughbred stock of any kind. This is a drawback upon the operations of the farmers. They would find that their profits would be largely enhanced by at least crossing their native stock with the purest breeds. It is difficult to raise sheep on account of hungry curs. They are regarded as an intolerable nuisance, and there is a universal wish that some stringent measures should be adopted to abate the nuisance.

The county is not thickly settled. There is ample room for three or four times the present population. Many large farms would make from two to four good ones, and it would be a benefit if they could be subdivided and sold to others. The citizens are anxious that newcomers should come into their midst. They would be kindly received. Lands are for sale in all parts of the county, and are offered upon easy terms.

The aggregate amount of taxable property is \$754,327. There is almost every variety of timber. The water-courses are small, but there are some valuable sites for mills, &c.

Transportation is available by way of the East Tennessee, Virginia and Georgia Railroad. Labor is scarce and wages reasonably high. The greatest drawback upon the county is the want of laborers and fertilizers.

There is an earnest feeling on the subject of education. The schools are usually good.

There is not a farmers' club in the county, nor any fair grounds.

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## JEFFERSON COUNTY.

### COUNTY SEAT—DANDRIDGE.

Jefferson county, having a far greater extent of surface than it has now, was established at the same time with Knox, in June 1792, by the Governor, when the State was a part of the "territory south-west of the Ohio River." This county is situated in the great Valley of East Tennessee, and is remarkable for its superior lands, its excellent schools, its enterprising farmers, its numerous churches and its orderly and intelligent society. It joins Knox county on the west, and the East Tennessee, Virginia and Georgia Railroad runs through its north-western side. It is bounded on the north by Grainger and Hamblen counties, on the north-east by Hamblen, on the east by Cocke, and on the south by Sevier. It is somewhat broken by hills and ridges, and one large ridge runs through it, dividing the waters of the French Broad and Holston. South-east of the French Broad is a triangular area embracing about fifty square miles, which is a part of the great knobby belt extending from the Bays Mountain region to the Tennessee River. The soils of this area are mellow and derived from the sandy shales of the Nashville group of rocks. It is well adapted to grass and grain, but is, excepting on the streams, too hilly for large continuous arable tracts. On the north-west side of the French Broad the soils and formations are very different. The rocks are limestones and dolomites, mainly of the Knox group, and the soils are calcareo-siliceous and clayey, and suited for all crops grown in East Tennessee. Some of the ridges are flinty. The great staples are corn, wheat, oats and hay. The uplands especially produce good crops of wheat, and the lands on the French Broad River are noted for their heavy yield of corn. For many years, both before and since the war, the farmers have turned their attention to the raising of mules, horses, cattle, sheep and hogs. Of late, however, this has been considerably abated, and now they are putting more of their lands down in clover and grass, with the view of raising cattle and of establishing dairies.

Dandridge is the county seat. It is an old town, with a population of about one thousand. It is ten miles from the nearest depot. It is a moral place; its business men are active and honorable; its scholastic advantages excellent, and its citizens intelligent and refined. There is a flourishing academy in the place, and three churches, Methodist, Baptist and Presbyterian.

The next town of importance is Mossy Creek, ten miles distant, lying in the New Market Valley, immediately on the East Tennessee, Virginia and Georgia Railroad, and twenty-seven miles from the city of Knoxville. Its population is about 300. The community is one of the best—temperate, moral and intelligent. There are two churches, Presbyterian and Methodist. Its educational advantages are superior, there being two institutions of learning, the Masonic Female Institute and the Baptist College. Both are permanently established and doing a great work for the youth of the country. The healthfulness of the locality, the pure spring water, the moral and religious advantages, and the high social tone pervading the community, render Mossy Creek a desirable place at which to educate the youth. The country contiguous is inviting and attractive. Fine farms, dotted with beautiful homes, can be seen on all sides.

The water-power here is unusually good. It is, perhaps, superior to any in the country. The stream known as Mossy Creek furnishes it. It is only about six miles long, but for every half mile a sufficient power for all purposes can be obtained. The stream is fed by a large spring, and therefore is constant. There is a number of mills on it, and one or two cotton factories.

Near the village is a zinc mine. The ore is considered valuable. The mine is not more than a quarter of a mile from the depot. A few years ago a company came out from the east, bought the mine and erected suitable buildings for the purpose of manufacturing zinc. Heavy expenditures were made, and vast quantities of the ore were gotten out and manufactured, but the company failed. It is thought the ore exists in sufficient quantity, if judiciously worked, to be a source of profit to the owners.

New Market is another town of Jefferson county, some five miles south-west of Mossy Creek, twenty-four miles from Knoxville, and on the railroad. It is a quiet and orderly place. No ardent spirits are drunk or sold in the place. There are three churches and a college in

the town. It lies in a magnificent valley. The land is productive. It produces all the crops—corn, wheat, oats and hay.

Jefferson county must be ranked with the best counties of East Tennessee. There is not a great deal of mineral wealth, but, for agricultural purposes, it is hard to excel. It possesses almost every variety of soil, and produces almost every kind of product. The average yield of corn per acre is about thirty bushels, of wheat ten, of rye ten, of oats twenty-five, of sweet potatoes 100, and of Irish potatoes about the same. The richest lands are on the French Broad and Holston rivers. They will produce on an average about fifty bushels of corn to the acre. It is a great hog region. The price of land varies according to quality, improvement and location. The bottom lands are valued at from fifty to one hundred dollars per acre. The better grade of uplands at from ten to twenty-five dollars per acre. The second class from five to ten, and unimproved from one to three dollars per acre. There is not much waste land in the county. It is not thickly settled; there is space for treble the population. The prevailing timber is oak, walnut, maple, hickory, &c. The principal streams are the French Broad and Holston rivers, Mossy Creek and Muddy Creek. Facilities for transportation are good.

Labor is not very abundant in this county, nor reliable. Wages range from eight to twelve dollars per month.

Jefferson county has done a good deal towards improving its stock. There are a number of thoroughbred Short-horns, and Chester and Berkshire hogs.

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## JOHNSON COUNTY.

COUNTY SEAT—TAYLORSVILLE.

This county was organized in the year 1836, and was originally a part of Carter. The boundaries, by an act of the General Assembly, were fixed as follows: "Beginning at the line of Sullivan county, at a place called the Rich End, where the cross ridge commences that divides the waters of Beaver Dam and Stony creeks; thence running with the heights of said ridge to the Iron Mountain; thence with the extreme heights of said mountain to a point opposite the ridge running from said mountain, between Dugger's and Vanhouse's; then with said

ridge to the Watauga River; then up said river to the mouth of Elk Creek; then with the ridge dividing Elk Creek from the Watauga River, to the North Carolina line; then with the line between Carter county and North Carolina to the Virginia line; then with the Virginia line to the corner of Carter and Sullivan counties; thence to the beginning."

The county is bounded on the north by Virginia and Sullivan county, on the east by North Carolina, on the south by Carter county, and on the west by Carter and Sullivan.

*Topography, Valleys and Mountains.* To understand the topography of the county let us suppose ourselves to hover, for a time, at an elevation high enough to bring in sight not only the whole of Johnson, but also adjoining regions, including Carter county and parts of North Carolina and Virginia. Furthermore, we will suppose our position to be immediately over Taylorsville, the county seat, and about the central point of Johnson. We recognize at once below us a long, straight valley, with a north-easterly and south-westerly trend, on both sides of which run long and defiant mountain ranges. The valley is thirty miles long, and, in the vicinity of Taylorsville, but three or four wide. To the north-east it narrows to a point, the mountain ranges apparently coming together a few miles beyond the Virginia line; to the south-west it widens, but is, in the distance, cut off by a mountain running east and west. We see, moreover, that the valley below Taylorsville contains a long, isolated mountain, by which, for a part of its course, it is split in two. This is known as *Doe Mountain*. In other parts of the valley, as in that north of Taylorsville, considerable hills and ridges are met with.

Such is the valley below us. As we see, it is entirely hemmed in by mountains, and might be called a cove. With the exception of the extreme southern end, which is in Carter, it lies in Johnson, and embraces almost all the arable land of this county. Agriculturally we may almost say it is Johnson county.

But let us observe the mountains. In addition to the two ranges which bound the valley below us, we see a third to the north-west, running in a direction nearly parallel with the others. We have thus a *trio* of great mountain ridges in sight, the eastern and middle one bounding the Johnson Valley, and a western one in the distance. Between the middle and western range another valley is to be seen, of which we will speak soon.

The eastern is the *Stone Mountain Range*. It is a bed of a few crowded ridges, on the highest of which the Tennessee and North Carolina line runs. *Forge Mountain*, a sandstone mountain, the southern end of which is a short distance east of Taylorsville, is one of its ridges. To the north-east, just within Virginia, the Stone Mountain culminates in the grand old summit—the *White Top*—whose treeless “bald” is 5,530 feet above the sea. Other peaks, south-west of White Top, are Beech Summit, Cat Face, Slate Face, etc., having elevations of from 4,000 to 5,000 feet.\*

The middle range of the trio is known locally as *Iron Mountain*. It lies on the north-west side of the Johnson Valley. It is a straight, well-defined ridge, having a length, from the Virginia line to its south-eastern termination in Carter county, of nearly forty miles. The last and most westerly is *Holston Mountain*. This, as if a prong of Iron Mountain, branches off at the State line from the latter, and runs out boldly into the “open country,” a well-marked and massive mountain, terminating abruptly a few miles north of Elizabethtown, in Carter county, with a length of about twenty-six miles.

The topographical relations of the Holston and Iron mountains, and of the country between them, may be well represented by the letter A, the apex being on the State line, and the open end turned towards the south-west. In the angle lies the valley lands. In the large open part is the *Valley of Stony Creek*, in Carter county. In the very apex of the mountain letter is an elevated cove-like valley called *Shady*, which is embraced in Johnson county. The cross-bar of the A represents a ridge which divides the waters of Stony Creek from those of a creek running through Shady, and breaking out through a gorge in the mountains. The bar ought to be nearer the apex, the space above it is too large, relatively, to represent the comparative size of Shady.

Shady is an interesting place. It has a much greater elevation than the Johnson Valley, but is of limited extent. It is a delightful retreat in the hot summer months. The little basin was formerly noted for the excellent iron made at a forge within its limits. It is so elevated that its flora is Canadian in character. Within it cranberries grow wild, and Northern pines and balsams flourish.

The boundaries of Johnson have been given, but we can now, perhaps, trace them out more satisfactorily. Starting at the north-western

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\*Looking to the east, beyond the Stone Range, into North Carolina, the great mountain ranges are numerous. We can almost imagine them to be the giant billows of a fearfully disturbed ocean arrested and petrified.



corner of the county on the Virginia line, the boundary runs to the south-west on the summit of Holston Mountain, until the ridge between Shady and the valley of Stony Creek is reached; thence it follows this ridge across to Iron Mountain; thence on the summit of this mountain to the south-west for a number of miles, when it leaves the range and runs southerly to the State line. On other sides the county is bounded by the State lines. The adjoining counties are Sullivan and Carter.

*Geology.* Stone Mountain, on the North Carolina line, is made up of granite-like rocks. Opposite Taylorsville, very fine blocks of stratified granite (gneiss), both gray and flesh-colored, might be obtained for building purposes. Millstones have been cut out of some of it, and have answered a good purpose, especially for grinding corn. Near the Virginia line Stone Mountain shows much talcose slate, which abounds in small rough knots of quartz.

Nearly all the other mountains of Johnson, Iron and Holston mountains, the isolated Doe Mountain, and Forge Mountain are built up of conglomerates and sandstones, which belong respectively to the great formations named *Ozoe Conglomerate* and *Chilhowee Sandstone*. These rocks, as well, by the way, as the rocks of Stone Mountain, and we may say, in general, nearly all the rocks in the county, are more or less inclined, often tilted at a high angle, and sometimes quite thrown up on edge, so as to stand in a vertical position. In this respect the strata of this part of State are greatly in contrast with the horizontal limestones of Middle Tennessee. The mountains mentioned present great thicknesses of sandstones and conglomerates. In some cases they measure 6,000 feet, and even 10,000 across.

The Johnson Valley and Shady are underlaid with magnesian limestones (dolomites) and calcareous slates, rocks belonging to the great and most prevalent formation of East Tennessee, the *Knox Group* of the State Geological Report. The limestones present several varieties. They are often heavy-bedded, and both light-gray and dark-gray sparry rocks. Some of them contain so much clayey matter as to become thin-bedded and slaty; in fact, they run into variegated red, buff and greenish calcareous shales and slates. The latter abound in the minor ridges in the northern part of the valley, and occur elsewhere also.

Johnson county is noted for its iron ore banks, and for the excellence of the bar iron it manufactures. Before the war there were

fourteen or fifteen forges in operation, running twenty-six fires. In 1854, 367 tons of bar iron were manufactured. The ore used is *limonite*. The banks are quite numerous, and pretty well distributed over the county. There is now one furnace in operation.

*Water-courses—Roads.* The Watauga River, a beautiful stream, flows across the southern end of the Johnson Valley. It rises in North Carolina, cuts through the Stone Mountain range into Tennessee, flows westerly across the above valley, and then, breaking through the Iron Mountain, quietly pursues its course towards Elizabethton. It is in Johnson a rapid stream, presenting many good sites for mills and forges. The Watauga is the largest stream, but there is little of it in the county. The principal stream is Roane's Creek. This rises in the vicinity of Taylorsville, has several important branches, is a large creek, flows southerly, and empties into the Watauga. In the northern part of the Johnson Valley is the south fork of Laurel, quite an important creek. This rises north of Taylorsville, runs in a northerly direction, passes Iron Mountain in a deep cliff-bound gorge, and flows into Virginia. Both this and Roane's Creek, with its leading branches, afford desirable locations, with good water-power, for mills and iron establishments. The forges of the county have been mostly located upon them. The county, upon the whole, is well watered. It abounds in springs of cold, pure water, which feed thousands of rivulets, these in turn feeding the branches and the creeks.

The county has two or three tolerably good roads, but no railroads or macadamized turnpikes. As before stated, to get into or to get out of the Johnson Valley, it is necessary either to travel laboriously over a mountain, or else to pass through a water-gap. From Taylorsville there are four principal roads—one to the south-west into the valley counties of East Tennessee, which passes Iron Mountain through the Watauga Gap; another to the north into Virginia, passing the same mountain through the Laurel Gap at the State line; and the two others running easterly and south-easterly over Stone Mountain into North Carolina. A road also passes from Taylorsville to the west through Shady into Sullivan county.

With respect to industry, enterprise and intelligence, the people of Johnson county will compare favorably with any other portion of East Tennessee. They are quiet and orderly, make no pretensions, are plain and unassuming, and the most hospitable people in the world. They are devoted to education, and take commanding views of the question.

They are doing a great deal towards diffusing this great blessing throughout the county. They are, too, a moral and religious people. They believe in churches, and revere christianity.

Johnson county is comparatively out of debt; a fact that is not true of many other counties in East Tennessee. Its financial affairs have been judiciously managed, and it has been gaining ground steadily since the war in every respect. It was vastly injured by the recent civil strife. Both armies preyed upon it, and destroyed much valuable property. Every interest was neglected, and, of course, suffered; but, notwithstanding this, by the energy and good sense of its people, it has about regained all that it lost. Men of fidelity were chosen to fill the offices, and hence the public treasury was held sacred. There have been no defalcations, and the incurring of heavy liabilities has been guarded against. Judicious economy in administering the affairs of the county has been scrupulously observed. The magisterial court is made up of the best men in the county, and they are conducting its affairs to the satisfaction of all.

For varied husbandry, this county is somewhat remarkable. It produces all the cereals. Corn, wheat, rye, oats, potatoes and buck-wheat grow well. It is, however, obvious that nature intended to make it more of a grazing than a grain region, to which it is admirably adapted. The hills and ridges, and even the mountains, would produce grass in abundance. Blue-grass seems to be indigenous. It is found growing in many localities, and would grow to great perfection if properly attended to. No doubt orchard-grass would find a congenial home here. Timothy and red-top make up the meadows. It is very true there is only a very small percentage of the county in grass. It would seem that the farmers have not fully waked up to the idea of cultivating the grasses. Some of them have, and they are daily exemplifying the truth of the fact just enunciated. They have their farms well set, and are raising cattle, mules and sheep, and doing a thriving business. Both the soil and climate are favorable to the grasses. The soil seems to be tight and compact, and has a tenacious subsoil. The climate is suitable. The air is cool and invigorating.

Under these circumstances it would seem that the grazing of cattle and sheep should be the business of the farmers of Johnson county. They certainly would find it far more profitable than producing grain. Indeed, the county is too far from the channels of commerce to make grain-raising profitable. The farmers cannot afford to haul it

upon wagons, some twenty or thirty miles to the East Tennessee, Virginia and Georgia Railroad, or to the Virginia road leading to Lynchburg, Virginia. Hence, it should be their policy to cultivate less corn, and raise more grass and hay for the purpose of grazing and feeding stock. By this method the stock could be driven off, or sold upon the estates.

Another branch of industry might be prosecuted with success, and that is raising tobacco. The ridges, hills, and slopes of the mountains contain a rich, loamy soil, and would produce fine tobacco. Wherever the matter has been tested, success has followed.

For the choice of superior fruit, there are few sections in the United States superior to it. The apples of Johnson county are noted for their richness, their luscious appearance and for their great size. It is a wonder that the business of raising fruit is not far more extensive than it is. It ought to be greatly increased. The revenue alone from this source would make the county independent. Not only apples, but grapes and peaches do well.

There are several varieties of soil in the county. Much of it is a black loam, and productive. In some of the valleys it is a dark brown, and, in some instances, sandy. The soil of the ridges is gravelly, and, on some of the mountain slopes and in the coves, it is a dark loam. On Roane's Creek it is a dark brown. That along Little Doe River is a black loam, and that on Laurel Creek somewhat sandy. The principal valleys are Roane's Creek, about twenty miles long, Little Doe River, about nine miles long, and Laurel Valley, about nine miles long. None of them are very wide. The water-power afforded by the streams through these valleys is abundant for all purposes.

We have heretofore mentioned "Shady." It is a mountain basin, encircled by the Holston on one side, and Iron Mountain on the other. Portions of it are swampy and unfit for grain purposes. Draining would do good. It produces fine grass, and considerable quantities of hay are raised. But its remarkable feature is its astonishing adaptation to the rearing of cranberries. These berries grow wild in every portion of it, and are of the largest species. There are not less than 10,000 acres that would produce them, and, perhaps, this entire surface is now covered with them. The berries are large, sound and plump. Here they have grown from time immemorial, without any cultivation. They have been exposed to the depredations of stock, and still they live and do well. The natives pay but little attention to them,

although hundreds of bushels could be gathered at a nominal cost. Now and then the women of the county gather a few gallons and exchange them for coffee, sugar, &c.

There are still other portions of the county equally as well adapted to them. Only a quarter of a mile from the town of Taylorsville, the county seat, there are one hundred acres of land that produce them to perfection. Nine miles west of Taylorsville, there are two other swamps adapted to them. From these facts it may be inferred that Johnson county is remarkable in this respect.

Almost every species of timber is found in this county, consisting of white pine, spruce pine, yellow pine, the various oaks, chestnut, poplar, locust, wild cherry, walnut, beech, &c.

Taylorsville is the county seat of Johnson county. It is a neat, quiet town, well laid off, containing a population of about 300, and situated on a handsome plateau of ground. It is "high and dry," and thoroughly drained. There is in the place an excellent institution of learning. It is eligibly located. The faculty is an able one.

(For other items of interest, the reader is referred to chapter xxii).

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## KNOX COUNTY.

COUNTY SEAT—KNOXVILLE.

The county of Knox was erected in the year 1792, June 11th. Five days thereafter, "James White, John Sawyers, Hugh Beard, John Adair, George McNutt, Jeremiah Jack, John Kearns, James Cozby, John Evans, Samuel Newell, William Wallace, Thomas McCulloch, William Hamilton, David Craig and William Lowry presented a commission from Governor Blount, appointing the Justices of the Peace for Knox county, and appeared before the Hon. David Campbell, who, in the presence of Governor Blount, administered to each of them an oath to support the constitution of the United States and also an oath of office. Charles McClung also produced a commission from the Governor, appointing him Clerk, and he was in like manner qualified. Thomas Chapman also as Register."—*History of Tennessee, Ramsey.*

On the 25th of the same month, Robert Houlston was commissioned Sheriff. The first court was held on the 16th of July, 1792, at which time Luke Bowyer, Alexander Outlaw, Joseph Hamilton, Archibald

Roane, Hopkins Lacy, John Rhea and James Reese, Esquires, were qualified and admitted to practice law in the court.—*Ramsey, op. cit.*

The boundaries of the county, as then prescribed, ran far beyond their present limits, and embraced much territory now lying within other counties. At present the county embraces only 573 square miles. In shape it is an irregular polygon of seven sides, running as follows: The northern boundary nearly due east and west, then south-east, then south-west along the crest of Bays Mountain, thence west to Little River, and with its meandering to the Tennessee River, and along its many tortuous windings, south-west; then at a right angle north-west to Clinch River, and up its bed east of north to the intersection of Copper Ridge, then turning off north-west to Flint Ridge and along its crest to the beginning line. Of these lines no two are equal and only two are parallel, those along Bays Mountain and Flint Ridge. In topography the county is typical of the valley counties, and will well repay a somewhat detailed description. Its chief characteristic and prominent feature is the number of long straight ridges traversing the entire county, in perfect parallels, from north-east to south-west. These ridges furnish the skeleton of the county, and have not only shaped its boundary, but have given rise and direction to all its water-courses, controlled the natural products of the intervening valleys, and moulded the characters and occupations of the inhabitants. Though so truly parallel and uniform in outline, these ridges differ so widely in geological structure that the soils of no two of the valleys, all of which have been made from the weatherings and washings of the ridges, are alike. This fact renders it necessary that we should speak of each of the larger valleys in turn, in order to do justice to all.

There is, however, a part of the county lying south-east of the Tennessee and French Broad, in which this parallelism of ridges and intervening valleys is broken up. Though clearly manifest and easily traced, it is intermixed and distorted by breaks and cross sections, or short spurs running at right angles to the general trend of the mountain and larger ridges. These interruptions or breaks give the appearance of large and irregular groups of hills, and are spoken of by Prof. Safford, in his Geological Survey of the State, as knobs. It will be convenient, therefore, to divide the county into the knobby region, lying as above described, south-east of the Tennessee and French Broad Rivers, and composing four civil districts, viz: 13, 14, 15 and 21, not quite one-fifth of the county; the other region, embracing the remainder of the county, may be called the ridge or valley region. In order

the better to see and more easily to describe these regions, it will be well to take Knoxville as our stand-point, since it is a central point from which both are in view.

*The Knobby Region.* Standing upon any of the elevated points around Knoxville, or better still, taking our stand on the dome of the University, and looking to the south and east, we shall see a vast group of great red-headed hills, of remarkable uniformity in size, shape and color. They raise their heads from 200 to 400 feet above the plane of the valley, have regularly rounded tops, and are of a dark reddish brown color. They are separated from each other by rough, deep and irregular ravines, resembling, in a small way, the canyons of the west. They are really narrow, deep and winding valleys, and make a region quite peculiar and characteristic. From the extreme steepness of the hill-side the arable land in this region is cut up into small strips. But the soils of these valleys are quite rich and yield excellent returns for fair cultivation, while that in woods is often heavily timbered with white oak, hickory, poplar, maple and other valuable trees. Some one, speaking of this region, has called it the "poor man's rich country," and the description is not inapt, as things are, but is at the same time a severe reflection on the enterprise and thrift of the men who have held this rich country for generations and are still poor men. Nowhere in Tennessee are the improved practices of farming so much needed as on these rich little farms, and nowhere would they pay better.

The geological formation which gives shape and name to this region, is described as a red, ferruginous, sandy fossiliferous limestone. This rock, as Prof. Safford says, is interstratified with calcareous shale and flaggy limestone. The whole group is well named iron limestone. The iron is so abundant in the soil and rock it is not improbable that in some not distant day a process may be discovered for extracting it with profit. At present, as rocks, their chief value is as flag stones and building material. In weathering, this group of rock forms a soil of exceeding strength, especially rich in mineral matter, and for this reason responding readily to all organic manures. In texture it is inclined to be tough, is of a dark red or brownish red color. It will bear deep plowing, requires to be thoroughly worked, and would be immensely benefitted by underdraining. It is a first-class wheat land, yields good crops of corn and oats, and may be thoroughly set in either clover or grass by a little judicious management. The population in this region is sparse and thinly scattered. The improvements are quite

primitive in style and few in number, and usually consist of a double log cabin, covered with clap-boards, with chimneys of sticks, mortar-lined on the inside and reinforced on the outside, near the ground, with fire-rock; rarely two stories, but invariably a loft, reached by a ladder or open steps, narrow and steep. The house is surrounded by a rail fence, enclosing a small garden and yard. In the former are grown a few of the common garden vegetables, while the latter is adorned with a few stands for bees, and perhaps an apple tree or two. The out-buildings, if any, are built of logs or polls, and rarely consist of anything beyond a corn-crib and stable. Two or three horses, as many cows, six or a dozen hogs, occasionally a dozen sheep, and no end of chickens, make up the live-stock account. The crops grown are usually corn, oats and potatoes, but these suffice for the few simple wants of the inhabitants. Their market produce is chiefly confined to chickens and eggs, feathers, beeswax, ginseng, a few peltries, with now and then a young beef. There are generally a few apple trees which yield abundant crops, and furnish the remaining article of commerce from these farms, in the shape of "dried fruit."

The creeks that empty into the French Broad, Tennessee and Little Tennessee, which severally bound this region, are few and short. They are, beginning with the French Broad tributaries, Hind's and Mill Shoal; into the Tennessee, Baker's, Hodge's and Knob; into Little River, Stock Creek alone. This comparative scarcity of water, doubtless, is the chief cause why the knobby region is so sparsely settled. The presence of a spring or running water of some kind being an essential to a settlement in former days. As may well be imagined, the inhabitants of this region are not learned in the ways of the world, nor in books, neither are they ambitious of making either a noise or a show in the world—content with what contented their fathers, to live as they lived, to die as they died, leaving the world neither better nor worse for their living and dying.

*The Tennessee and French Broad Rivers.* The Tennessee, which is more commonly and was originally named the Holston, enters the county from the east, not far from its north-eastern corner, and flows, in many bends and foldings, a little west of south, until it approaches the southern border of the county, when it sweeps westward, and having made a wide curve, again flows west of south, passing out of the county in almost a due south course and the width of the county west of the point of entrance. By these many and devious windings a very large surface of the county is



watered, and rich river bottoms are multiplied, to the exceeding benefit of the owners. The agricultural value of the river, however, great as it is, is exceeded by the aggregate value of its many tributaries. These are swift and clear creeks, taking their rise in several instances outside of the county and flowing through long narrow valleys, fed on either side by numerous branches that swell them into considerable volume by the time they reach the river. We enumerate these creeks in order, mentioning also such mills as we know the names of, situated on them. Beginning with the right bank of the river and following its flow, Big Flat Creek is the first. It enters into the county on its northern borders and flows almost due south, when but a short way in the county it is reinforced by Little Flat Creek, which takes its rise quite a way off in the extreme north-western corner of the county and flows eastward, emptying into its larger namesake at the head of McAnnally's Ridge. The mills on Big Flat are Carter's, Brice's, McBee's and Robert's; on Little Flat, Tarvers' is the only mill. Next comes Roseberry's Creek, which rises in Beaver Ridge, flows south-east, cutting through McAnnally's Ridge. There are no mills on this creek. Doak's Creek is comparatively small and turns only Armstrong's mill. Love's Creek is also small, with but one mill, Buffat's. First Creek supplies Scott's mill, besides three or four mills in Knoxville. Second Creek also passes through Knoxville, supplying power to a number of mills and factories, besides Sharp's mill out of the town. Third Creek takes its rise in Black Oak Ridge and flows eastward and south, through McAnnally's Ridge, furnishing power to Hargen's paper and grist mills. Lyon's Creek furnishes power to Kennedy's and to Lyon's mills. Sinking and Turkey Creek supply no mills, and are comparatively small. On the left bank are Turkey, Sinking and Swan Pond creeks, besides those enumerated as coming from the knobby regions, none of which supply mills. In addition to those already mentioned as emptying into the French Broad from the knobby region, Tuckahoe Creek empties into it on the right bank, but none of these support a mill. There are however, Keener's and Michael's mills on the river itself, besides the cement mills.

The Tennessee and French Broad are both too deep for fording, and the only bridge is that recently erected across the Tennessee at Knoxville. There are, however, across the Tennessee, three regular ferries above Knoxville, besides those at the city, viz., Armstrong's, Boyd's and Ramsey's, and across the French Broad there is Huffaker's ferry.

*The Ridge or Valley Region.* Returning to Knoxville and looking

north-westward, we see a long regular ridge running parallel with the river, and beyond it another and another, as far as the eye can reach. These ridges extend for the most part through the county. The north-western boundary lies along the crest of Flint Ridge, which it will be most convenient for us first to consider. This ridge is sometimes called Chestnut Ridge, from the fact that this timber abounds on it. Flint is the older and better name, however, since it describes the character of the crest of the ridge itself, which is composed of a chert that has very much the appearance of the true flint. This ridge divides, and on the west side, within the county, lies a short section of a narrow valley called Raccoon Valley. The main ridge extends from Virginia into Georgia. On the western side it is steep and broken, but on the eastern and southern sides it slopes gradually into Bull Run Valley. This valley is confined by Flint or Chestnut and Copper Ridges. It is one of the long valleys which cross the entire State, reaching from Virginia into Georgia. It takes different names, however, in different sections, as do the ridges which enclose it. In Knox county, it gets its name from the creek which flows through it, emptying into Clinch River. Taken as a whole, Bull Run Valley contains a large body of first-rate land. There is, however, a noticeable difference between the lands lying on the east and west banks of the creek. It has a south-eastern exposure, and the soil is the product of the weatherings and washings from the ridge; it is, therefore, composed of quite a varied mixture of different qualities of limestone, clay and chert or flinty gravel. It is dark colored and heavy, not easily worked, but yielding fair crops and wearing well. Under thorough cultivation and judicious management these lands would yield many fold more than they do, both in quantity and variety of crops. On the eastern side of the valley Copper Ridge rises somewhat abruptly. The land is not so smooth, does not lie so handy for the plow, but it is comparatively free from the chert or flinty gravel, and is perhaps in some respects a richer soil, though, owing to its north-eastern exposure, it does not bring forward crops so early and is not so highly esteemed. It is, however, excellent grass land and a favorite fruit region.

The whole valley is abundantly watered and heavily timbered, and is tolerably thickly settled. The inhabitants are intelligent, industrious and moral and have provided themselves with churches and school-houses.

*Beaver Creek Valley* lies east of Copper Ridge, and is bounded on the east by Beaver Ridge, and divided through the middle by the creek from

which it gets its name. In many respects it is the richest and most esteemed valley in the county, though it is only second in size. There is something of the same difference noticeable between the soils on the east and west side of the dividing creek, but the difference is not so marked as in Bull Run Valley. Copper Ridge here slopes into the valley in the same gradual manner described in Flint Ridge. Indeed, these ridges have a general resemblance, each being crowned with a layer of chert and is based on limestone. So, also, each has more or less of limestone scattered or sandwiched in thin layers through it. The presence of this limestone, added to other minerals, gives variety and richness to the soil into which it weathers. There is considerable of this chert mixed in the soil along the foot of the ridge, which gradually disappears towards the creek as we approach the limestone bed that forms the basis of the valley. On the east side, again, Beaver Ridge mounts up more abruptly and has weathered down but little or none of the chert which covers its crest. The greater width of this valley gives more room for level stretches, and hence the land lies better than on the east side of Bull Run Creek. The soil is of a dark mulatto color, and quite rich. There is, perhaps, more of enterprise and a disposition to adopt new ways in this valley than in any part of the county away from the railroad.

*Hind's Valley.* The section of the valley lying between Beaver and Black Oak ridges, is known as Hind's Valley. It is comparatively narrow, though very long, reaching from Georgia almost across Tennessee. In Knox county only the lower half is watered by Hickory Creek, a tributary of Clinch River. The soil is generally light grey and rather thin, though in the lower section it gets to be quite fertile. It is, however, admirably adapted to grass, and is one of the leading meadow regions of the county. It is susceptible of very high improvement, a fact which some of its inhabitants have begun to appreciate.

*Grassy Valley,* bounded by Black Oak and Webb's ridges, is, as its name indicates, a valley of much agricultural importance. The soil is composed mainly of the weathering of soft shale and various limestones, which make up the ridges on either side. Though it is neither so rich nor so friable and easily worked as the calcareous loams that overlie the blue limestones of the Central Basin, yet it is most excellent land, and under proper treatment yields abundant crops of grain or grass. Unlike the valleys so far described, the waters of Grassy Valley do not flow along its trend, but taking their rise in Black Oak

Ridge, several creeks flow across the valley, cutting through the eastern ridge and finding their way to the Tennessee River. It will thus be seen that Black Oak Ridge is the hip-roof that separates the watersheds of the Clinch and Tennessee rivers as they draw near to unite. The floor of Grassy Valley is not an inclined plane, falling from north-east to south-west, as are the other valleys named, but a succession of gentle wave-like undulations cross the valley, forming cross-troughs which collect the waters of the creeks and pour them out through the eastern ridge. This eastern ridge (Webb's) is marked on the western crest by a sharp angular escarpment, so that the eastern side of Grassy Valley is made quite abrupt. The settlements are more numerous and the improvements somewhat more pretentious, indicating an approach to the neighborhood of railroads and cities.

*Poor Valley.* The character of this valley is indicated by its name. The soil is thin, poor and rough over a great part of the valley, but not over the entire body. The valley is bounded by Webb's and McAnnally's ridges, which are largely composed of shale and dolomite that have weathered into a poor soil very meagerly supplied with lime. Poor Valley is not confined to Knox county, but runs on up into Virginia. It presents one feature in common with all the shale valleys—where it is narrow, its bed is rough and the soil almost barren, but with increase of width, the bed of the valley becomes smoother and the soil better. North of Knox county, Poor Valley is noted for the great number, variety and strength of mineral springs that break out from its sides. It is watered by the same creeks and in the same manner as Grassy Valley.

This brings us to the Central or Knoxville Valley, variously called Rocky Valley and New Market Valley. In width, variety and importance, it exceeds either of the others. It is, properly speaking, the Valley of Tennessee River. The soil is composed of the debris of shale, chert, dolomite and limestone on a clay substratum, the whole more or less mixed with iron, which gives it a red color. The appearance and quality of the soil vary in different parts of the valley, as one or the other of these ingredients predominates. Where the soil is best, as towards the northern and southern extremities of the valley, the rocks are Nashville and Trenton limestone, which yield a dark, rich and friable soil. All the creeks emptying into the Tennessee on its right bank within the county flow through this valley, while the river washes its entire eastern side. It is thus more abundantly watered than all the other valleys of the county. In addition to this, it is the

great thoroughfare of trade and commerce across the State, the track of the East Tennessee, Virginia and Georgia Railroad running along its bed. These natural and artificial advantages have combined to foster a higher degree of improvement than is to be found elsewhere. The crops are more diversified, and there is a more general disposition to fix up and to make the most of every thing.

*Farming in Knox County.* The exigencies and advantages of climate, the fertility and exposure of soils, and the nearness or remoteness of markets, are the main elements which control the character of crops and style of farming in every location. Secondary to, but scarcely less important, are the intelligence and cash capital of the farmers. In Knox county, as in East Tennessee generally, the climate is admirably suited to a wide range of crops, and the soil, as we have seen, is of sufficient variety, and was originally sufficiently fertile, to bear any crop within the range of climate. But for many years there was no market for anything that would not bear long and tedious transportation. As a consequence, the farming operations of the county were almost entirely confined to the production of such articles as were needed for home consumption. Under this lack of stimulus, naturally there would be no great effort at improvement. The farmers were content to grow the same crops in the same way that their fathers had done. Corn and oats, by unvarying routine, in time wore away the virgin soil. This process has been continued until a great deal of the arable land in the county is reduced to a very low state of productiveness. A commendable effort is now making by many of the most intelligent and enterprising farmers to redeem this error and restore the land. The ferruginous and aluminous character of most of the subsoil of the county renders such restoration comparatively easy, since such soils retain manure longer than others, besides excelling other lands in the power to abstract ammonia from the superincumbent air. Under the impetus of the railroad, furnishing a ready means for sending to market every possible product of the farm, and the rapidly growing demand of the city of Knoxville, the spirit of change and progress is fast spreading through the entire county. New and improved implements are coming into use, wiser and better practices begin to prevail.

*Farm Buildings.* These are generally built of wood. The dwelling-houses often of plank, but most generally of logs. They are neither handsome, comfortable, nor convenient, as compared with the better class of houses. The stables and out-houses are mere make-shifts.

They are, by no means, sufficient in numbers and room, and very badly built. Too little care is taken of stock and implements, and too little regard is paid to the comfort of the farmer and his family. The room for improvement in these particulars is very great.

These criticisms apply with more or less force to American agriculture in general, and especially to that of the Southern States. And while it may be true that, owing mainly to its comparative isolation for so long a period, agriculture is less advanced in East Tennessee than in Middle or West Tennessee, it is also true that several circumstances combine to stimulate a more rapid advancement in East Tennessee in the future than can be hoped for in either of the other sections. One of these circumstances is the tendency to develop the small industries already alluded to. In these industries, the labor of women and children, which is almost entirely unused in the other sections, can be profitably employed. Another favorable circumstance is the character of the farm labor. In comparison with the other sections, the number of slaves was always small in East Tennessee, and the number of non-slaveholding farmers quite large.

*Live Stock*, of improved breeds and in considerable numbers, are coming into the county from Kentucky, Pennsylvania and New York. These consist chiefly of cattle and hogs. Of cattle, the greater number are Jerseys and a few Devons—the disposition seeming to be in favor of butter-making. While the hogs are mainly Berkshires, and some Chester white. With stock-growing comes of necessity an increased breadth of grass and larger tonnage of hay.

*Fruit-Growing*. From the earliest settlement of the county, some sections have been locally noted as fruit regions. Large crops of most excellent apples have been borne on some orchards for half a century. Since the war the nursery agents from Rochester and other northern cities have sold large numbers of fruit trees through the county. Some of which, getting into good hands, in favorable sites, will do well, but the great bulk of these purchases have or will come to naught. It cannot be a great while, however, until fruit-growing assumes an important feature in the farm economy of the county, so many circumstances favoring it. The same is true of grapes, as of apples. Climate and soil favor and it needs only skill and enterprise to cover thousands of hill-sides with vines. Immediately around Knoxville strawberries are already grown of a size and quality not surpassed in the United States.

*Social Status of the Knox County Farmer*. Necessarily, the social

life of all farming communities differs from that which exists in towns and cities. The farmer is not so readily in reach of news—it is not so easy for him to step across to his neighbor's and have a talk. His life is largely confined to his own farm, his daily intercourse limited to his own family; his acquaintance is limited at best, and but little fitted to add to the variety or extent of his information, and unless he is happily given to reading, he is not likely to get any ideas about his calling beyond what comes down to him from his father. This is true of farm life under the most favorable circumstances of an open country and good roads, but this tendency is strengthened and intensified when the country is broken, as it is in Knox county, and the roads are so few and so bad. The ridges that rise up between the farming regions, that is, the valleys, in the county are to all but the intrepid hunter entirely impassible, and but for the occurrence at intervals of gaps or breaks in them, the inhabitants of one valley would be as completely shut off from all intercourse with those of a neighboring valley, only a few miles away, as if hundreds of miles intervened. As it is, the intercourse between valleys is very limited. This comparative seclusion, while it is not conducive to rapid progress and general culture of the farming community, does foster those simple tastes and frugal habits that keep off debt, and beget contentment if not happiness.

*Roads.* As has been intimated, the roads of Knox county are not noted for their excellence, although they are, perhaps, on the whole, better than in most counties in East Tennessee. The topography of the country renders the making of good roads a matter of extreme difficulty. With the trend of the valleys, that is, north-east and south-west, pretty fair roads are practicable, but from north-west to south-east, practicable roads are confined entirely to the gaps or low places in the ridges, and the best of these are anything but good road-beds. However, the establishment of the Virginia and Georgia and the Kentucky and South Carolina lines of railroads, is fast remedying the condition of things naturally growing out of the lack of good roads. The first of these roads follows, in the main, the trough of the central or river valley, and taps all the main or gap roads that come into the valley. The other road, cutting across the several valleys, offers to each an easy outlet and ready market.

*Towns.* As a consequence, the towns of Knox county that are growing, all lie along one or the other of these roads, at the junction of the gap-roads, or in the valleys intersected by the Kentucky and South Carolina road. At present, these points of intersection are mere

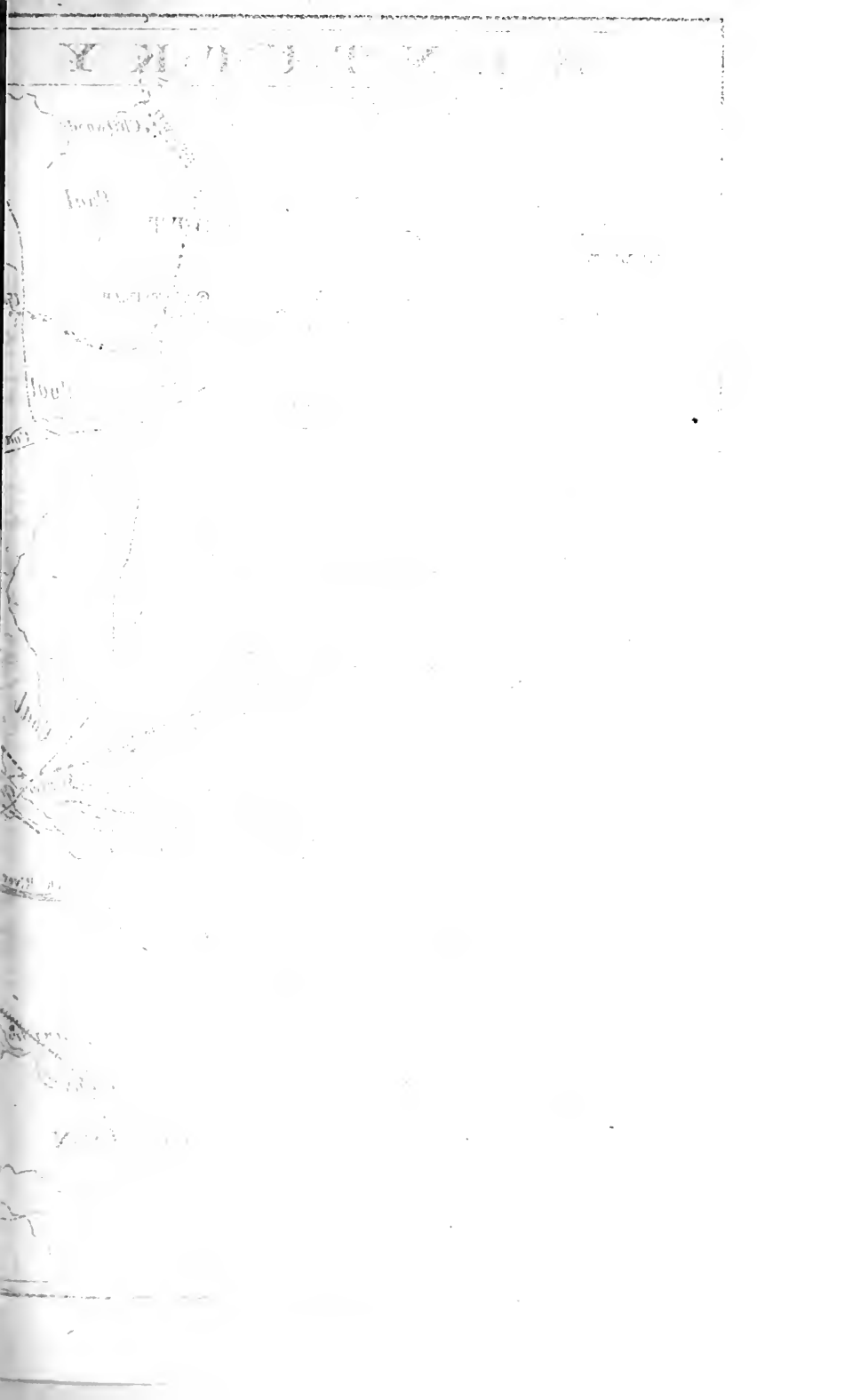
stations, but the forces at work must soon build them up into thriving villages and towns. The influence of these two roads concentrate at their intersection in Knoxville. This, the oldest city and the first State capital, is deserving of some special description for what it is and for what it promises to be.

Knoxville was laid out in Februray, 1791, though settlements were not begun in the new town until the next year. It was, like the county of which it was to be the capital, named in honor of Major General Henry Knox, at that time, Secretary of War under President Washington. The county was not established until a year after the town was laid off. Governor Blount, then presiding over the affairs of the Territory by appointment of President Washington, established his headquarters at Knoxville, while the town was as yet only a name. On the fourth Monday of February, 1794, the first Territorial Legislature assembled in Knoxville. On the 11th of January, in the following year, a Convention was assembled in Knoxville for the purpose of changing the Territory into the State. The Constitution adopted by this Convention was pronounced by Mr. Jefferson to be "the least imperfect and most republican" of any of the existing State forms of government. Under this Constitution the State of Tennessee was admitted. It is said that the name Tennessee was given the new State at the suggestion of General Andrew Jackson, who was a member of the Convention from the county of Davidson.

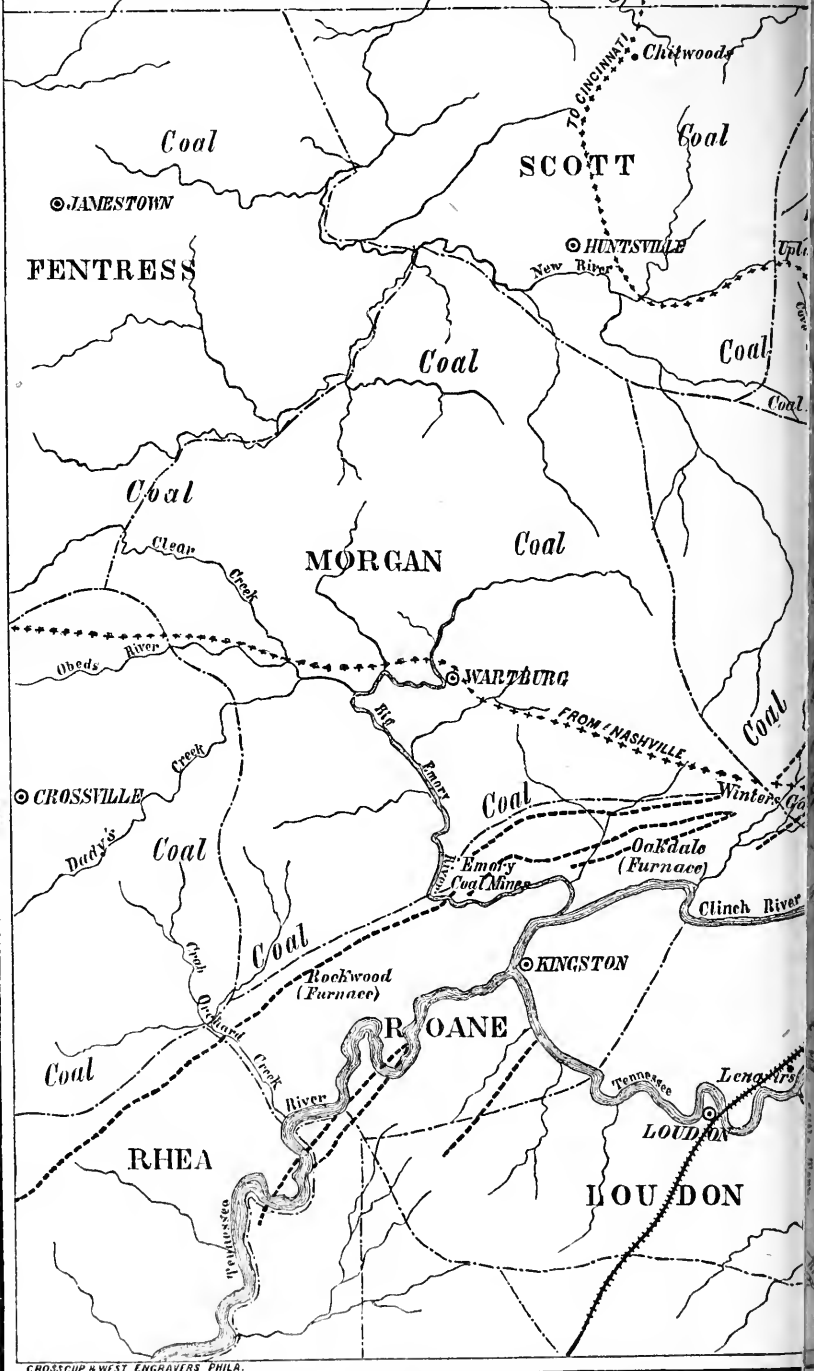
On the 28th of March, 1796, the first State Legislature assembled in Knoxville. At the election in which the members of this Legislature had been chosen, General Sevier had been elected Governor, and was duly inaugurated on the 30th of March, 1796.

Knoxville at this time was but a small village, yet of ample dimensions to meet all the wants of the times. How few and simple were the wants of the first Legislature and Convention, may be pleasantly learned from Ramsey's Annals of Tennessee, but is beyond our province. The founders of Knoxville chose more wisely than they knew, when they fixed the site of the young capital. To them it was the most convenient, because the most central and most accessible point in the territory then settled. They were not thinking of commerce, nor did they dream of the manufactures of to-day. Steam was a thing to them unknown, the stage coach was the height of locomotion, both as to speed and convenience, and but few of the citizens had seen this institution. But the natural laws which fixed the site of the young city

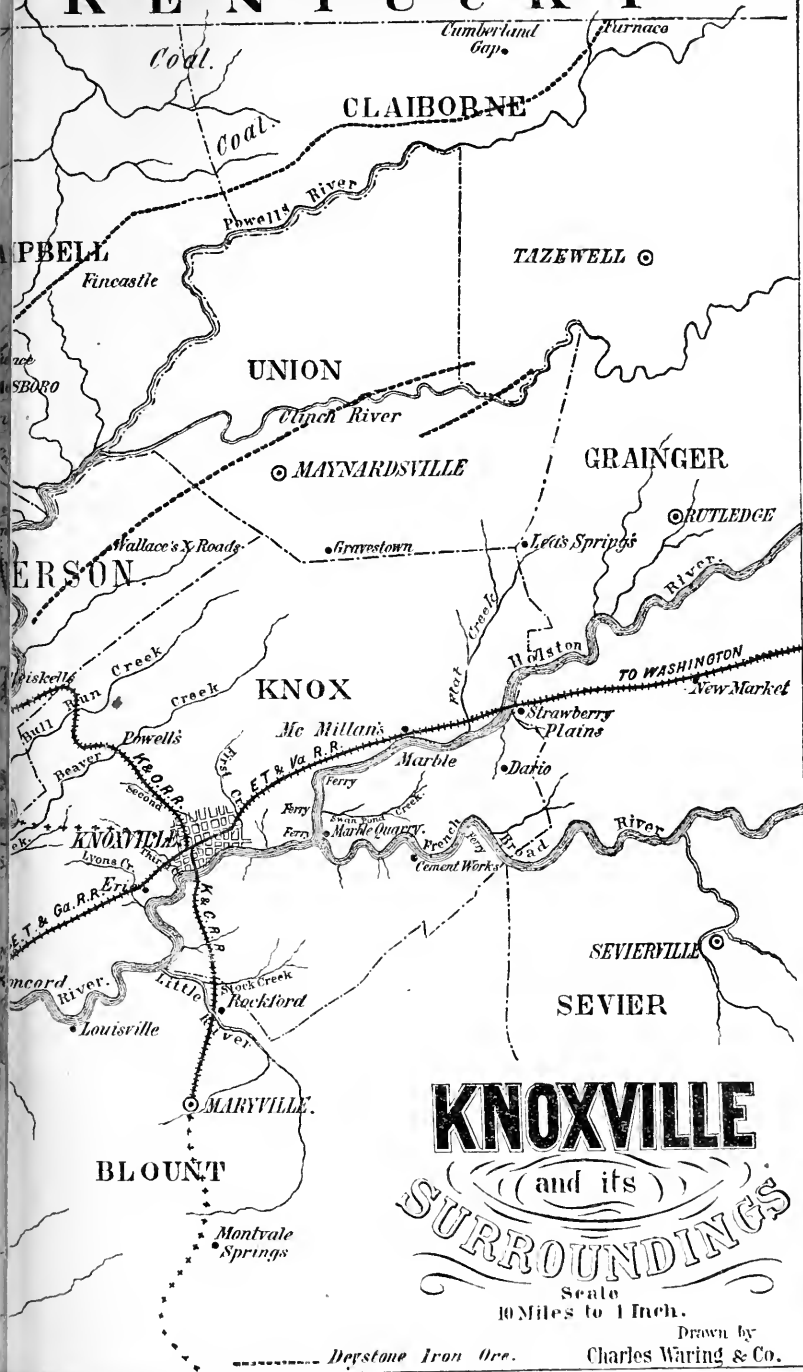




# KENTUCKY



# KENTUCKY



## KNOXVILLE

(and its)

## SURROUNDINGS

Scale  
10 Miles to 1 Inch.

Drawn by  
Charles Waring & Co.

--- Doystone Iron Ore.

THE HISTORY OF THE

STATE OF

MISSISSIPPI

BY

JOHN

1851

where the war trails of the Indians and the wagon ways of the settlers crossed, continue to influence and will continue forever. The iron track of commerce and travel follows the moccasin trail of the hunter and pioneer, and where the settlers met to barter and trade, commerce now centers, and manufacture plies her busy arts. For though the halls of legislation have long since been carried westward, the warehouses of commerce remain, and are multiplying and widening with every coming year.

In the history of civilization, no feature is more interesting than the establishment and growth of great towns and cities. From the building of the first cities by the descendents of Cain, to the manufacture of the newest city in that *Eldorado* of cities, so named, the west, there is never a one but has its history—full of charms and full of lessons for the student of political economy. Yet all great towns and cities, however widely they may differ in history and character, have certain general features in common, pointing back to certain common laws which underlie and govern their growth. For no large town or city is an accident. There are laws that govern the location as well as laws that govern the growth of cities. These laws, or, more properly, these forces, are two-fold—natural and artificial, as furnished by nature or developed by man. In ancient times, large towns or great cities grew only where nature invited them. Where deep and wide harbors offered safe riding for ships; or where mighty rivers emptied their waters. But now the location of cities is, in a measure, in the hands of man. Wherever many lines of railroads converge, wherever broad beds of iron and coal crop out, there large towns and great cities may be made to grow. But it is in building cities, as in all things else, Providence helps those who help themselves. To illustrate: nature did a vast deal for New York, she gave her a great river and capacious harbor, and surrounded her with broad acres of fertile land, but until Governor Clinton opened the lake canals, Philadelphia bid fair to rival her. After her canals came her railroads, and the work was done. She became the metropolis of America. But even now, with all her immense prestige, she must needs keep working.

Cities, as they are located, are called sea-board or inland, and owe their importance to being either the termini or crossing of trade-routes. So, also, cities are said to be either commercial or manufacturing, according as the one or the other interest predominates. But, as a mat-

ter of course, no considerable city is ever devoted exclusively to either interest. In a general way, all sea-board cities are commercial, and all inland cities manufacturing.

Knoxville is an inland city, and must, of necessity, be mainly a manufacturing city. The first great law of growth in inland cities is the development of local resources. It is in obedience to this law that Knoxville has attained the foremost rank in the Valley of the Tennessee, and in carrying out this law there is reasonable prospect of her becoming, at no distant day, a great and wealthy city.

Then it is but natural that we should describe the city in speaking of Knox county, of which it is the capital. As the county town, Knoxville would naturally become the center of the business and trade of the county, but Knox county contributes only a small proportion of the business now done in the city. For not only is Knoxville the geographical and topographical center of Knox county, but it is also the commercial and trade center of a wide region, embracing nearly all East Tennessee, and large sections of south-east Kentucky, south-west Virginia, western North Carolina, and northern Georgia and Alabama. And, in the nature of things, the radii of this circle must lengthen with each year's increase and development of the enormous resources of the city. Ultimately these resources must make Knoxville a great manufacturing center. The rate at which it is to grow to these proportions depends of necessity very largely on the railroad connections. This is a matter worth a few moments of consideration. It is not possible to consider one part of the railroad system of a State without some reference to the whole. Tennessee occupies the position of a pivot-plate, on which all the inter-state commerce going north and south, east of the Mississippi, must turn. There are on this plate naturally three foci or poles, where the lines of travel must cross viz., Knoxville, Nashville and Memphis. To illustrate: a trade line drawn from either New York, Philadelphia or Baltimore, to Mobile or New Orleans, must pass through either Knoxville, Nashville or Memphis; so, from either of the southern Atlantic cities, to reach either St. Louis, Cincinnati or Chicago, trade must pass through one of the trade centers of Tennessee. Knoxville lies within the shortest of these great connecting routes. At present, however, only one of these routes is provided with a roadway. The East Tennessee, Virginia and Georgia Railroad furnishes connection for the commerce of the north-eastern and south-western cities, and it would be impossible to exaggerate the importance of this

road to Knoxville. But it is an indisputable fact, that no one road ever did or ever can build up a great city. And until the cross route is completed, the city cannot possibly attain its full rate of development. This route has been well begun, and its completion, in the nature of things, cannot be long delayed. That branch of it reaching out north-west is already built within easy connection with any possible line of the Cincinnati Southern road, while it points directly through Louisville to Chicago. Other lines must be opened in time, connecting Knoxville more directly with Nashville and the east. These will not be speculative lines, but lines of real worth, built in response to urgent demands and supported by actual commerce.

Predictions are cheap and easily made, and it were an easy task to draw a brilliant horoscope of Knoxville, but we have no desire to indulge in fancy pictures. The facts suffice us. They promise that the city will long continue to grow with healthful rapidity until it becomes one of the great internal cities of the South. In this growth, beyond question, many resources now unknown will be developed. One which would seem to promise more than any other is as yet not begun, that is, cotton manufacturing. Every possible facility is at hand for making Knoxville a great center for this industry, while the nearness of the cotton field, renders it almost marvelous that this has not been the first enterprise sought by capital. In time these natural facilities must be taken advantage of, to the immense benefit of the city.

*The Poultry Trade.* Perhaps in no one item of commerce can we find so many points of interest and instruction as in that of poultry, including eggs and feathers. The figures which we append, present this trade in a magnitude that will doubtless astonish many who are wont to consider it as a small business to buy and sell eggs. But when any trade reaches the figures shown below it ceases to be insignificant, let its details be as little as they may.

The poultry trade has grown into a regular system. There are no large poultry farms to supply it, no farms, indeed, on which poultry-raising is made a leading business. But the entire supply of this trade is drawn from the farms from many counties around the city. On these farms the poultry kept is almost exclusively attended to by the women and children, labor that else must be unemployed, and the cost of raising is almost nothing. The supplies are carried by the farmers or their wives to the neighboring country stores, and from these points sent to Knoxville. As yet no efforts have been made to increase the supply beyond the purchase of what are brought in. But

the recent rapid increase in the trade shows clearly that the farmers themselves are fast awakening to the fact that there is money in the business. But where, it may be asked, are all these eggs and chickens sent? And the answer illustrates very strikingly the value of the geographical location of Knoxville. During part of the year, that is, winter and early spring, the eggs are shipped to New York; after that time, they are sent to different points in Georgia and Alabama. The poultry go almost exclusively south. What is true in this respect of this branch of trade, is true of many other articles of greater bulk and more general importance. Knoxville is the half-way house, as East Tennessee is the common depot, from whence supplies are sent north and south.

The rapid development of the poultry trade is better illustrated by the following table of the annual shipment for 1871-2-3, as given by the East Tennessee, Virginia and Georgia Railroad:

	1871.	1872.	1873.
Eggs .....	20,500 lbs.	112,409 lbs.	218,301 lbs.
Feathers.....	70,734 lbs.	110,009 lbs.	108,837 lbs.

Of the quantity of dressed poultry shipped we have no means of estimating, but from the fact that a car load a week passes over the road, it must be very great. Considerable as the poultry trade now is, it is scarcely fairly begun as yet. With each year it must increase in the width of the circle from which the supplies are drawn, and in the increased number of eggs from the same number of fowls, and the increased size of the fowls by the introduction of improved breeds. At present no breed prevails to any extent, though we notice in the coops of live fowls on sale in the market considerable more of the American Dominique, or old fashioned "Dominecker," than of any other one strain. However, there is every color and shape, size and shade, showing the utter disregard in which the subject of poultry-breeding is held in the country. Immediately around the city, however, some interest is growing up in the larger and more improved breed of fowls, and it will not be a great while until they find their way into the country around. At present, the average of dressed fowls are estimated to weigh about three pounds, for which the dealers give eight cents a pound. From the best estimate that we can make, we should say that at present the annual yield of eggs per hen is about eight dozen for the best, while a large number fall far below this. Of the improved breeds, there are several in which the grown fowls will dress four to five pounds, and the hens will lay from fourteen to eighteen dozen eggs



a piece. Here, then, is the easy means of increasing the poultry trade fifty per cent., without adding one hour to the amount of labor now expended.

*The Butter Trade.* For the past two years there has been a little over twenty-five thousand pounds of butter shipped from Knoxville each year, but this cannot be taken as any indication of a stationary condition in the butter trade. The production of butter has increased very largely within that time, but instead of being shipped it has found a ready market at home. Not only has the supply of butter been much increased, but the quality of the supply has been very much improved. This increase and improvement are due to two causes mainly: the one the increase and improvement of the pastures of the county, the other the introduction of Jersey cattle. These two forces are still at work, and are likely to grow in strength, until Knox county shall rival Orange county, New York, as a butter region. In every natural feature it is superior. It only needs the stock and the skill. We have dwelt at length on the poultry and butter trades, because they illustrate that feature of domestic economy which characterizes East Tennessee as compared with the other divisions of the State, and that is, the attention paid to and the profits derived from the smaller industries. As a matter of course, the great bulk of the trade and commerce of Knoxville is based upon the staples of iron, coal, corn, wheat, bacon, &c. In the future, iron and coal and their manufactured products will increase, while, with the increase of population, though the crops of corn, wheat and bacon may be ever so much multiplied, the export trade will not be proportionably increased, simply because, as in the case of butter, referred to above, those articles will find a market at home. And this is the natural and by far the most powerful stimulus to the improvement of the agriculture of the country. For the following approximate estimates of the trade and manufactures, we are indebted to the Hon. Wm. Rule, late Mayor of the city.

Of manufacturing establishments, there are two foundries, one machine shop, one car-wheel manufactory, one rolling mill and one nail manufactory. Of wood manufactories, there are three sash and blind manufactories, two saw mills, one saddle-tree manufactory, two furniture manufactories, one wagon and carriage manufactory, and one keg factory, besides some smaller establishments. Three flouring mills, two saddle and harness manufactories, one tannery, one broom manufactory, &c. The iron establishments draw their raw material from the iron and coal mines opened at different points in East Tennessee—

coal from Anderson and Campbell counties, and iron from Greene, Washington and Carter counties; the wood manufactories from various points in East Tennessee along the line of the railroads and rivers. In all their departments these manufacturing establishments employ 1,200 hands, perhaps, wages ranging from one dollar per day for common laborers to four dollars and fifty cents for skilled laborers. The wholesale trade will approximate: dry goods, notions, &c., \$3,000,000; drugs \$250,000; groceries \$350,000; hardware \$300,000. These sales are made in South-eastern Kentucky, South-western Virginia, Western North Carolina, Northern Georgia, North Alabama and East Tennessee, covering a large territory, as will be seen upon examination of the maps of these States, of which Knoxville is the centre. This trade is increasing rapidly and constantly. Approximate number of houses built, all classes, dwellings and business houses within the past two years, five hundred. Average wages for unskilled labor \$1 to \$2.50 per day, skilled \$3 to \$4.50. Average retail price of bacon, 12½ cents per pound, beef 8 cents, mutton 8 cents, flour 4 cents, meal 65 cents per bushel, sugar 12½ cents per pound, coffee 27 to 30 cents. Average house rent, say, eight to ten per cent. of value of property rented. Comfortable houses, four to five rooms, \$12 to \$20 per month, according to location.

For healthfulness the location of Knoxville could scarcely be improved. It stands on a series of hills, abutting on the right bank of Tennessee River, and separated by two small, rapid streams, known as First and Second creeks. By means of these two creeks, the surface drainage of the city is, by nature, almost perfect. The peculiar formation of the surrounding mountains and ridges so directs and tempers the winds as to keep the city thoroughly ventilated at all times. The anemometer on the university is rarely ever still, and yet it is hardly probable that the city will ever be visited by a very destructive storm, such as sometimes visits other cities in the State; neither can it ever suffer loss of property, or be made unhealthy by an overflow. The elevation of the city may be stated as 1,000 feet above the sea level. But to make this point clearer, the averages of wind, heat and rain during the year may be seen in the chapter on climate. To those familiar with such estimates of climate, the tables will furnish more accurate information than the most elaborate verbal description. To others it may be said, that the climate is truly temperate; neither the long and dreary winters of the Northern States, nor the equally long and burning summers of the South-

ern States. During the hottest of its summer days, the city is always fanned by a breeze that robs the air of its sultriness, and renders it balmy and invigorating. The substance of the hills on which Knoxville is situated is of such a nature as to render it easy of drainage, so that the city is never liable to breed, within itself, any of the numerous epidemics that spring from the poisoned earth. In short, all things combine to insure the healthfulness of Knoxville, while the transcendent beauty and picturesqueness of the scenery give it attractions beyond almost any city in the Union as a place of residence. As yet, the capabilities of the city in this respect are very far from being developed. All of the early, and most of the present, inhabitants were, and are, content with making their homes comfortable, and but little regard for the beautiful has found a place either in the houses or their surroundings. Of late years, however, new styles of architecture have begun to appear, and sites are beginning to be valued somewhat for the views which they command, and quite a number of really handsome residences have been built on some of the most beautiful sites. As yet, the great majority of the houses are built of wood, and though considerable taste has been displayed in many of the plans, most of them are small, and make no great show. These remarks are not so applicable to the business houses. On these the expenditures have been more liberal, and larger or handsomer ware-houses are not to be met with in any but the largest cities of the Union than a few of the wholesale firms of Knoxville have built. Without much remodeling, however, the older part of Knoxville can never be made really handsome, because of the extreme narrowness of the streets. It will be strange indeed, however, if, in time, Knoxville is not noted for the beauty and elegance of its houses. Innumerable most eligible sites invite adornment, and offer the ground-work for every variety of edifice from the picturesque gothic cottage to the mostly stately Italian mansion, and ready at hand are building-stones unsurpassed for beauty and durability by any in the United States.

*The Marble Trade of Knoxville.* East Tennessee marble has long been noted for its beauty, chiefly through the handsome variety taken from Hawkins county. But until recently but little has been known abroad of the Knox county marble, and yet marble is to be found in almost every part of the central valley of the county, and that, too, in the greatest variety. The building of the elegant custom house and post-office that now graces the city, has been the means of developing and bringing into notice a grey marble, which, for beauty and dura-

bility, promises to equal if it does not exceed in popularity the beautiful variegated variety that was used in the decorative work of the capitols at Washington and Nashville. This variety will become still better known as it is distributed through the various national cemeteries, it having been selected for head stones. The great value of this marble to Knoxville must be developed at home. It offers the cheapest material for building such elegant and permanent residences and business houses as shall of themselves give reputation to the town.

*The Lumber Trade.* The timber trees of the county are such as are common to what we have called the valley division in speaking of the timber of East Tennessee. The number of the creeks in the county and the amount of river bottoms give an extra quantity of the yellow poplar, white oak and other trees growing in the richer lands, while considerable yellow pine is mixed with the oaks, hickories, ashes, and elms that cover the ridges. The lumber trade of Knoxville is rapidly increasing, mainly in such as is used in house-building. The prices for green lumber at the yards average about as follows: Pine, poplar, hickory oak, and ash \$15, and walnut, \$30 per thousand feet. The supply of the first four is practically unlimited, but both good ash and walnut are hard to get. The hickory is extra fine, and large quantities are manufactured into wheel-spokes, pick and axe-handles. Recently a considerable trade has been opened in shipping yellow poplar plank to Boston, and there is every reason to anticipate a large increase in this trade. The cost of shipment is \$13 per thousand feet. For cabinet-making, lumber is bought dry ready for use, at about the following prices per thousand feet: Ash, beech, cherry, hackberry, poplar, sweet gum and sycamore \$22, cherry \$25, walnut \$45. Our quotations are all for first-class lumber.

*Schools and Colleges.* Among the earliest acts of the Territorial Legislature was the establishment of Blount College. Since that time the schools of Knox county have kept pace with the foremost in this end of the State. Since the war especially has there been much interest manifested on the subject of free schools. The citizens now pay an annual tax for school purposes, and the system is perhaps as well organized as in any county in East Tennessee. The superintendent is a college graduate, and thoroughly alive to the importance of the work he has to do. He is wisely seeking to build neat and commodious school-houses wherever it is possible to do so, and to secure that communion and *esprit de corps* among the teachers so essential to the success of any system. The city of Knoxville has maintained

tolerably good free schools for three years. The public mind is being rapidly educated up to a full appreciation of their value, and year by year they grow better and stronger. There is as yet no public library in Knoxville, nor is there as much disposition to read as one might expect in a place of its size and business activity. There has been, however, a marked improvement in this respect within the past three years, due in part to the incoming of reading citizens from abroad, and to the general growth in intelligence, but mainly due to the presence and influence of

*East Tennessee University—Tennessee Agricultural College.* An express condition of the cession by North Carolina to the United States, of the "Western Territory," now the State of Tennessee, was that "its inhabitants should enjoy all the privileges, benefits and advantages set forth in an ordinance made by Congress for the government of the territory north-west of the Ohio River." That ordinance provided that, "religion, morality and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged" in the Territory. Therefore, in an act of cession from the United States to the State of Tennessee, passed September 26, 1806, it was made a condition of the transfer of all the right and claim of the United States to certain vacant and unappropriated lands, that the State of Tennessee should appropriate 100,000 acres, located in one tract, on the lands to which the title of the Cherokee Indians had been extinguished, "for the use of two colleges," one in East and the other in West (now Middle) Tennessee. The State of Tennessee accepted this condition. The 100,000 acres required were located by it "south of French Broad and Holston rivers, and west of Big Pigeon River." East Tennessee College (now University) was chartered in 1807, to be one of the beneficiaries of this endowment. Cumberland College (now the University of Nashville) was the other intended recipient. Only a very small part of the proceeds of sale of the lands was ever realized by the two institutions. The promised payments were repeatedly deferred by successive Legislatures, upon urgent solicitations of the occupants of the lands. This process continued through a period of sixteen years, until 1823, when the Legislature remitted one-third of the whole amount then due. In 1825, the occupants refused, almost unanimously, to comply with the provisions of the law, and as they were sustained by the popular disfavor toward education, the lands were finally wrested from the colleges.

The claims against the State for the losses thus inflicted upon the colleges, were estimated in 1838, at \$168,000. Their trustees had appealed again and again, by memorial, to the State for an equitable remuneration, but in vain. At length, the Legislature appropriated two half townships of land in the Ocoee District to the colleges, provided they would accept them in full of all their claims against the State. The trustees, despairing of any just and ample remedy in the case, signed the deed.

The proceeds of the half township to East Tennessee College, were about \$40,000. With these, added to the means it had originally derived from Blount College and other resources, the trustees renewed, under more flattering auspices, the work of collegiate instruction, which, before, they had been unable to conduct in more than a very imperfect manner. Since 1838, the institution has passed through various vicissitudes. By the Legislature of 1839-40, it was chartered as a university. In 1842, '43 and '44, it attained considerable relative prosperity. About 1850, it was depressed, and later still, it fell into a state bordering upon extinction. Then it partially recovered its former usefulness. In 1862, it was entirely suspended, and continued so for four years, during nearly all which time its grounds and buildings were in military occupation, and at its expiration were left in a seriously damaged condition. The buildings were repaired in 1866, and the university was re-opened for the admission of students. Owing to the long interruption of the work of education in Tennessee, occasioned by the war, the youth who attended were found very deficient in knowledge; but gradually, from the preparatory department, classes were formed in the college proper, which have continued to enlarge in numbers.

In January, 1869, the Legislature appropriated to East Tennessee University, upon certain conditions, the Agricultural College fund, derived from the United States by act of Congress, approved July 2, 1862. The trustees accepted the trust, and in June, 1869, they inaugurated the State College in accordance with the law of Congress. The real estate of the university, consisting of forty acres of land near the city of Knoxville, and six buildings upon them, were applied to the uses of the new institution. An eligible farm about half a mile distant, comprising 275 acres, was also purchased for the college, a competent faculty was elected, and additional provision made for the accommodation of students.

The college fund (with the exception of a few thousand dollars,

which, contrary to the law of Congress, was applied to pay expenses of investment,) was invested by the State in its own bonds. These amount to \$397,600, bearing six per cent. interest. The failure of the State to pay this interest has occasioned considerable loss in it.

The trustees, after due consideration, decided that the new college might, according to the terms of the law of the United States, be built upon a broad foundation as regards its work of instruction, and embrace a wide range of studies. Its "leading object" must be "to teach branches of learning pertaining to agriculture and the mechanic arts." But this is to be done "without excluding other scientific and classical studies, and including military tactics." It was evidently the mind of Congress, in making this endowment, that it should be applied to the education of young men, more particularly of the industrial classes, liberally and practically, for the various pursuits and vocations of life; and that while every branch of learning important to that end might be included in the field of instruction, such branches as are related to agriculture and the mechanic arts should receive chief attention.

In agreement with these views, the trustees have provided three courses of study in the college—the agricultural, the mechanical, and the classical course—either of which may be followed at the option of the student. The agricultural and the mechanical courses are alike in including the study of physical geography, the farm manual, drawing (elementary), universal history, English language (Fowler's), and a more extended course in chemistry. And in common with the classical course, they embrace instruction in pure and mixed mathematics, (except that in the agricultural course, analytical geometry is omitted), in the French and German languages, rhetoric, logic, moral and mental philosophy, and other advanced English studies, zoology, mineralogy and geology. The agricultural course is peculiar in its provision of instruction in the knowledge of farm implements, etc., domestic animals, etc., stock-breeding, etc., entomology, lectures on agriculture, and in a more thorough course in botany. The corresponding specialties in the mechanical course are drawing, (linear perspective, etc.,) civil engineering, the steam engine, and the more extended teaching of mensuration, surveying, etc. The classical course alone includes the study of Latin and Greek. As in the present condition of the work of education in the State, a preparatory department is a necessary adjunct to the college, the trustees have had one in continuous and successful operation. It has two courses of study, of three years each, one English

and scientific, and the other classical. Applicants for admission generally should be twelve years old, be able to read and write well, and have a good knowledge of the rudiments of arithmetic, English grammar and geography.

The college farm lies west of Knoxville, about five-eighths of a mile from the college, on the right bank of the Tennessee (Holston) River. It embraces 275 acres, and is intersected by the Kingston Turnpike and the East Tennessee, Virginia and Georgia Railroad. The soil is mainly ferruginous limestone with clay sub-soil, and of a dark reddish brown color. It has been in cultivation many years, during the most of which time it was managed discreetly. Owing to a considerable variation in surface and elevation, it offers natural facilities for a greater variety of crops than could otherwise be had; and it is therefore better suited to the purposes of the college. The soil is admirably adapted to the growth of wheat. In 1859, the State Agricultural Society gave the premium of \$100 for the crop of that grain produced on this farm by Mr. James H. Armstrong. It is equally well suited for clover, and will readily grow the finer grasses. Injudicious cropping, however, as has been commonly the case with good lands in this State, has much injured it. For some years before it came under control of the college authorities, it suffered from neglect and bad treatment, and it was found necessary to recuperate its wasted strength and restore its fertility. To do this has been the chief object of the work bestowed, in the past two years, upon the 100 acres, which alone have been in a condition for cultivation. Good barns, stables and tenant houses have been erected, and much work done toward cleaning up and putting the farm in good productive condition. This process is indispensable, but tediously slow, and without immediate pecuniary returns. The authorities are confident that it will be justified by ultimate results. It is designed to make it a stock farm, and as near a model as may be. To this end, a system of cropping has been adopted, and in carrying it out, in the belief that it will restore the original fertility of the land, chief reliance is placed upon clover and manure. Stock is only to be introduced as the land is made fit to carry it. Along with the purpose to procure and keep at "Riverview" (the name given to the college farm) specimens of the best known breeds of farm stock, another purpose is entertained, to carry on each year, one or more actual field experiments in the growing of different crops. It is believed that only such of these can profitably be tried as will involve no considerable outlay of money. For instance, in



putting in the wheat crop of 1872-3, the field of sixteen acres to be cultivated was divided into sections, which were differently tilled, and different amounts of grain per acre were sown, with the drill and broad-cast, with and without manure, and with different manures, and the various results were noted. Such experiments as these cost only the manure and extra work, and whatever the wheat crop may be, no loss is incurred. It is worthy of remark, that in all experiments with wheat made on the college farm, the yield has invariably been best, both in quality and quantity, where the land has been best prepared and manured and the wheat has been drilled. The same is true when corn has been planted. The college authorities are not unmindful of the very high value which properly attaches to more elaborate and costly experiments than those just spoken of—experiments intended to discover new truths, and develop better practices, than are now known. But until the more pressing wants of the college are met, these more expensive experiments will wisely be left to parties who have the means to make them. In the all-important province of breeding and feeding stock, it is the purpose of the college to carry on from year to year, such experiments as may be repeated by any intelligent farmer, with a view to practical results in the shape of increased profits.

So far, it has not been deemed advisable to employ the students as laborers on the farm, beyond a limited extent. Whatever may be the case elsewhere, until the youths who come to this college are better prepared in the public schools or otherwise, they will have as much as they can do to master the necessary studies assigned them. They will have little time for manual labor, if they do their duty in the recitation and lecture rooms. However, all able-bodied students must perform a small amount of work. Those who wish to labor more are furnished with work to a limited extent, for which they are paid from seven to twelve cents an hour. The present condition of the farm is very satisfactory, and will favorably compare with that of the best farms in the State. In the amount and small cost of its crops, it will not fall much below them, all things considered. This condition of things, it is believed, will improve each succeeding year. The students are organized into a battalion, officered by students appointed by the faculty. Military drill and inspections take place under the direction of the Professor of military tactics. The whole college is under military discipline. Every student, not physically unable, is required to take part in military duty. Neatness of person and dress, and order and cleanliness of room, are enforced. Uniform suits

of clothes of a fixed color and pattern, are worn by the students. These may be had at Knoxville, at a cost less than that of other clothes of equal quality, *i. e.*, \$28 or \$29.

The college library has recently received additions, and others, it is expected, will shortly be made. The cabinets of geology, mineralogy and zoology are constantly having accessions. The extensive private collections of Professor Bradley have been placed at the service of the college, for purposes of instruction. A collection of 700 models of machinery, received from the United States Patent Office, are open for inspection. The chemical laboratory is enlarged and supplied as occasion demands. Two literary societies, conducted by students and provided with suitable halls, meet every week. The government of the institution is paternal. Special attention is given to the preservation and impartation of good morals among the students. As the school is not intended for the reformation of vicious youth, certificates of good moral character are expected of all applicants for admission. The college is not sectarian, but it is conducted with a view to exert a decided christian influence upon the students. Churches of the principal religious denominations exist in Knoxville, into which they are welcomed, and one of these, at their choice, they are required to attend every Sunday. The necessary expenses of a student at the college are remarkably small. Including tuition, other college fees, board, fuel, lights and washing for the academic year, they may be estimated at \$166 or \$172. In the case of a State student, whose tuition is free, they are reduced to \$136. Along with these, an investment of ten dollars in furniture (exclusive of bed clothing), is necessary for each occupant of a dormitory room. Each State Senator has the privilege of appointing three students to the University, tuition free. Each State Representative may send three. At the solicitation of the Legislature, through the Governor, the railways in the State have agreed to give transportation to and from the college to the students thus appointed. But the Nashville, Chattanooga and St. Louis Railway will pass free only such youth as really need free transportation in order to enable them to attend the institution. State students who are fully able to pay their fare on that road must do it. During the past year a large and commodious structure has been erected at the college, which combines a dwelling for the steward's family, a spacious and airy dining-hall and lodging-rooms for students. The college buildings stand on an eminence near Knoxville, and removed from the noise and bustle of the city. From the hill a picturesque view is afforded

of the town and adjacent country, of the river and the mountains. The air is pure and the climate salubrious.

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## LOUDON COUNTY.

COUNTY SEAT—LOUDON.

Loudon county is a new county. It was established in 1870, under the terms of the new constitution. It was formed of fractions of territory, taken from the counties of Roane, Monroe, and Blount.

Loudon is situated on the Tennessee River, at the crossing of the East Tennessee, Virginia, and Georgia Railroad, and twenty-nine miles from the city of Knoxville. It occupies a central position in a rich and prosperous country. It is surrounded by thrifty and energetic farmers and stock-raisers, who, for the most part, cultivate fine lands, and do it well. It also affords one of the principal shipping and trading points in East Tennessee. As a shipping point, it is supported by the East Tennessee, Virginia, and Georgia Railroad, the Tennessee, the Holston, and the Tellico rivers. Indeed, it is at the head of steamboat navigation for steamers plying the Tennessee River above Chattanooga. The shipments of grain alone from Loudon county, annually, amount to the round sum of 175,000 bushels. Besides this, there are heavy shipments of hogs, cattle, horses, mules, and sheep. Add to all this the beauty and healthfulness of the place, and it will readily appear that Loudon is one of the most desirable places in East Tennessee for trade and the pleasures of life. Its social and educational features are equal to any town of its size in the whole country, while its citizens are highly moral and intelligent. The "Loudon High School" is an excellent one.

Loudon county is, perhaps, not surpassed by any district of equal extent in the productive capacity of its soil. It is a small county, comprising only about 275 square miles, but embraces within that area a vast quantity of the very finest lands. Among the many excellent districts of land might be named the lands along the Tennessee River, which passes through the entire length of the county; those along the the Sweetwater Valley, which are washed by Sweetwater Creek, and which empties into the Tennessee River, two miles from Loudon; those washed by Pond Creek, which finds its way from the

southern part of the county to the Tennessee River five miles from Loudon; Fork Creek Valley, through which passes the creek of that name; the lands along and adjacent to Town Creek, these and other fertile districts stand prominent, and must be a continual source of large revenue to the county and State. Most of the districts mentioned are extensive and rich, and most of the creeks and small rivers mentioned afford superior water-power for machinery, some of which have already been utilized.

The taxable property of the county, as returned for the year 1873, exclusive of polls and privileges, amounts, in round numbers, to \$2,000,000, which, considering the fact that the county is not four years old, is quite creditable. And of the revenues already accrued, the county has done itself the credit to build one of the best and most handsome court-houses yet built in the State.

Within the limits of Loudon county there are four railroad stations, to-wit: Easley's, Lenoir's, Loudon, and Philadelphia, from which the county ships, in the aggregate, 350,000 bushels of grain, and large quantities of hay, stock and other articles of trade.

The agricultural interests of the county may be said to be in a flourishing condition. The soil is closely watched and enriched. Much of the produce is now being fed on the farm, and thus returned to the soil. Subsoiling is now rapidly taking the place of the old system of skinning the surface, and thus a new era has been inaugurated. Stock-raising is greatly on the increase. Horses, mules, hogs and cattle, as well as other kinds of stock, are being raised for market, but mules and cattle are principally looked to as a source of revenue at the present time. The county is out of debt, and in a most prosperous condition. The prevailing rock is limestone, and every species of timber abounds. There is a great deal of interest felt by the citizens in regard to woolen factories. There is a cotton factory situated on Town Creek, at Lenoir's, that employs twenty-five operative. Wages range from fifty cents to two dollars per day. The number of females employed, 20; males, 5; quantity of cotton consumed daily, 500 pounds; quantity of products, 425 pounds spun cotton, besides batting amounting to 2,000 pounds annually; number spindles, 936. It was erected in 1832, and its motive power is water, when abundant, and steam in dry seasons.

## MARION COUNTY.

COUNTY SEAT—JASPER.

Marion county was organized in 1817, at the town of Liberty, where the seat of justice remained three years. The capital was removed to the town of Jasper in 1820, where it is now. Jasper is situated at the terminus of a branch of the Nashville and Chattanooga Railroad. It has a population of about four hundred. It has an enterprising and stirring citizenship. Owing to the fact that it is the outlet for most of the trade of the Sequatchie Valley, in which it is located, it must necessarily become a town of some considerable importance. There is an excellent school here, one of high grade, and educating at present more than two hundred pupils. There are two good churches, a number of stores, a wagon factory, &c. Social advantages are good. The town is immediately under the brow of the Cumberland Table Land. It is a romantic place, and there is none more healthful.

Besides Jasper, there are other towns or villages of some importance, on account of the fact that they are manufacturing points. They are Vulcan, Whitesides, and Shell Mound. All of them are on the Nashville and Chattanooga Railroad, and in the midst of an extensive coal region.

Marion county has a considerable number of mineral springs, mostly chalybeate, and from three to seven miles from Jasper. They are pronounced by competent judges to possess strong and medicinal qualities. None of them have been improved. The prevailing rock in the Valley of Sequatchie is limestone, and in Walden's Ridge valuable sandstone prevails. The latter is found in large square bowlders, and can be quarried in suitable sizes for building purposes.

The coal and iron interest of the county is striking. Perhaps there is no county in East Tennessee surpassing it in this respect. The *Ætna* coal mine is an extensive one, Vulcan another, Alpine another, Alley another, Battle Creek another, Vaughn another, McNabb another, Little Sequatchie another. All these mines are turning out considerable quantities of coal, which is shipped to Nashville and to the Southern States. The Cumberland Table Land is filled with strata of coal. The Little Sequatchie mines, sixteen miles from Jasper, have a vein fully seven feet thick, extending horizontally, which supplies coal of good quality.

The iron interest is equally as great. It is mostly of the hematite species. There is said to be a solid iron bed of more than nine miles, stretching north-east of the town of Jasper. With such advantages, what is there to prevent this county from becoming one of the richest in East Tennessee?

The topography of Marion county is easily understood. It lies partly on the Cumberland Table Land, and partly in Sequatchie Valley. The Sequatchie Valley is sixty miles long and five miles wide. Once it was exceedingly fertile, producing immense crops of corn, which was fed to hogs, but it has been much abused. However, it still has considerable vitality. Its average production of corn to the acre is about thirty bushels. It is not so well adapted to wheat as corn, though, it must be confessed, that but little pains have been taken in the production of wheat. There is almost a total absence of clover and grass, and yet there is no better region for either. But little manure is economized. It is a great section for sweet potatoes. Tobacco grows well, and so does cotton. There are no extensive orchards in the valley, and consequently but little fruit raised. Apples and peaches do well, and by not having orchards, the farmers lose annually thousands of dollars.

The average size of farms is about three hundred and fifty acres. Scores of farmers in this valley are retarded in their operations by having such overgrown estates, and their lands are depreciating. Another unfavorable sign is, that fully one-half of the farms are leased to tenants.

Prices of improved lands are as follows: bottom lands, fifty dollars per acre; second bottom twenty; and uplands about five. There is an abundance of land for sale, and it can be bought on one, two and three years time, with six per cent. interest.

The most profitable system of farming is the raising of grass and stock. The mountains on either side afford abundant grazing grounds for sheep and cattle, and the only cost is the herding and salting. They are driven there as early as the first of April, and are kept until about the first of November, during which time they get in good order. There is no better region for sheep husbandry. They can be raised and kept at a nominal cost. Sheep-killing dogs, as in other counties, are in the way. How to exterminate them, the farmers cannot well determine. They are in favor of a stringent dog law.

Before the war, this county was noted for the great quantity of hogs

and mules, and even cattle, that were raised. Hogs were the principal staple. Since then, there has been a large falling off in every description of stock, and many of the farmers are convinced that they have been pursuing a fatal policy in attempting to raise so many hogs. They now think their true policy is to put their lands down in grass and clover. The county is deficient in good stock. The want, therefore, of a better race of animals, is seriously felt. The scrub stock predominates.

The county is sparsely populated. The present population is only about 2,300, with about 175 colored. There is room enough to quadruple the number. The citizens are extremely anxious for new-comers to settle in their midst, where they would meet with a cordial welcome, and find good and cheap homes. The country is healthy, and it is no trouble to make a living. The water is good, society is highly respectable, the schools are efficient, plenty of timber, genial climate, and mills and churches in every community.

The principal streams are the Tennessee, Big and Little Sequatchie rivers, and Battle Creek. The Sequatchie River runs the entire length of Sequatchie Valley. The Tennessee River is navigable, and affords an outlet to market.

Labor is equal to the demand. There is not much complaint on this score. Wages range from twelve to eighteen dollars per month.

The smaller industries are not lost sight of. Considerable quantities of butter, eggs, chickens, and dried fruit, are daily sent off. There are some farmers' organizations in the county, but no fair grounds.

See chapter xxii, for other statistical information.

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## McMINN COUNTY.

COUNTY SEAT—ATHENS.

The Secretary of the Bureau of Agriculture is indebted to Judge T. Nixon Vandyke for the following description of this county :

By the treaty of 1819, the Cherokee nation of Indians ceded to the United States, among others, that portion of their territory in the State of Tennessee now embraced within the boundaries of McMinn county; and the Legislature of Tennessee, in session at Murfreesboro, on the

5th of November, 1819, passed the act authorizing the organization of the county of McMinn, which, with the county of Monroe, included the largest and best portion of the lands in Tennessee thus ceded by the Indians. A new judicial circuit was established in lower East Tennessee, composed of seven counties, of which McMinn was one, and the Hon. Charles F. Keith, then a leading lawyer of Jefferson county, Tennessee, was elected the first judge, and held the first Circuit Court in the county, at the house of John Walker, in the town of Calhoun, on the Hiwassee River, fourteen miles south-west from Athens, the present county seat, on the first Monday of March, 1820.

In 1821-2 the town of Athens was first laid off into streets and lots, and all the courts of the county were removed there, where they have ever since been held. The population of Athens is now about 1,200, and that of the county a little over 14,000. Within the last year the County Court appropriated \$22,500 for the building of a new courthouse, which is now being built on a plan not excelled in beauty and convenience by any in East Tennessee.

The value of the real and personal property of McMinn county, in 1870, was \$3,740,346, and if the value has not increased since, it is believed not to have diminished.

The people of McMinn county have not, heretofore, manifested a disposition to build up, and congregate in towns and villages, there being now only four towns in the county—Athens, Riceville, Calhoun, and Mouse Creek—all situated directly on the East Tennessee, Virginia and Georgia Railroad, and doing a thriving business in buying and shipping off the surplus produce of the county, generally to a southern market, and bringing back such supplies of necessaries or luxuries as the country demands.

McMinn county is traversed from its north-east to its south-west boundaries by six large creeks, separated by slightly elevated continuous ridges; the creek valleys averaging about a mile and a half in width, and the ridges about a mile and a half from valley to valley; the Hiwassee River forms the south-west boundary of the county; all of the main creeks have several large affluents, having their sources in the adjacent ridges, and a course of several miles, and it is believed that there is no portion of the globe, of the same extent, which affords more water-power for mills of every kind, than the six creeks and their affluents in McMinn county.

The soil of McMinn county is generally of limestone formation.



The bottoms of the Hiwassee River are alluvial, and the lands of the county may be properly divided into three classes; the first class being the river bottoms, the second class the creek valley lands and some of the ridge lands (equal in every respect, for agricultural purposes to the creek valleys), and the third class the thinner ridge lands. The creek valleys are of limestone formation; many of the ridges are strongly impregnated with iron, and others have gravel and flint. The river lands, with ordinary cultivation, produce from sixty to eighty bushels of corn to the acre, and although occasionally fine wheat is raised upon them, yet they are generally devoted to corn. The valley and best ridge lands, with ordinary cultivation, produce from twenty-five to thirty-five bushels of corn, and from fifteen to twenty bushels of wheat to the acre; and even the gravelly ridge lands, whenever tried, have produced fine clover, and after it, wheat; in a word, I can safely affirm that every part of McMinn county is well adapted to the production of all the important cereals, clover and grasses.

The price of lands, of the first class, ranges, according to location, from forty to eighty dollars per acre; that of the second class ranges, according to location, from twenty-five to fifty dollars per acre, and lands of the third class, from one to ten dollars per acre. These prices are applicable to improved lands; the prices of unimproved lands must be reduced in the same ratio.

In addition to the cereals, clover and grasses, there is no farm in the county upon which tobacco, of the finest quality, cannot be raised, producing from 1,000 to 1,200 pounds per acre.

During the existence of the war, great damage was done to the farms; nearly all the fencing was destroyed, all the best horses, mules and other farm stock were carried off, and the farmers, for two or three years after, labored under very great disadvantages in putting their farms in order again, but they went to work with energy and a will, and now the farms, as a general thing, are in a better condition than they were before the war.

The amount of waste land is estimated to be about ten per cent., caused entirely by bad tillage of the land, and nearly all could be restored again by the application of manure and with proper tillage. The average size of cultivated farms is about two hundred and fifty acres, and the general opinion is, that the *union* of stock-raising and the cultivation of money crops, is the most profitable farming for this county. The varieties of grasses sown for hay are timothy, herds-grass,

and red-top. Orchard-grass does finely here, and is considered best for grazing. Clover is much used, both for hay, pasture, and as a renovator of the soil.

The improved steel turning plows are now pretty generally used for breaking up land, frequently followed by a bull-tongue as a subsoiler; the hill-side plow is sometimes used; but the shovel plow, which, at the first settlement of the county, was in common use, is now thrown away, except on some river farms it is used in the cultivation of the corn crops. On the uplands the bull-tongue, cultivator, and harrow are generally used for cultivating the crops. Horses and mules are mostly used for farm work, and on some farms oxen are also used. Good labor is not abundant in the county, and when good laborers can be procured, they are paid ten dollars per month and boarded, or sixteen dollars and board themselves. Some farmers pay their laborers in cash, some in cash and supplies at cash price, and others, again, a portion of the crop, as they may agree on. The contract for labor is generally verbal, and when it is with *negroes* for the *month* or *year*, is frequently abandoned without cause by the laborer, and, of course, without redress for the employer.

Lands are generally rented from year to year, and almost invariably for a portion of the crop; the first quality of land, for one-half the crop, the tenant furnishing the stock and seed; and ordinary lands for one-third of the crop, the tenant furnishing stock and seed. Very few lands rent for cash, and when cash rent is paid, it is from two to five dollars per acre, according to the quality of the land. Nearly all the surplus product of the county is taken to a southern market, principally to Georgia and Alabama; the live stock, such as horses, mules, cattle and hogs, are principally driven on foot. Everything else, and a portion of the live stock, are taken off to market by the East Tennessee, Virginia and Georgia Railroad, which has depots at Athens, Mouse Creek, Riceville and Calhoun, from five to seven miles a part.

The East Tennessee, Virginia and Georgia Railroad is the only railroad in McMinn county; it traverses the whole county from north-east to south-west. Engineers are now surveying a route for a narrow gauge railroad from Tellico Iron Works in Monroe county, to Athens, and it is believed this road will be constructed in a short time, and finally extended into North Carolina, and make connection with the railroad system of that State.

The stock of mules and hogs in McMinn county is very good, that

of horses, cattle and sheep not so good; though recently, a few enterprising farmers have brought into the county some fine horses, cattle and sheep to breed from, with what success it is too soon yet to determine; but as it regards sheep, with the experience we have heretofore had with dogs, it is not thought that any prudent man will invest much capital in improved sheep, or indeed in any kind of sheep. If the people of this county would agree to give up their dogs, no country is better adapted to the raising of sheep than McMinn county.

The prevailing rock in McMinn county is limestone, with several veins of very fine grey marble. The ridges in some places have gravel and flint. The limestone has not been used in building, except in abutments and piers for bridges, and occasionally for foundations to houses and barns. There is no coal found as yet in the county, but on the south-east side of the county, and by which the contemplated narrow gauge railroad will pass, there is an abundance of the best quality of iron ore. Lead is found, of fine quality, in several sections of the county.

There are two cotton spinning factories in the county. Eureka, seven miles from Athens, situated on the Chestua Creek, has nineteen employees, spins 78,000 pounds of cotton, by 528 spindles, into 156 dozen of cotton warp, which is sold in southern Kentucky and East Tennessee. The factory is propelled exclusively by water-power. Mount Verd, three miles from Athens, on Mouse Creek, has thirty-one employees, twenty-one girls and ten men, spins 280 bales of cotton by 924 spindles, into 275,000 dozen of cotton yarn, one-third of which is sold at the factory, one-third in southern Kentucky, and the balance in Nashville and Cincinnati. This factory is propelled by water-power alone. Almost all the farmers of McMinn county have their clothing, except their Sunday suits, manufactured in their own families, and they almost universally, except on Sunday, wear homespun goods. The farmers and manufacturers of the county are about equal in prosperity, in fact, the population of McMinn county of all vocations are pretty much upon an equality as regards prosperity—none very rich and very few poor, and nearly all in comfortable circumstances. It is difficult to say what per cent. capital pays vested in manufacturing enterprises, but it is presumed that capital vested in manufactories would pay a much larger per cent. than it would in ordinary farming operations.

The greatest drawback to farming in McMinn county is the large-

ness of the farms and the want of the capital to purchase the necessary improved farming implements. If our farmers had the capital to purchase all the necessary improved farming implements, and would sell off a portion of their farms, which they now desire to do, they have energy and intelligence enough to bring up their lands to the highest condition of production and profit.

Since the completion of the railroad, and a market for the surplus has been opened up, the farmers of McMinn county have paid a great deal of attention to the smaller industries, such as drying fruit, making butter, raising honey, poultry and eggs and garden vegetables of various kinds, and they have for several years past been very much engaged in setting out orchards, especially of apples and peaches, so that now, on almost every farm, there is a respectable apple and peach orchard; and in getting trees, they have sought to get the best varieties. No effort has yet been made to grow the grape, except on a small scale; where the vines have been properly attended to, grapes of the most luscious kind have been produced, as well in one part of the county as in another. There are several apple and peach nurseries in the county, and a large number of trees are annually sold in this and adjoining counties, and some in Georgia and Alabama.

The most valuable timber in McMinn county is the white, red and post oak, chestnut, walnut, locust, hickory and pine; the white and red oak for fencing, the white and red oak and hickory for fuel, the locust and post oak for posts, the pine and white oak for building lumber, and the walnut and poplar for furniture. Shingles are made of pine and yellow poplar, and staves of white oak. Very little of lumber, staves and boards have as yet been exported—the most of these articles have been used in the neighborhood where made. Shingles are largely exported to the South.

The disposition of the people of McMinn county towards immigrants is of the best kind. All respectable persons who may come into the county will be kindly and respectfully met and treated, no matter from what portion of the globe they may come. We have had many persons to come and settle among us since the war—some from the Northern States and some from foreign countries, and not like in other Southern States, as carpet-bagers, but seeking a permanent home, and identifying themselves in feeling and interest with the country and people. To such we have given a cordial welcome, and we have room and a cordial welcome for all who may yet come with like feelings

and purpose, being satisfied that we have space enough for ten times the population we now have.

Our farmers are not disposed to sell out and emigrate; they feel that there is no better country to go to. Many, and perhaps the most of them, desire to sell off a portion of their farms to respectable and industrious persons, by which to get funds to improve the balance. We desire practical and intelligent farmers, skilled mechanics and manufacturers, and if gentlemen of capital come and settle among us, we will endeavor to make them feel at home.

There are thirteen granges of the Patrons of Husbandry organized in our county. There are no other agricultural or mechanical associations. The county of McMinn owes no debt. It pays as it goes.

There is one college in Athens, with 100 students; two common schools, one for whites and one for blacks with about 100 pupils each; two private schools, one with fifty pupils of both sexes, and the other exclusively female; Hiwassee Masonic Institute, at Calhoun, with 100 pupils; Wesleyanna Academy, five miles from Athens, with thirty-five pupils; Cain Creek Academy, twelve miles from Athens, with eighty-five pupils; Riceville Academy, with 100 pupils; and Mouse Creek Academy, with twenty-five pupils. Besides the two common schools in Athens, there are sixty-four others scattered about in different parts of the county, and all well attended and managed. The college and all the academies have literary societies connected with them, but there are no public libraries in the county. We have no poor-house, no macadamized road, and our dirt roads are not kept in good order during the winter and early spring. The balance of the year they keep in very good order. There is one newspaper, the Athens Post.

We have a great number of mineral springs in all parts of the county, some of them attended in the summer by persons from their neighborhood. The waters have never been analyzed, but persons afflicted with various diseases, who have attended them, say they have been benefited by the use of the water.

We have thirty-nine grist mills in McMinn county, eight of them first-class merchant mills, thirty saw-mills, five cotton gins, two carding machines, and two plaining machines, all propelled by water-power, and there are about twenty other sites, yet unoccupied, of ample water-power for first-class merchant mills.

The casualties of the war carried off a large number of our popula-

tion, and the result of the war exiled as many more, so that our population is now about equal to what it was at the commencement of the war, or only a small increase.

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## MEIGS COUNTY.

COUNTY SEAT—DECATUR.

There are about one hundred and forty thousand acres of land in Meigs county, and about six hundred farms. But few of them are rented or leased. A large proportion of the land is in timber, and not much of it inclosed. A considerable quantity of land is "turned out," or abandoned, because it had become completely exhausted. Fully one-half of the land in the county is for sale. First-class bottom lands are worth one hundred dollars per acre; number one uplands, fifty; medium bottom lands, seventy-five; inferior, twenty-five, and common uplands, from one to twenty dollars. In effecting sales, one-third is demanded at the time of sale, and the remainder in one, two, three, four and five years time, and sometimes longer. The average rental per acre, is one-third to one-half of the crop. There is but little swamp land comparatively.

The leading crops of the county are corn, wheat, Irish and sweet potatoes, apples and peaches. The average breadth of corn is about twelve thousand and eight hundred acres, wheat eight thousand six hundred, and oats about the same. About four hundred acres each in Irish and sweet potatoes, twenty-four hundred acres in meadow, and thirty-two hundred in clover. About one hundred acres are employed in raising sorghum. Everything in the above enumeration grows well, except blue-grass, which has not been thoroughly tried.

There are about eight hundred horses in the county, eight hundred mares, four hundred mules, fifteen hundred milch cows, one hundred and sixty work oxen, and twenty-four hundred cattle over two years old. Two hundred and fifty beef cattle are slaughtered annually. There are no Short-horn cattle, and no other improved breeds, and but few sheep. There are about seven hundred hogs, and five thousand are slaughtered annually.

The number of laborers in the county is about four hundred, and

these are equally divided between whites and blacks. Harvest hands receive per day from one to one dollar and a quarter. Transient hands, fifty to seventy-five cents per day. The customary allowance or share allowed, where hands work for a share, is one third. They are not permitted to keep stock of their own. The number of acres allowed to a hand, in pitching a crop, is twenty. Cooks and washers get from four to five dollars a month. There is a demand for farm hands and for all kinds of labor.

There are but few brick dwellings, none of stone, about one-half framed, no brick barns and stables, few framed, no hay elevators, no gin houses, and no ice houses. The fences are mostly made of rails, and average five feet and a half in height. The average size of fields enclosed are fifty acres. The principal timber used in making fences is pine, oak, and chestnut. Upon the subject of a stock law, compelling owners of stock to keep them confined, there is no matured opinion.

The country has not made any marked advancement in the way of improved implements of husbandry. Cast and wrought iron plows are about equally divided. One-half of them are manufactured in the State. There are no sub-soil plows; no hill-side plows, and no cultivators. There are no buggy-plows, hay tedders, farm mills, steamers, or feed boilers, and but few buggies and pleasure carriages. A number of the farmers use reapers, mowers, and horse-rakes.

The mechanical industries are only moderately represented. Saw-mills are numerous, and are run by water-power—none by steam. There is a number of corn and grist mills. There are no woolen or cotton factories, but several carding machines. There are no iron furnaces, or forges; no coal mines, copper mines, lead mines, or zinc mines. There is a number of tanneries. Marble is abundant, but not developed.

But little is done in the smaller economies. Barely enough to supply the home demand.

Churches are built by the joint action of all the people, and are worshipped in by all denominations. Free schools are not working advantageously. There are no colleges, and no newspaper published, and but few agricultural papers taken. No public libraries are in the county.

The Tennessee River passes through the county, and runs from

north-east to south-west. It is the only channel of transportation, and is navigable for small steamers. The Hiwassee River runs from east to west and is not navigable. The river and creek bottoms are extensive and productive. The sub-soil is clay. The prevailing rock is limestone. The crops best suited to the uplands are corn, wheat, and oats. The bottoms make valuable meadows. The principal market is Chattanooga, by way of the Tennessee River. But few immigrants have entered the county. They would be generously received from any part of the world. A large number of families have moved away. Any one with industrious habits could do well here. There are many advantages and but few disadvantages. Good water, fine climate, and excellent society and healthfulness, are some of the desirable features of the county.

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## MONROE COUNTY.

COUNTY SEAT—MADISONVILLE.

Monroe county was organized in 1819, and the county seat located at Madisonville. It is bounded on the north by Loudon and Blount counties, on the east by North Carolina, on the south by North Carolina and McMinn county, and on the west by McMinn and Loudon counties. The southern portion of it is rough and broken, a considerable quantity of the land thin and unproductive, and much of it injured by improvident cultivation. The northern portion is less broken, and the land far more productive.

There are few better counties, taken altogether, in East Tennessee. In the first place, the population is an excellent one—industrious, intelligent and successful farmers. In the next place, there are vast tracts of rich and productive land, for the most part well cultivated, and in good condition. The buildings are generally comfortable, and thrift and prosperity abound. More than ordinary attention is paid to the rearing of improved stock of every species.

Madisonville, the county seat, is situated in the central portion of the county, and some nine miles south of the East Tennessee, Virginia and Georgia Railroad. Its population is 324. It is an old town, and in consequence of its distance from the railroad, has not improved rapidly. It is a moral place, and its educational advantages are very good.



Sweetwater is another town of this county, and is situated directly upon the East Tennessee, Virginia and Georgia Railroad. It is a young and enterprising town. Its population is 1,069. It is located in the midst of a rich and productive country. Sweetwater Valley has long been noted for its beauty and the fertility of its lands. They are exceedingly valuable. The soil is a dark mulatto, and contains iron and lime. It yields finely to cultivation. There are five valleys in all in the county, and they vary in width from one mile and a quarter to two miles. They extend through the county, and are very fertile, embracing first and second bottoms. The rolling lands are adapted to the culture of tobacco, wheat, corn, hay and oats. The farms are generally small, and worked by the owners. Improved lands are worth from \$7 to \$50 per acre. The timber is of the best quality, and of almost every species. The profits in farming are, to a large extent, dependent upon the raising of stock. The plows mostly in use are the Collins, the Jones, Avery and Peacock. Mules are mostly used in making crops, as they are more hardy and enduring than horses. Sheep are destroyed by dogs, and some of the best farmers take the ground that a tax of five dollars should be put upon every dog, and ten dollars upon every bitch. Remove this difficulty, and there is no better section for sheep husbandry. There is about twenty-five per cent. of waste land in the county, but it is mostly ridge land. With proper management, however, it would make excellent orchards. The county is not thickly settled. The value of taxable property is \$2,304,291.

The principal stream of the county is the Tennessee River, which is navigable for steamers. Tellico River heads in the mountains, and is navigable for thirty miles six months in the year. It affords an abundance of water-power. Conasauga, Ball Play, Citico, Big Creek, Fork Creek, Bat Creek, Pond Creek and Sweetwater are all good streams for manufacturing purposes.

Labor is abundant, and wages range from \$10 to \$15 per month. The kindest feelings prevail towards immigrants, and they are earnestly invited to settle in the county. The great drawback to farming is the want of means and enterprise. There is a large quantity of land for sale. Some few of the citizens are anxious to emigrate to the West, and some have already gone. As a general thing, they are contented, and the more industrious and enterprising are not disposed to move away. There is a large fair association composed of the best farmers

in the county, and some other farmers' organizations. The prevailing rocks are limestone.

The White Cliff Springs are a noted place of resort. These springs are situated on Chillhowee Mountain, sixteen miles from Mouse Creek, the nearest point from the East Tennessee, Virginia and Georgia Railroad. They are located at an elevation of 1,200 feet above Conasauga Valley, in a dry, pure and very invigorating atmosphere, affording an extensive and beautiful view of the surrounding country. There are three springs in close proximity, two of which are tonic, diuretic and alterative, and have proved very efficacious in relieving diseases of the liver, kidneys and stomach, and have acted as a sovereign remedy in chorea and dysmenorrhea. The other spring possesses properties that have proved beneficial in scrofulous affections of the skin and chronic diseases of the eye.

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## MORGAN COUNTY.

COUNTY SEAT—WARTBURG.

Morgan county is bounded on the north by Scott and Fentress on the east by Anderson on the south by Roane and Cumberland, and on the west by Cumberland and Fentress counties. It is one of the mountain counties, and embraces a great deal of rough and untillable land, especially in the southern portion. There are a number of fertile valleys, but they are not wide. The most noted are, Crooked Fork, Flat Fork and Emery. The soil of these is productive, and is of a dark, mulatto color. The lands on the Obed and Emery rivers are exceedingly fertile. Although a large county there is a great deal of land totally unfit for cultivation. These consist of abrupt hills, ridges and mountains. Much of the land is on the market, and can be bought low. Improved lands are worth about twenty dollars per acre; medium, about ten; ordinary, about five, and unimproved from fifty cents to one dollar. The usual terms of sale are one-third of the purchase money paid in hand, and the remainder in one, two and three years, with six per cent. interest. The terms of leasing are one-third of the crop.

The leading crops are corn, wheat, oats, hay and potatoes. No barley, buckwheat, peanuts or hops are produced, and but few pears,

cherries, plums, strawberries and raspberries are grown. The climate and soil are admirably adapted to the growth of apples and peaches. Not much attention is paid to either. Grapes have been thoroughly tested by an enterprising colony of Germans, settled at the town of Wartburg, and they have been found to do well. This colony makes a considerable quantity of wine every year, which is sold at remunerative prices. It usually commands about four dollars per gallon, retail. It is believed that there are few regions better suited for extensive vineyards.

Some of the grasses grow well, and produce good crops in this county. At the same time, the farmers have not improved this advantage. The usual grass raised is timothy and herds-grass. Blue-grass grows well in places. Orchard grass, perhaps, would suit this region better than any other kind. A good deal of sorghum and maple sugar is manufactured. The finest honey in the world is produced here, and considerable attention is paid to the rearing and management of bees.

There are no improved breeds of horses, cattle, hogs or sheep raised. The varieties in use are of the scrub species. But a small percentage of either class on the market. Mules are not raised to any extent. For rough work, oxen are mostly used. The rearing of cattle and sheep could be made a most profitable business, from the fact that the hills, ridges and mountains afford the very best pasturage. One difficulty in the way of raising sheep is the prevalence of sheep-killing dogs. No danger is apprehended from wolves, as they do not infest this region. It is not a hog-producing country, for the reason that it is not adapted to corn. Considerable quantities of corn, it is true, are raised in the valleys indicated, and on the Obed and Emery rivers, but these constitute only a small proportion of the county. The great staples are the "small grains," grass and fruit. Very much could be done in the dairy business—the making of cheese and butter—and yet everything is blank on this subject. Thousands of pounds of both could be made every year, at a small cost, and sold at a fair margin. Some attention is paid to the smaller industries, but not half enough.

The demand for labor is amply met, though not strictly reliable. But few blacks are in the county. The work on farms and in households is mainly done by the families themselves. All are trained to industrious habits. The young men work on the farm and the young ladies do the work of the house.

Allusion was made above to the fact of the existence of a German colony at Wartburg. They are an industrious, intelligent and enterprising people, and have done much to advance the agricultural, horticultural and educational interests of the county.

The farm buildings throughout the county are plain. But few are brick, a number of frame, and a large number made of hewn logs. Rails are altogether used for making fences, and the average height of the fences are about five feet. The cost of lumber is one dollar per hundred feet, and rails ten dollars per thousand.

The mineral capacity of this county is equal to almost any county in East Tennessee. Stone coal is found in great quantities in every direction. The long distance from market, and the difficulty of transportation retard development. The chief markets are Knoxville, and Rockwood in Roane county. The former is distant about sixty miles, and is reached by wagon conveyance. The latter is some twenty-five miles. The Cincinnati Southern Railroad is projected to pass through this county, and it will traverse a region rich in valuable timber and mineral wealth.

The water power of this county is unsurpassed. On all the streams mentioned, any desired power can be had. But little of it is made available. There are some grist and saw-mills, but no cotton or woolen factories.

Wartburg is the county seat, with a population of about 150, mostly Germans. It has one church—Lutheran. It can boast of one of the best schools in the country—about eighty pupils in attendance. Montgomery is another small village, with a population of about fifty. It was formerly the county seat of Morgan county.

See description of Cumberland county, of Middle Tennessee, for a fuller description of the soil. Both counties are on the Table Land.

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## POLK COUNTY.

COUNTY SEAT—BENTON.

The law establishing this county was passed November 28, 1839. It was taken off Bradley and McMinn, and named in honor of James K. Polk. It is bounded on the north by McMinn and Monroe, on the

east by North Carolina, on the south by Georgia, and on the west by Bradley county. It comprises about 430 square miles. The greater part of Polk county is mountainous, and unfit for agricultural purposes. There are other advantages, however, far outweighing the agricultural feature. There are copper mines found in this county. They were developed many years ago, and have been worked with success. They are known as the "Ducktown mines." They are situated about forty miles from Cleveland, an enterprising town on the East Tennessee, Virginia, and Georgia Railroad. A daily line of haeks runs there from this point. The mines are about two miles from the Ocoee River, in the midst of hills, surrounded by high mountains in the distance. The principal ranges of these mountains lie between the copper mines and Benton, and traverse the county in a northeasterly and southwesterly direction, occupying, perhaps, more than half its area.

The discovery of these mines has brought about a great change in what was once a wilderness region. Upon a beautiful plateau of ground, in the midst of the mines, stands a number of villages, whose hundreds of buildings attest the presence of the genius of civilization. They aggregate a population of about three thousand, with churches, schools, and stores. And although occupied mostly by miners, the moral and religious status is not inferior to more highly favored towns.

One drawback upon the company is the long distance to the railroad, which interferes materially with its profits in the prosecution of the business. Energy and capital, however, will soon surmount this obstacle. A movement is now on foot to construct a branch road from Cleveland to intersect with the railroad at that place. The prospects for its early completion are favorable. For more particular description of these mines, see chapter xv.

These mines furnish a valuable market for all the products of that part of Polk county. All the butter, lard, bacon, flour, corn, chickens, etc., for miles around, are sold there at fair prices. Thus, hundreds of dollars are scattered where it is badly needed.

Nearly the entire surface of the county is covered with high rolling lands, with hills and ridges here and there. There are some rich valleys which are level and produce fair crops of wheat, corn and oats. The principal bulk of the land has been greatly exhausted by hard usage. Hundreds of acres have been brought into a state of almost complete exhaustion, so far gone as to require years, and a great deal of money and labor to restore. Originally, this county was rich in its

western portion. The farmers, at least many of them, have not pursued a wise course. They have expected too much from the soil without returning a corresponding benefit to it. From year to year it has been robbed of its cream until it has been forced to succumb to this ill-treatment. Shallow plowing, no fertilizing and heavy crops of corn have done the work. The exhausted spots, the skinned surface, the wide patches of sassafras, the fields of sedge grass, and the gullies, but too plainly indicate the unkind treatment which it has received. Grass, clover and manure have been ignored all over the county. Ground that would have made excellent meadow, has been, for years, rudely cultivated in corn. There are acres upon acres that have never been aided in yielding their substance to the proprietor by sowing clover and using manure.

This is not the case with *all* the farms. Polk county has a number of superior farmers—enterprising, energetic, and intelligent—who are improving their lands, and making them more and more productive every year. The most valuable lands are on the waters of the Ocoee River, the Hiwassee River, and the Conasauga River.\* They yield, on an average, about thirty-five bushels of corn to the acre, wheat ten, oats twenty-five, and rye eight. The creek valleys yield about twenty bushels of corn, wheat six, oats twenty, and rye seven. The uplands, ten of corn, five of wheat, and fifteen of oats. The principal valley is the Ocoee, which is about twenty-five miles long, and five wide.

The county needs a much larger population than it has, for it is sparsely settled. Lands can be bought low, and on the easiest terms. From three to twenty dollars per acre will buy about the best lands in the county, with the exception of highly improved farms, or lands lying on the rivers and the principal creeks. The opening here for immigrants is a good one. They would be kindly received by all the citizens.

The county is deficient in improved stock of all kinds. Considerable numbers of hogs, cattle and sheep are fattened annually, and sent to market. There is one butter and cheese dairy carried on by an enterprising German. There is quite a trade in eggs, poultry and dried fruit.

Farm hands are about equal to the demand—but few colored. Good laborers, working by the year, receive about one hundred and fifty dol-

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The water from this stream finds its way to the Gulf of Mexico without emptying into the Mississippi, and in this respect differs from all others in the State.

lars per annum, and are furnished with houses and gardens. Transient hands from fifty to seventy-five cents per day; cooks and washers get from four to five dollars a month.

The principal town is Benton. Its population is about three hundred and fifty. There is one church and a good school in the place.

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## RHEA COUNTY.

COUNTY SEAT—WASHINGTON.

Rhea county was established December 3, 1807, and the county seat was located at Big Spring, fourteen miles west of the present capital. It was removed to Washington in 1812. The county contains a population of about 5,000. It is thinly settled. The majority of the farms are very large, and could be divided and sub-divided advantageously. This would make room for immigrants, and in a short time, double the population. It would tend to develop the county and increase its wealth. It is suffering for the lack of population. Laborers are needed; men of capital and enterprise are in demand, and better farmers are wanted.

The area of Rhea county is divided between the Valley of East Tennessee and the Cumberland Table Land. Its north-western boundary rests on Walden's Ridge, this plateau ridge being divided about equally between Rhea and Bledsoc. Its south-eastern boundary is the Tennessee River, which separates it from Meigs. On the north-east it is bounded by Roane county, and on the south-west by Hamilton. Between Walden's Ridge and a series of broken knobs parallel with it, is a long valley running the entire length of the county, which constitutes a part of a great valley extending through the State, and closely hugging the eastern encarpment of the Table Land.

The Tennessee River meanders through rich alluvial bottoms. White's Creek, Muddy Creek, Piney River, Town Creek, Wolf Creek, Clear Creek, Yellow Creek, Big and Little Richland, and Sale Creek, thread various portions of it. River Valley is one of the most noted in East Tennessee. It is formed by the Tennessee River. It is wide, and runs the entire length of the river, and the soil is a rich alluvial. The average production of corn is about fifty bushels to the acre, wheat ten, oats twenty. The Tennessee Valley is wide and long; has

an excellent subsoil, and well adapted to all the cereals and to the grasses. It is not so productive as the River Valley, but it has advantages in the way of good water, and free from destructive overflows. Its average production of corn is about twenty-five bushels to the acre, wheat ten, oats twenty, Irish potatoes about seventy-five, and sweet potatoes about one hundred and fifty. Muddy Creek Valley is another fine body of land.

The price of land ranges from five to one hundred dollars per acre. The average size of farms is about four hundred acres. This is unusually large. It is a serious injury to the county, and tends to keep it down. They should be divided into smaller tracts, a lesson hard to learn. Rhea county shows rough usage in the management of its soils, caused in part, by the owners having more land than they can well cultivate. There is not half enough clover sown, and manures are applied in the most stinted manner. Hundreds of acres have given way under this injudicious treatment. There is, however, a change for the better apparent in this fine county. Deeper plowing is done, more grass seed is sown, better stock is being raised, wheat drills are coming into use, and a better class of agricultural implements generally, is brought into requisition.

Considerable quantities of land are rented or leased in this county, and this has had a damaging effect upon the soil. Under the present system of renting, there are no lands which can long survive it, and besides the policy of turning over a business to some one else that ought to be attended to by the person himself, is suicidal. The disposition to lease farms and to pull up stakes, and settle in towns and villages, or to embark in some other enterprise, is having a bad effect upon the agriculture of the country.

The labor system is not reliable. There is no lack of it, but the trouble is in retaining it. The farmers throughout the county complain bitterly of this difficulty. Laborers shift, going from one place to another. This subverts all the plans of the farmers, and subjects them to a vast deal of inconvenience and irreparable loss.

The overshadowing feature of this county is its iron and coal interests. They do not exist in spots, or here and there, but they are found almost everywhere. Walden's Ridge is filled with masses of iron and coal. They are found side by side, both in the mountain and in the valley. These wonderful interests have not been developed to any extent, though



attracting now a good deal of attention. On Clear Creek, a valuable property has recently been sold to a northern company. At Smith's Cross Roads, an English company has made a purchase. At the mouth of Piney River there is a valuable iron property. Caldwell's Forge is turning out considerable quantities of iron.

Mineral springs are numerous all over the county. The Rhea Springs have attained a wide celebrity for their healing virtues. The water is composed of red oxide of iron, sulphuric acid, lime, &c. The grounds are handsomely improved. There is a large hotel, livery stable, &c. These celebrated springs are about twenty-five miles from Athens, of McMinn county, from which you diverge to reach them.

The scholastic advantages of the county are fair. The free school system works well. There are no schools of high grade.

The principal town is Washington. It has a population of about three hundred. Smith's Cross Roads is a small village. Sulphur Springs contains a population of about one hundred.

There are no finer lands in the world than those on the Tennessee River, and the easy access to market by way of this river makes them exceedingly valuable. At all seasons of the year steamers make constant and regular trips to Chattanooga, where a connection is formed with the roads leading into Georgia, and, indeed, into all the Southern States.

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## ROANE COUNTY.

COUNTY SEAT—KINGSTON.

The act establishing Roane county was passed the 6th of November, 1801, and took effect the 20th of December, 1801. At that time it embraced what is now Morgan county. In 1819, when the Indian title to the land on the south side of Tennessee River was extinguished, Roane county was extended on the south side of Tennessee River, and Morgan county was stricken off. Since then (1870) Loudon county was formed, taking off about five districts. It is bounded on the north by Anderson and Morgan on the east by Knox and Loudon, on the south by Loudon, McMinn and Meigs, and on the west by Rhea and Cumberland counties. Topographically, Roane is very much like Rhea, to the description of which county the reader

is referred. It contains a great deal of broken and untillable land. The entire face of the country, with the exception of a few valleys and the bottom lands along the rivers, is rolling. The hills and ridges contain large quantities of timber and are profitable for grazing purposes, and especially for fruit-raising. In many instances they abound in rich deposits of iron ore and coal. In fact, the minerals are regarded as adding greatly to the natural wealth of the county; a fact which has already arrested the attention of some heavy capitalists who have made large investments in the iron business. Rockwood, near the Tennessee River, has become noted within the last two or three years as a manufacturing point. But the other day it was a naked spot with scarcely a house, or even a mark to identify it. Now it is a busy, bustling and thriving place, with a population of more than 1,000, and with hotels, schools and churches. It has sprung up as if by magic, and is increasing in importance every day. There is but the one reason to assign for this unprecedented prosperity, and that is the magnitude of the iron interest. But this, really, is only the beginning. Other manufacturing interests, equally as important, will spring up in other localities of the county. It bids fair to become the great iron center of East Tennessee, and will, therefore, be one of the richest counties in our section. The agricultural interests of Roane county have suffered somewhat from a too careless mode of cultivating the soil. Fertilizers have been sparsely used, deep tillage to a great extent neglected, but a small per cent. of clovering and grassing, and an exhaustive process perpetuated by raising too much corn. Much of the soil is already exhausted by this unnatural system of husbandry. Better views, however, are beginning to prevail, and the reasonable hope is entertained that wiser counsels will soon gain the ascendancy. A new element of population has been thrown into the midst of the old with more advanced ideas, and with more enterprising habits. This element is mostly from the Northern States. The county is greatly deficient in good stock. A few farmers alone have taken it upon themselves to introduce a better race of cattle, hogs, sheep and horses. Thus far nearly all the stock is of the scrub species. It is not because the farmers are not able to buy better stock, for there is considerable wealth among them. It must be the lack of enterprise.

Limestone is abundant. It crops out in the valleys. It makes the best of lime, which can be manufactured at a nominal cost. Every farmer almost in the county could afford to make this important element available on every acre of his land. The soil, except on the Table Land

has a clay subsoil. The clay is tenacious, and will hold fertilizers of any description. Where there is such a fine clay subsoil, and such an abundance of limestone, so that it is obvious that any of the grasses would grow to great perfection in that portion of the county and if the farmers would pay more attention to the cultivation of the grasses, either for grazing or soiling purposes, they would find it far more remunerative than raising so much corn. The average production of corn to the acre is about twenty bushels; of wheat about seven; of oats about twenty-five, &c. All the root crops do well. Improved bottom lands are worth from \$50 to \$100 per acre; unimproved from \$1 to \$30 per acre. There is much land for sale. It can be bought on one, two and three years time, with six per cent. interest. Altogether there is a good deal of waste land. The county is not thickly settled. There is ample room for hundreds of immigrants, and there is no section where they would be more kindly received. The soils on the Table Land do not differ from these described in Cumberland county.

The oaks are the prevailing timber, though some pine forests exist east of Kingston. Poplar and walnut are also found. Labor is abundant. Wages range from \$12 to \$15 a month. The character of the schools is not first-rate, though improving. The greatest drawback is the want of capital and enterprise. The variety of wheat sown is red May. Turning plows are mostly used. The farmers are contented. There are no farmers' clubs, nor fair grounds. The principal streams are the Clinch and Emory rivers. The Tennessee River runs through a portion of the county. It is navigable for steamers. The bottom lands on these rivers are rich and productive. The principal town is Kingston. It has a population of about 600, is situated at the confluence of the Tennessee and Clinch Rivers and is an enterprising place. It supports two active newspapers, a number of stores, churches, &c.

(For the number of furnaces in operation in this county, and their capacities, see chapter on iron.)

\*The subjoined letter from Henry E. Colton will give information in regard to the mineral wealth of this county. It may be proper to observe that Mr. Colton has spent several months in prospecting this region.

MAY 6, 1874.

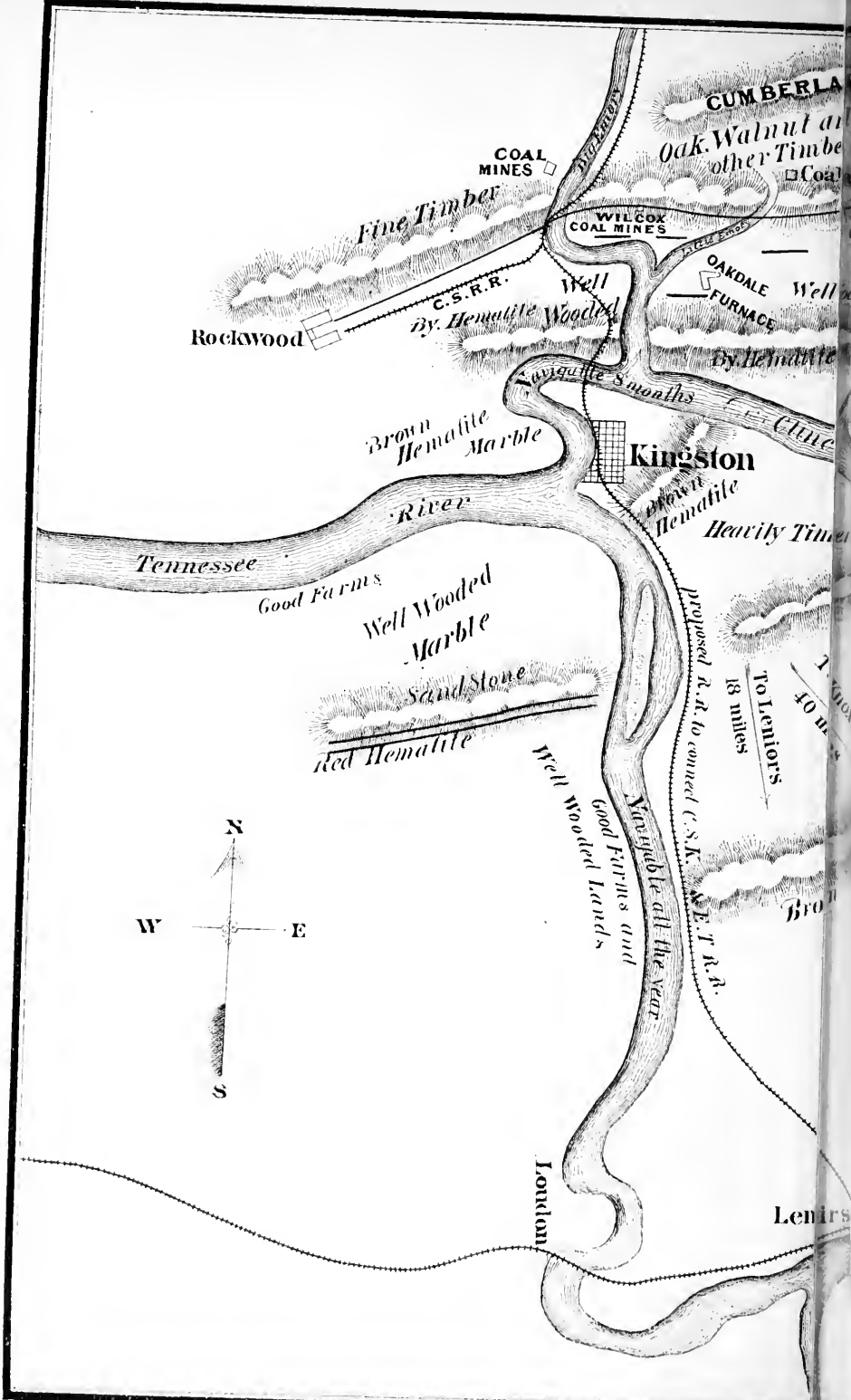
*J. B. Killebrew, Sec'y.*

Roane has as much iron ore as any other county in East Tennessee. It has the White Oak Ridge vein or bed, the Half Moon Island vein, and that

at the eastern foot of Walden's Ridge, and one or two other small veins of fossiliferous red hematite. It has beds of hematite (limonite), but only partially opened. The other metals of the county are lead and some zinc. Barytes is found in abundance, and of excellent quality, near the Tennessee River. The county line takes in, for over forty miles, the coal veins in Walden's Ridge, and for some miles crosses that ridge, and takes in the horizontal veins of the Cumberland Table Land. Manganese exists in great abundance, but of poor quality. Several points in the county furnish excellent marble, white and variegated. Thus it is seen that the county is very rich in the two great minerals, iron ore and coal, and it is no wonder that a man of Gen. Wilder's shrewdness should select it, above others, as the location of his furnace. It is very safe to say that every five miles along Walden's Ridge, in this county, affords sites equally as good, or better than Rockwood, on account of streams coming from or through that ridge. Such excellent locations at the gaps through which flow the Big and Little Emory Rivers are yet unoccupied.

The county is watered by the Tennessee and its tributaries, the Clinch and Emory Rivers, the last of which are navigable about eight months in the year, and the first all the year, though some improvements are needed to make them perfectly safe. The county seat, Kingston, is located at the junction of these rivers with the Tennessee, and has in that fact a more advantageous location than any place in the United States, not excepting Pittsburg. Yet the place is but little more than a country village. The cause of this is, that having the rivers its people did not care for the railroads, and hence, in this fast age, it has been passed by, while towns of inferior advantages have sprung up and flourished. If half the money which has been spent on the Monongahela, the Alleghany, and the Ohio was expended on the Tennessee and its tributaries, these streams would be permanently navigable, and the river trade again become great, and such localities as Kingston attract the attention they deserve. It is roughly estimated that during the past winter and spring over 200,000 bushels of grain passed Kingston in flat-boats. In past days these boats went over the Muscle Shoals, and frequently out of the Tennessee to New Orleans. Now the changes of the shoals compel them to take the more costly railroad routes at Chattanooga. Coal was formerly boated from out Poplar Creek (Winter's Gap) to Huntsville, and other towns in Alabama, and sold there at not over twenty-five cents per bushel, and a profit realized. If we glance at either Map in this volume, we see that Kingston is so located as to make tributary to itself, with proper enterprise, all the vast products of a large area. Within five miles by land, and ten by water, are the Wilcox Coal Mines; a little farther up the Emory River other veins in Walden's Ridge are accessible, as well as the horizontal veins of the Cumberland Table Land. Poplar Creek affords nearly as good access to the Winter's Gap coal. With the expenditure of a small amount of money the Coal Creek coal might, all the year, be brought down the Clinch at less rates than it is now transported by rail, and large loads of it have been brought down during the past winter on the high water. By these same streams the fossiliferous red hematite, brown hematite, or limonite, clay carbonate and black band iron ore may be brought down to Kingston, and the peculiar location of the town is such that, whether in the Tennessee or the Clinch, the water is always calm, thus affording excellent harbors. From the east or north-east the Tennessee comes, having, within a distance of eighteen miles by land,





CUMBERLAND

Oak, Walnut and other Timber

COAL MINES

Fine Timber

WILCOX COAL MINES

Rockwood

C.S.R.R.

Well Wooded By Hematite

OAKDALE Well

FURNACE

By Hematite

Navigable Smooths

Brown Hematite Marble

Kingston

Brown Hematite

Heavily Timbered

Tennessee River

Good Farms

Well Wooded Marble

Sand Stone

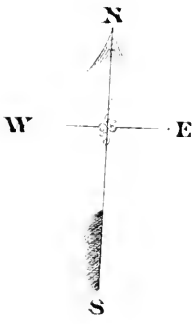
Red Hematite

Well Wooded Lands  
Good Farms and  
Navigable all the Year

proposed R.R. to connect C.S.R.R. N.E.T.R.R.

18 miles  
to Leniors

40 miles



London

Leniors

COAL HORIZONTAL

COAL INCLINED

Walden's Ridge

Winters Gap

Red Hematite

Good Farms

Brown Hematite

Heavily  
fractured  
limestone

sand stone

Kingston to Loudon  
by steamer daily, 22 miles.

by Land 18 miles.

Kingston to Chattanooga  
by Steamer 120 miles.

Kingston to C. S. R.R. 5 miles.

" " Coal 6 "

" " Rockwood 11 "

E. T. V. & GA. R. R.

River

Tennessee





received its tributary, the Little Tennessee, from which latter stream may be derived the magnetic and specular ores of iron, roofing slates, soapstones, &c. Within two miles of the town, immediately on the Tennessee, is the White Oak bed of fossiliferous red hematite, which is noted in Alabama (at Cornwall and Red Mountain) as making a quality of iron which has not been surpassed for car-wheel purposes, and cannon made from it during the late war came out triumphantly from the most severe tests. The same ore is found on the Clinch above Kingston, and runs in Roane county a distance of near thirty miles.

The climate of Kingston and of the whole county is mild in winter, and equable in summer. The peculiar advantages of the town caused it to be selected as the first capital, but it was soon abandoned as there were not then houses enough to accommodate the delegates; it was also selected by the United States Government as the site of their chief fort in operating against the Indians, and from a fancied resemblance to the "Pride of the Hudson," as well as the impregnable position, it was called South-west Point.

The Cincinnati Southern Railroad Company proposes to build a branch from Emory Gap via Kingston to London or Lenoirs, to connect with the railroad from Knoxville to Charleston. This will eventually be built.

There are two or more groups of mineral springs, to which persons resort during the heated term.

Respectfully,

HENRY E. COLTON.

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## SCOTT COUNTY.

COUNTY SEAT—HUNTSVILLE.

Scott county is bounded on the north by Kentucky, on the east by Campbell county, on the south by Anderson and Morgan counties, and on the west by Fentress county. The act establishing this county was passed December 17, 1849. It was composed of fractions of Anderson, Campbell, Fentress and Morgan counties. By reference to the map of Tennessee it will be seen that it is one of the extreme northern counties of East Tennessee. It lies on the Cumberland Table Land, and possesses all the characteristics of that region. The only lands that are valuable lie upon the creeks, and these are narrowed down to small strips.

Huntsville, the county seat, is a small village of about 200 inhabitants. Of course there is but little business done there, and its distance from the markets of the country and from railroads will always operate against its advancement.

Chitwood is another town, but still smaller and more insignificant than Huntsville. It may yet grow considerably, in consequence of

the fact that the contemplated railroad from Cincinnati to Chattanooga will pass immediately through it. Indeed, this road will be of incalculable benefit to this entire region, cut off, as it is, from the commercial world.

There is a sparse population in Scott county. It has had no benefit whatever from immigration. Perhaps not a dozen families have gone there in as many years. This is owing to causes already indicated. It is out of the way, the farming lands are not good, and the trouble, expense and annoyance of reaching market, have operated as a barrier to immigration. There is no difficulty about buying land. Thousands of acres are for sale, and upon satisfactory terms. Improved farms can be had for about five dollars per acre, and unimproved for from fifty cents to three dollars per acre. The citizens are extremely anxious to augment their population, and would do all in their power to make new-comers welcome in their midst.

In some respects, immigrants could do very well here. Sheep husbandry and fruit-raising would pay largely. The extensive plateaus of land spreading over the surface of the mountains, and the rich growth of mountain grass found there, make it suited for the rearing of sheep. The county is not much annoyed by mean dogs, and, therefore, sheep would not be disturbed from this source. The cost of raising them would be only nominal. The winters, as everywhere in East Tennessee, are mild and short, and the summers are pleasant in this mountain region.

Fruit could be raised to any extent. Apples, peaches, pears, cherries and all the smaller fruits grow to perfection. An enterprising man, taking hold of this interest, could turn his means and his energy to good account.

There has been but little progress in the system of farming. The old plans are still adhered to for the most part. Improved means of husbandry have not been introduced to any extent, and most of the farms are cultivated with the ancient implements in vogue half a century ago. Bull-tongue plows do all the turning of the soil, the bar-shear being regarded as an innovator. There is scarcely any sowing of clover, and but few meadows. Corn is the chief crop, and that is fed to an inferior breed of hogs. Very little wheat is sown. Every species of stock belongs to the scrub race. The farmers have little encouragement, in consequence of their isolation, to improve either their lands or their stock. They need railroads, and they need markets.

The prevailing rocks of the county are red sandstone and freestone. Limestone is seen scarcely anywhere in the county. The water is pure freestone, and is very fine. There is an excellent mineral spring near Huntsville, consisting of sulphur water. The healthfulness of this region cannot be questioned. Sickness is rare. This is owing, of course, to the pure mountain air and the excellent water.

The prevailing timber is black oak, post oak, poplar, walnut, pine, etc. Of this there are vast quantities, but of no great value at present, owing to the lack of the means of transportation.

The principal streams are Straight Creek, Buffalo Creek, Paint Rock, Brimstone Creek, Wolf Creek, Clear Fork, Smoky Creek, Difficulty Creek, Roaring Pouch Creek, Tellico Creek and New River. Along the most of these streams there are narrow strips of fair land, capable of producing from twenty to thirty bushels of corn to the acre, and about eight or ten bushels of wheat. None of these water courses are reliable for water power. The most of them go dry during the summer season. Consequently there are but few mills in the county, and no manufactories of any kind.

Its mineral resources are said to be very great, consisting, for the most part, of iron and coal, which may be developed when the railroad project, to which reference has been made, is consummated.

The county needs badly a better and more efficient school system. There are but few schools that are doing much good. There is one at Huntsville, but not what it ought to be.

For the character of the soil, see Cumberland county, of Middle Tennessee.

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## SEVIER COUNTY.

COUNTY SEAT—SEVIERVILLE.

Sevier county was erected in 1795, one year before the admission of the State into the Union. It was named in honor of Governor Sevier. It is bounded on the north by Knox, Jefferson and Coeke counties, on the east by Coeke county and North Carolina, on the south by North Carolina and Blount county, and on the west by Blount and Knox counties. It embraces a large territory, much of it valuable, and considerable portions of it not fit for cultivation. Its entire eastern and

southern borders rest on the Unaka Mountains, and this portion of it, especially, is too rough and mountainous for cultivation. Some ridges and hills make through it, which are not valuable for farming purposes. The valleys and river bottoms are exceedingly fertile.

The principal town is Sevierville—indeed the only one. Its population is about 220. The nearest shipping point is Knoxville, some thirty miles.

There is a number of chalybeate springs in the county, one especially worthy of note. It is situated in Wears Valley, eighteen miles southwest of Sevierville. It would be a place of considerable resort but for the distance from the railroad, which is about thirty-six miles. It is in the mountains in the midst of wild scenery. It has performed a number of striking cures.

There is a large amount of undeveloped iron ore, also some lead, alum, epsom salts, etc.

Most of the clothing worn is homespun goods, spun on the old-fashioned spinning wheels, and wove on the old hand looms.

Sevier county contains some of the finest soils in East Tennessee. There is a belt of country several miles wide which passes through the county, of strong limestone land. It goes through Boyd's Creek Valley, crossing the French Broad River, and on by way of Henry's Cross Roads. Another belt passes immediately south of Sevierville. This dark red land is the best for wheat. There are fine valley lands on Little Pigeon and French Broad rivers. Then, there is a large amount of what is called knob lands, forming a belt five or six miles wide, and running through the county. It is very productive. Wild grapes are found on this belt in great abundance. It is the opinion of some of the best informed citizens of this county, that the day is not distant when these rich hills will be more valuable than the river bottoms, on account of the fact that they are so well adapted to the grape culture. While there is a considerable quantity of excellent land in the county, there is at the same time much that is worn out by bad tillage.

There are five valleys or coves in Sevier county. Wear's Cove is the most noted. It is about five miles long and three miles wide. The mountains wall it in on all sides. The coves next to to the Unaka Mountains are very rich. They afford a range sufficient for thousands of cattle from the 1st of April to the 15th of November.

It is difficult to give the size of farms, as they range from forty to several hundred acres. The lands were entered when there had been no public survey, so that a man entered and run his lines so as to take in the best lands, thus making crooked lines and numerous corners. The price of lands varies greatly. It ranges from \$50 down to \$2 per acre, owing to quality, improvements, etc.

The usual crops grown are corn, wheat and oats. Corn is the great staple. Comparatively a small quantity of grass is grown. There are fine grass lands all through the county. The meadows are mowed and then closely pastured. The clover fields meet with the same fate. There has been but little improvement in the lands since the war. Perhaps they are in better condition now than they were then. Grass and stock raising are regarded as the most profitable farming for the county. Turning, shovel and bull-tongue plows are in use. No hill-side plows are used. Work stock consists of horses and mules. There is but little improved stock in the county. Sheep raising is not profitable, on account of mean dogs. Much of the land is uncultivated. With the exception, perhaps, of Cumberland county, it comprises the largest territory of any county in the State. It contains about 549,059 assessed acres. Some of the civil districts are almost as large as small counties. The value of taxable property for the year 1873, was \$1,593,648.

The water-power of this county is extraordinarily good. The east and west forks of Little Pigeon River are especially noted in this particular. Millions of dollars might be judiciously invested in developing it by building up manufacturing establishments of one sort or another. Nothing has yet been done in this direction. Only a few old-fashioned mills exist to establish the folly of the citizens in not endeavoring to do better. Most of the surplus wheat of the county is sent off to other mills outside of its limits to be ground. This is obviously a mistake, when we consider the natural advantages which the county possesses in the way of superior water-power. The most of the surplus of the county is shipped on keel boats down the French Broad River to Knoxville, and iron, salt, goods, etc., are brought back in the same way. Labor is abundant at fifty cents a day, and from ten to twelve dollars and a half a month. The native population is extremely anxious to have good citizens from any part of the country to settle among them. As already intimated, there are vast tracts of land which have never been developed, for the reason that there is a lack of population. The county could easily accommodate a much larger number

than it now has. Hence there is an earnest demand for more people, and for energy, capital and enterprise.

The work of popular education has received due attention at the hands of the citizens of the county. The free school system works well thus far, and is in general favor. At Sevierville there is a flourishing academy.

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## SEQUATCHIE COUNTY.

### COUNTY SEAT—DUNLAP.

This county is traversed by Sequatchie Valley, which divides it naturally into three strips or belts—the south-eastern portion being on Walden's Ridge, the central being in Sequatchie Valley, and the north-western on the Table Land. The first and third portions have about the same elevations, while the central or valley portion is not far from being one thousand feet lower, and is the only cultivated part of the county. This is walled in by the escarpments of the Table Land on the one side, and Walden's Ridge on the other. It has only one natural outlet, and that is south-west to the town of Jasper, the capital of Marion county, where a branch of the Nashville and Chattanooga Railroad is reached. To reach Chattanooga, or any other point on the railroad, Walden's Ridge must be ascended, which is from ten to fourteen miles from base to base, and a journey of twenty-five or thirty miles must be made to get to a railway.

This is a great drawback upon the enterprise of the county, and retards development. Nevertheless, this strong barrier is overcome by the pluck and energy of its citizen-farmers, many of whom drive their horses, mules, cattle, and hogs, across this mountain top to the railroad, and from thence ship to southern markets. It would astonish any one to know the number of stock which is annually fattened and taken over this route. Before the war it was incredible. The war crippled the people considerably, but they are fast regaining their former position of prosperity, and a few more years will fully re-instate them. Their mode of doing business on the farm is, to cultivate immense breadths of corn, and feed it to cattle, horses, mules, and hogs. These they either sell on foot to stock buyers, or drive them off themselves. Whether they are pursuing the wisest course in raising so

much corn and thus taxing their lands very heavily, is altogether another question. In passing through the length and breadth of that county we were most painfully impressed with the fact, that the finest soil of East Tennessee had been, and was still being, most cruelly cultivated by this system of raising so much corn from year to year. By nature that entire valley is adapted to the grasses. The rocks show this as well as the timber. Limestone crops out everywhere, and in the greatest abundance, and the timber consists of oak, hickory, walnut, maple, beech, &c. Blue-grass grows up in the fence corners and is luxuriant. Notwithstanding this, meadows are rare and clover is rarely sown. To be sure, the agricultural mind is undergoing a rapid change upon this subject, and, perhaps, a few years more may record a change for the better. Healthful thought is becoming aroused, the farmers are reading more, and more experiments are being made touching this matter.

Farms are entirely too large. They will average from two to three hundred acres. The result is bad cultivation, especially since the utter derangement of the labor system. Many of these large estates are put into the hands of irresponsible tenants, who cultivate them only to make all the grain they can, with no eye to the recuperation of the soil. Hence, some of the best farms of the county are giving way to this unfortunate treatment, and will soon be unproductive, unless a wiser course is pursued.

The central portion is divided by a small ridge that passes nearly through its center, but susceptible of cultivation. In some places it is denuded of its timber and put to grain. The most of it, however, is left in timber. The Sequatchie River runs a south-western course through the valley, and the bottoms contiguous are exceedingly fertile. The soil is a black alluvial, with a clay subsoil. Corn grows to great perfection, producing from twenty-five to fifty bushels to the acre. It seems that wheat does not do so well, whether from the want of adaptation of the soil, or from an injudicious management in the seeding, is hard to determine. More than possible, the latter course has much to do with it. The bottoms are wide and the land valuable. But little of it is for sale at any price. When in the market, it will command from twenty-five to fifty dollars per acre.

There is a considerable change going on among the farmers with regard to introducing labor-saving machines, and improved breeds of stock. Reapers, mowers, now and then a wheat drill, threshing ma-

chines, substantial turning-plows, &c., are finding their way to this county. Here and there some well-bred stock may be found, and especially hogs. There is, however, an almost total neglect in removing the ancient houses erected by the early settlers, and building more desirable ones. There are houses still standing in this county, and occupied by men of extensive means, which were built by the pioneers. It is a rare circumstance to find a modern building. This lack of neat and comfortable residences gives an unfavorable aspect to the otherwise beautiful country, and a bad impression is made upon the mind of the stranger. It is not because the farmers are not able to have better homes, for they are generally in good circumstances, and a better population is not found anywhere. They are moral, and attend to their own business.

The work of education is not ignored by them. They have some excellent schools, one of high grade, and the common school system meets with general favor.

This county is rich in its mineral deposits. Iron is in the greatest abundance, and found in the valley next to Walden's Ridge. Coal is equally as abundant. Of course neither is worth much now, in consequence of the want of transportation. A narrow gauge road is badly needed through this valley, running from the upper end of it to Jasper, some sixty to seventy miles.

The Sequatchie River affords an abundance of water-power for any and all purposes. There are but few mills and no factories. There are no fair grounds in the county.

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## SULLIVAN COUNTY.

### COUNTY SEAT—BLOUNTVILLE.

Sullivan county was organized in the year 1779, and was taken off Washington county while it was still under the jurisdiction of North Carolina. The courts were not organized until 1782 or 1783, as there were difficulties existing between the State of North Carolina and the State of Frankland. It is a border county, touching Virginia and bounded on the north by that State, on the east by Johnson and Carter, on the south by Washington, Johnson and Carter, and on the west by Washington and Hawkins counties. It has a population



of 13,136. The eastern boundary of this county, which runs north-easterly and south-westerly, rests upon Holston Mountain, a bold sandstone ridge, dividing Sullivan from both Carter and Johnson. Between this and Blountville are several remarkable belts of knobby country, separated by limestone valleys. The rocks of the knobby belt are mainly calcareous and sandy shales. The soil is mellow, rich, friable and very fertile, but owing to the unevenness of surface produced by the large number of conical hills, it is not adapted for large farms. Little farms with small farm-houses are found in this region, nestling amid the hills. In the western part of the county rises up Chestnut Ridge, with the usual trend. Between this and Blountville, the rocks are limestones and dolomites, and the soils strong, fertile and highly productive. North-west of this ridge the rocks are shale, and the river valleys are exceedingly generous in the yield of their various crops.

The county town is Blountville, named after Governor Blount, with a population of about 350. It has gone down considerably since the construction of the East Tennessee, Virginia and Georgia Railroad. It was once a flourishing place, and absorbed the trade of an extensive area of country, but the road in question left it some seven miles and made its terminus at the town of Bristol, on the Virginia line. This concentrated the trade at the latter place. Blountville was destroyed by fire during the war, the devouring element consuming four stores, two hotels, eight dwelling houses, court-house and jail. Since then the court-house has been re-built and the town otherwise improved. The Masonic fraternity have a commodious building for the education of both sexes, and there is a large male academy. In this school there are 145 scholars enrolled, with an average attendance of 125.

Bristol, on the State line and the terminus of the East Tennessee, Virginia and Georgia Railroad, is comparatively a young place, containing a population of 1,800. This is exclusive of that of Goodson, on the Virginia side. The two have some 3,500 inhabitants. There is one Presbyterian church, one Methodist church, two Baptist churches, one Episcopal church, one Catholic church, and one Christian church. There are sixteen dry-goods stores, two drug stores, two provision stores, two tin and stove establishments, one steam sash and blind factory, one tobacco factory, two woolen mills, one foundry, and two weekly papers.

Union is situated on the East Tennessee, Virginia and Georgia Railroad, eleven miles west of Bristol, seven miles east of Blountville, and

on the Holston River. It contains a population of about 400, with five mercantile establishments, one cotton factory, running 800 spindles, employing about sixty hands, half of them females, at good wages, one steam saw-mill, one grist mill and soon a tobacco and woolen factory will be established. The water-power on the Holston River at this place is very fine, and is worth thousands of dollars to the town of Union. There are three churches, one Presbyterian, one Baptist and one Methodist, and a good school of over 100 pupils.

Kingsport, one of the oldest towns in the county, is situated in the west end of the county, on the Holston River, with a population of about 200. It is surrounded by the best land in the county, large and broad bottoms and productive. There are two stores, and two churches, Presbyterian and Methodist.

There is one white sulphur spring in the county, unsurpassed, as is believed, in any country. It is situated eight miles east of Blountville and five miles west of Union, in a lovely valley, and in the midst of charming scenery. There is a most desirable location for hotel and other buildings. It is situated in an excellent community. There are a number of chalybeate springs in different places in the county, several of which are improved.

The prevailing rock is limestone; occasionally, on the ridges, sandstone and flint. The principal mineral is iron, and that is in great abundance and of the best quality. At one time there were eight iron manufactories in the county, besides founderies for making hollow-ware. There are only two now in operation. Dr. Hammer, an enterprising gentleman, has a fine iron ore bank on his estate, within one-fourth of a mile of the town of Blountville. It is said to exist in larger quantities in the county. A considerable quantity of bar iron is manufactured. There are two founderies making hollow-ware, machine iron, plows, &c. There are two woolen factories, &c. There are fifty grist mills in the county, and about seventy-five saw-mills, two steam saw-mills, two shoe factories on a large scale, and ten tanneries.

The soil of Sullivan county is based mostly upon a solid clay subsoil, and is susceptible of improvement and well adapted to all the grasses. There is a great deal of what is termed *mulatto* soil, of a dark reddish color, and is regarded as the best wheat land in the county.

The principal valleys are Denton's, Holston, Cook's and Beaver Creek valleys. Denton's Valley is in the eastern part of the county,

is large, and extends to the Virginia line. The Holston Valley is extensive, and lands good; it lies on the Holston River. The first and second bottoms are very productive. Cook's Valley is in the western portion of the county, is narrow, but the land is fertile. Reedy Creek Valley is in the east end of the county, rather thin land, until it reaches some fifteen miles east of Kingsport; at this point is some of the very best land in the county. In this region considerable quantities of clover and timothy seed are produced. It is a fine grass section.

Beaver Creek Valley from Bristol to the mouth of the Holston River, some ten miles, is a magnificent stretch of country. Here are fine farms and excellent farmers. Through it runs Beaver Creek, one of the finest streams for machinery in all the country. It has more mills on it, for its length, than any water course in the county. The valley from Bristol to Blountville, about eight miles long, is level and productive. The meadows are excellent.

The average size of the farms is about 160 acres, and altogether worked by the owners. The average price of land per acre is about fifteen dollars for improved and unimproved. The general crops grown are wheat, corn and oats. Some tobacco, with a fair prospect of a large increase of it in the future. About one-eighth of the land in cultivation is in grass and clover. The condition of the farms as compared with that before the war is about twenty per cent. worse off. The most profitable mode of farming is raising grass and wheat. The cast turning plow is altogether in use for breaking land.

The stock of the county has always been above an average. Before the war there were in use a number of thoroughbred horses, and their descendents are scattered all over the county. There is scrub stock, but it is giving way to a finer race of animals. Sheep are annoyed by dogs and killed by hundreds every year. The citizens of the county are in favor of a stringent dog law, by which the dogs may be gotten out of the way.

There is but little waste land in the county. The population is sparse. The value of taxable property will exceed \$2,300,000. The terms of renting is one-third of the crops, and house, wood and pasture for the tenant.

The prevailing timber is oak, poplar, ash, walnut, chestnut, beech and yellow pine.

There is a number of valuable streams running through the county. Holston River is a bold stream, furnishing water-power to any extent. Beaver Creek is noted for its capacity in this respect. Reedy Creek is another large stream. Sinking Creek affords water-power, and so does Fall Creek. Kendrix Creek is a large stream with good fall.

The facilities are not favorable for transportation. The roads are in bad condition, and that is a great drawback to the county. The nearest shipping points are Bristol and Union.

Labor is scarce. Many laborers, tempted by stronger inducements, have gone west and south into the cotton fields. Good laborers will command from seventy-five cents to one dollar per day, and during the harvest season, still more. The citizens throughout the county are extremely anxious for immigrants to settle in their midst, and will treat them kindly. The schools are in a prosperous condition. The free school system is working well, and giving general satisfaction. The greatest drawback to the county is the want of capital. Peaches, apples, blackberries, dewberries, raspberries, &c., are dried and sent off to market. It is considered that a good fruit year is worth more to the county than a crop of wheat. Considerable quantities of butter, apple butter, and peach butter are made. Hundreds of bushels of onions are raised and shipped off.

The farmers sow the red bearded and white smooth winter wheat. But little spring wheat is sown.

There are fair grounds containing thirty acres. There are some organizations among farmers.

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## UNION COUNTY.

COUNTY SEAT—MAYNARDVILLE.

Union county is of comparative recent origin, having been organized in 1856. It is not large. It is bounded on the north by Claiborne and Campbell, on the east by Grainger, on the south by Knox and Anderson, and on the west by Anderson and Claiborne counties. There is a number of ridges running entirely through it from north-east to south-west.

Maynardville is a small village of about 160 inhabitants. Before the war, it was quite a prosperous place for an inland town. It is now recovering, and bids fair to regain what it lost. It commands a considerable trade for miles around, and the merchants are prosperous.

The valleys are Big Valley, Hickory Valley, Hind's Valley, Raccoon Valley, Bull Run Valley, and Flat Creek Valley, the most noted of which are Big Valley, Hickory Valley, Raccoon Valley and Flat Creek Valley. Their average fertility, under such culture as is usually bestowed by the farmers of this county, is about thirty bushels of corn or oats, and about ten bushels of wheat to the acre. Other crops are in proportion. The ridge and mountain lands are scarcely fit for anything except it be for raising fruit and grazing sheep. The average size of farms is about 200 acres, and they are mostly cultivated by the owners. Improved farms are worth about \$10 per acre, and unimproved about \$5. The principal crops grown are corn, wheat oats rye, potatoes, cotton, tobacco, sorghum, etc. Nearly one-tenth of the land is devoted to grass, one-half of which is mown and the remainder is pastured. One-fourth is clovered, which is mostly pastured.

The condition of farms, as compared with ante-bellum times, is much better. The farmers are learning to improve their lands very rapidly. Before the war, they attempted to cultivate too much land. They now begin to see the folly of this, and are reducing their acres under cultivation. Corn, wheat, oats and clover are regarded as the most valuable crops. There is a large quantity of untillable land, owing to the mountains and ridges which run through it, and there is no inconsiderable quantity that has been broken down by injudicious culture. The character of the soil partakes of clay, sand and slate, but clay predominates. The principal rocks are limestone. The prevailing timber is poplar, pine, oak, chestnut, etc., of which there is a great abundance. The value of taxable property is \$843,014.

Water courses suitable for mills and manufacturing purposes are, Lost Creek, Little Barren, Millers Creek, Crooked Creek, Fall Creek, Bull Run, Hind's Creek, Dotson's Creek and Flat Creek. Any of these will afford power sufficient for any kind of machinery. Besides these, there are some smaller ones suitable for light machinery, such as carding machines, cotton gins, etc. Clinch and Powell's rivers run through the county, and they afford water-power to any extent desired.

The facilities for transportation are not good. There is no railroad, and the only means of transportation is by flat-boats on the Clinch and

Powell's rivers during high tides, and by wagoning some twenty-five or thirty miles to Knoxville.

The mineral wealth of this county consists of iron and lead, the former in great abundance, while of the latter there is thought to be large quantities. There is quite a number of mineral springs in various portions of the county, such as chalybeate and black and white sulphur.

The farmers have made no progress, or, at least, but little, in improving their stock. They still have scrub cattle, hogs, horses and sheep, and no other kind. The sheep business might be made profitable in this county. They are not much disturbed by the dogs.

Labor is abundant, and wages run from \$8 to \$10 per month. There is ample room for immigrants, and they would be received with cordiality, especially those who have capital and enterprise. But to induce all this, more attention must be paid to the education of the children. The interest, however, in this direction, is growing slowly. There are some good schools, but they are not continued long enough, for want of means to sustain them. The people are industrious and provident, while they are law-abiding and orderly.

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## WASHINGTON COUNTY.

COUNTY SEAT—JONESBORO.

This county was organized under the government of North Carolina, November, 1777, and composed of portions taken off Wilkes and Burke counties of that State, and embraced the present area of Tennessee. It is, therefore, the oldest county in the State, and was the theater of the most important events that occurred in its early history.

Washington county has a superficial area of about 430 square miles. Its southern boundary runs along the highest summits of the Unakas, passing over quite a number of prominent peaks, among which is the Great Bald, which rears its cloud-capped dome 5,550 feet above the level of the sea. About one-third of the county is covered by these mountains, whose towering heights give a boldness, sublimity and picturesqueness to the landscape, and tempers the winds of summer with a delicious coolness. The mountain ridges partaking of the usual

trend of the Unakas are separated into two groups, by a long limestone valley, which has taken the odd and unique name of Greasy Cove. Those south-east of the cove constitute the main Unaka range, and are composed of gneissoid or stratified granitic rock. The highest summits in the county, though not in the State, are found on this range, several of which, being destitute of timber, are called "Balds." These Balds are covered with a gravelly, blackish soil, which produces a wild mountain grass that affords pasturage for droves of stock. On the north-west of Greasy Cove there are several parallel ridges, the most prominent of which are known, locally, as Buffalo, Rich and Cherokee mountains. These also afford ample pasturage during the summer months. The rocks of these are conglomerates and sandstones. All the mountains, with the exception of the Balds mentioned, are clothed with dense forests of timber. Oaks of many species, the pine, poplar, walnut, cherry and linn, rear their massive trunks high in the air, while an undergrowth on the main Unakas, south-east of Greasy Cove, is largely intermixed with laurel.

Bompass Cove, a small mountain-hemmed valley, nestling between the ridges of the north-west division, is noteworthy on account of the very extensive deposits of limonite iron ore, which makes iron of superior quality, and almost invariably contains a small percentage of lead. This ore occurs in banks, the matrix being clay and flinty gravel. Iron ore, of the same quality, is also found in Greasy Cove.

The Nolichucky, by deep canyons, cuts at right angles the Unakas, and also the group to the north-west. It may here be stated as a singular fact, that the whole Unaka range, although the highest of the Appalachian chain, is cut transversely in the State of Tennessee by a number of streams, among them the Watauga, the Nolichucky, the French Broad, Big Pigeon, Tennessee, Hiwassee, and Ocoee, all of which are tributaries of the Tennessee River.

North and west of the mountain, the aspect of the country becomes more subdued. This portion of the county lies properly within the Valley of East Tennessee. The surface is rolling, and made up of alternating ridges and valleys.

Jonesborough and Johnson City are the only incorporated towns in its limits, though there are several villages. Jonesborough was laid off in 1779, is the oldest town in the State, and was its first capital. The first session of the Superior Court was held here, and it was about this time that President Andrew Jackson began his career as a

jurist. The county buildings and business houses are alike creditable to the public and private enterprise of the people. Two good institutions of learning are located at this place. There are, also, five church organizations, four church edifices, three newspapers, two hotels, several lawyers and physicians, an agricultural implement store, six mercantile houses, and three drug stores. The town is built among the hills, and the location is exceedingly healthy. Being centrally located, it draws a splendid trade from the county and a good portion of the mountain regions of Western North Carolina. The manufacturing interests are embraced in a tannery, two blacksmith shops, a foundry, two cabinet shops, saw-mill, a harness and several shoe shops. A flouring mill, carding machine and woolen factory would be profitable investments. Steam would have to be used as motive power. Population 1,200. Johnson City is a new and enterprising town, seven miles east of Jonesborough, on the East Tennessee, Virginia and Georgia Railway. It contains three churches, several stores, a large hotel, is situated in a rich agricultural region, and enjoys a high degree of prosperity. The population is 800.

Along the water courses the soil is a rich alluvium, and produces abundant crops of corn, oats, grass and rye. In the central and northern portion of the county, the uplands consist of a clayey soil, resting on a limestone formation. The subsoil of these lands is of such a nature and depth as to render them susceptible of the very highest degree of tillage. These lands are highly adapted to the raising of wheat, timothy, and the various kinds of crops indigenous to high latitudes. In the north-eastern sections of the county the soil is composed of gravelly ridges, interspersed with extensive slate strata, finely suited for grazing purposes, and grows the finest quality of wheat. On all the different varieties of soil above mentioned, red clover grows luxuriantly.

Ten large creeks traverse the county, and these, with the rivers already mentioned, afford a water-power for milling and manufacturing purposes that cannot be closely estimated.

The prices of improved land vary from fifteen to fifty dollars per acre, owing to location as regards schools, churches, post-offices, mills and railroad facilities. Unimproved lands vary in valuation from fifty cents to ten dollars. The latter embrace the mountains and timbered sections.

Farms are in a much better condition now than previous to the war, and the system of cultivation is rapidly improving. Wheat, corn, oats,



rye and barley are the crops grown, and the average yield per acre, considering the entire area, is small. There is a large quantity of waste land, exhausted by crops and a ruinous system of cultivation. A large amount of this impoverished area can be restored by proper management. The size of farms is generally large, larger than can be conducted with remunerative profits with the labor employed. We would here add that the people do not perceive the advantage of small tracts, thereby increasing their agricultural force and enriching the same to the highest degree of productive capacity. Stock-raising would, undoubtedly, be more profitable than any other department of farming, owing to the fact that the land needs rest, fertilizers and grasses, whilst the waste and mountain lands will furnish ample pasturage for a hundred times the number of stock that is now owned. Wool-growing, for several reasons that might be assigned, would be a most profitable employment. The soils are highly adapted to the cultivation of timothy and red-top, and clover is used extensively as a renovator. Turning plows, shovels and the bull-tongue are used in breaking up, the two latter in cultivating the crops. Horses and mules are used for farm work, except in the mountains, where oxen are used for farm work, except in the mountainous, where oxen are used almost entirely. Labor is abundant, and is generally paid for in part of the crops. The tenant system universally prevails. Where the owner of the land furnishes all the material and supplies, he gets two-thirds of the crops, and *vice versa*. Rental contracts generally run for a year. The products are generally shipped to southern markets. The East Tennessee, Virginia and Georgia Railroad passes through the county a distance of twenty-five miles, in which there are four depots. Horses, hogs, mules, sheep and cattle comprise the stock. Some fine stock are being introduced with the most encouraging results. Sheep are considerably annoyed by dogs, and the annual loss may be safely estimated at 300 head.

Limestone and dolomite are the prevailing rocks north and west of the mountains, and but little use is made of them except for lime. The mineral wealth as regards iron seems to be exhaustless and of the very finest and richest quantity. Barytes is found in immense beds near Fall Branch, and large quantities are being shipped. Lead is also met with. There is a large iron manufactory at Embreeville, which uses water-power. Near this place is one of the largest deposits of iron in the State, already mentioned as Bompass Cove.

A considerable quantity of home-spun goods are manufactured but

none shipped. Almost every farm has an orchard, and fruits would do well if properly attended to. The grape can be grown with profit. The most valuable varieties of timber are oak, walnut, beech, wild cherry, hickory and ash. The people are kindly disposed toward immigrants, and most desire farmers and mechanics. The population of the county is about 17,000, and is increasing. There is an agricultural and mechanical association, and its efforts are highly promising. The October fair, held under its auspices, was a splendid success, eclipsing in the variety and excellence of the articles exhibited in any fair ever held in the county. The county abounds in mineral springs, principally chalybeate, and are recommended by medical authority for their medicinal virtues. The dirt roads, as a general thing, receive but little attention. There are fifty-two flouring mills in the county. The schools, ten of which are graded, are all public, and sustained by State and county taxation with a liberal yearly donation from the Peabody fund. They are seventy in number, and employ eighty teachers. The educational interest is constantly increasing. The introduction of improved implements and machinery has brought a wonderful and encouraging change in the modes of agriculture, and the results are so strikingly manifest that it is to be hoped that the people will make some approach to the advancement that prevails in the rich agricultural States of the Union. There is a poor-house, which contains about twelve inmates, supported by the county. The county owns the farm upon which the poor-house is situated, which contains about 400 acres, valued at \$9,000.

The Secretary is indebted to A. B. Cummings for many facts contained in this notice of Washington county.

## PART III.

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# MIDDLE TENNESSEE,

(WITH A DESCRIPTION OF EACH COUNTY.)

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Middle Tennessee is by far the most valuable division of the State. It embraces forty counties and has a superficial area of 18,000 square miles, and a population, according to the last census, of 561,832. The value of its taxable property in 1873 was \$136,906,557; number of polls 80,858; number of voters, 109,796. It contains 245 towns and villages. It has 550 miles of railway, and nearly 500 miles of navigable rivers. The surface is greatly diversified, and exhibits varieties of scenery the most opposite. Passing from Grundy county to Wayne, or diagonally from Stewart to Franklin, one sees almost every variety of landscape and surface features—mountainous, with rushing torrents and foaming cataracts; hilly, with swift, smoothly gliding streams; level, where the waters linger by the sides of green pastures and grassy meadows, and where luxuriant crops gladden the face of nature. There is indeed no fairer region than that of Middle Tennessee. Nature has been lavish of her gifts of soil, of mineral, of timber and of water, of beauty in the landscape and freshness in the air; of health for the body and mind and of freedom from inclemencies of season. There is not a swamp properly, so called, within its boundaries. Its drainage is almost perfect. The surface is slightly tilted towards the northwest, and through deep gorges in the highlands, the Cumberland, Duck and Elk rivers flow on to mingle their waters with those of the Mississippi.

There are altogether, more than 300 milling streams in this division, over fifty macadamized roads, and good schools and churches in every neighborhood. One peculiarity is noticeable about Middle Tennessee, and that is its great variety of productions. No crop can be named, that grows above the 35th parallel, that does not mature in some portion of this division. Tobacco, corn, clover, wheat, barley, rye, cotton, peanuts, all the grasses, vegetables of every kind, melons of the finest flavor and size, fruits, such as grapes, peaches, pears, apples, quinces, apricots, plums, cherries, strawberries, dewberries, raspberries, gooseberries, attain each such a perfection as to be noticeable. And further, nearly every product ripens most opportunely, and can always be put upon a bare market. Wheat and fruits and all the vegetables can be put in the Chicago or New York markets three weeks before they ripen in that latitude. The extent, variety and excellence of the timber is another marked feature of this division. Nowhere else are there such forests of red cedar, while the ash, poplar, cherry, sugar tree, the oaks and hickories, are found everywhere. The climate is such as to permit the introduction of the fig and magnolia. Nowhere in America are seen so much valuable fencing material. For in addition to the cedar and chestnut timber, which makes the best rails in the world, there is an unlimited amount of the finest building stone, of which cheap and durable enclosures may be constructed. Nowhere within the same limits is there found such a variety of soils of such excellent quality and of such adaptabilities.

In relation to the mineral wealth in this division, the iron ore on the west covering 4,000 square miles, is balanced by the stone coal on the east. As to the quantity of these two minerals, there is practically no limit. Since 1810 the iron ore has been worked, and we have no reason for believing that it will not be worked a thousand years hence.

As a manufacturing region, time will develop its eminent advantages. The counties herein described will show that the aggregate amount of unoccupied water-power is enough to work up annually the entire cotton crop of America. Cheap coal is attainable from three points—from our own coal fields, from the upper Cumberland, and from the western coal fields of Kentucky.

*Stock.* There is no surer method of estimating the wealth and solidity of a farming community, than by the number and excellence of its domestic animals. The following pages will show that Middle Tennessee, and especially that portion included within what is called

the Central Basin, has probably as much fine stock as all the cotton states put together. For three-quarters of a century, the Tennessee horse has been famous. On the turf and in the more useful labors of the farm and field of battle, their spirit of endurance has given them a character unsurpassed. Tennessee mules, for the two past decades, have cultivated the cotton fields of the south. Cattle of every breed from the lordly short-horn to the deer-shaped Ayrshire, are seen grazing upon every hill, and the central part of this middle division is acquiring an enviable fame by reason of the superiority of her bovine species. From Indiana and Illinois, Ohio and Missouri buyers come to this State in search of the most perfect types of every animal. One noted for his sagacity in stock breeding, recently declared that the Central Basin was the finest region for growing cattle he had ever seen. With a spontaneous growth of Blue-grass, there is united a well watered fertile region, in a mild climate and one whose healthfulness for stock is unsurpassed. The richest countries in the world are the cattle countries, and one may well determine the value of land by the price of the cattle. Every well-informed man knows that the quality of the wool made in Tennessee has elicited the admiration of the whole world. The late Mark R. Coekrill used to declare that every agency is here united to make the very finest fleece, and he had the satisfaction of demonstrating it to the assembled wool-growers of the world.

*Farms and Farmers.* The attentive reader will not have failed to observe that the main topographical feature of Middle Tennessee consists of a grand terrace covering 9,300 square miles, which circularly rims the great limestone basin which we have called the Central Basin, and which covers 5,450 square miles. This Basin is the fairest agricultural region in the United States, south of the thirty-sixth parallel, and the character of the soil, the style, finish and elegance of the farm-houses, and the general beauty of the country, depending not upon any general feature, but the combined result of hill and dale, wood and stream, meadow and field, mingled into a thousand delightful landscapes, everywhere set off this Basin and make it an extended panorama of exquisite rural elegance and beauty. In this Basin are found the very best farmers in the State, who bring to their vocation the appliances of improved machinery and all other agencies that a cultivated intellect would suggest. As a usual rule rotation is practiced, though not to the same extent as before the war. The soil is well prepared by deep plowing and subsoiling, and the crops are usually well cultivated, except in those localities where the pernicious system of cropping prevails.

Labor is scarce and not reliable, and as a general thing the farms are too large and were arranged to suit the old plantation system, which under the new regime has ceased to be profitable. Lands in the Central Basin are high, the best improved farms ranging from thirty to \$100 per acre. And there is one singular fact connected herewith. Remote from railroads, lands in this Basin have not depreciated in value, while in the more populous counties, such as Maury, Davidson, Sumner and Rutherford, they have fallen since the war at least twenty-five per cent. In Cannon, Smith and Marshall counties and portions of Bedford lands are in active demand at high prices. There is but one way to account for this phenomenon. The high rate of interest which money bears, and the frequent opportunities offered for investment in the first named counties, have directed the minds of many farmers from their legitimate business, and they prefer the more quiet work of clipping off coupons to the troublesome and constant attention necessary to insure success on their farms. Hence many farms are for sale, and the competition among sellers has reduced the price of land.

On the Highlands, and especially in Montgomery, Robertson, Stewart, Warren and Franklin, the character of the farms and farmers is much the same as in the Central Basin. In the first two named, tobacco is largely grown, and no land in the State grows wheat so kindly or so well. The Highlands are probably also better suited for fruits. In proportion to productive capacity, there are probably no lands in the State that rate lower than those in Montgomery and Stewart.

In respect to health, the Highlands will compare favorably with any portion of the American continent. No epidemic has ever prevailed, and as the forests are swept away by the demands of domestic life, even fevers, (which were once prevalent,) by reason of the climatic changes wrought are becoming uncommon. There is really no epidemic disease, and when the Central Basin is sometimes unfortunately visited by cholera, the citizens flee to the Highlands, with an assurance of perfect immunity from that dread disease.

In the northern tier of counties on the Highlands, ice-houses are very common, and almost every farmer either has one or an interest in one. Spring and well water is abundant, though many prefer cisterns. In the Central Basin spring water is very generally used. The prevalence of limestone makes the digging of wells or cisterns expensive and difficult. With the exception of a very few localities, stock-water is abundant throughout Middle Tennessee.

As to educational facilities, no portion of the South is better provided than the best portions of Middle Tennessee. And the probabilities now are that it will become the great educational center of the Mississippi Valley. Several first class Universities are now being established with endowments ranging from \$100,000 to \$1,000,000. A generous rivalry is springing up between the different religious denominations, and Middle Tennessee is gathering into her lap contributions from almost every State in the Union for the benefit of her educational institutions.

We should probably be remiss in our duty not to repeat the truth that immigrants would be warmly welcomed. In no portion of the United States could they do better. Industry is here sure of its reward. Thousands of acres of good land can be bought at reasonable prices on the Highland and in the Basin. Much of the land on the Highlands is thin and unproductive, except for fruit, and may be bought for two and three dollars per acre. Wherever a red subsoil on the Highlands prevails, the surface soil is good. Many such spots occur in basin-like depressions and constitute as valuable land as can be found in the State.

The climate is equable and mild. Observations for twenty-one years show that the temperature has not gone above 99°, while the lowest has been 8° below zero. The mean summer temperature is 75°—annual mean 58°. The average of low temperature for twenty-one years is 2.6°. The number of days between killing frosts is 189, and the average amount of rainfall forty-six inches. Winter rarely lasts over seventy-five days, and snows, though occurring often during winter, soon disappear. In general, the climate, on equal latitudes, is two degrees hotter than in East Tennessee and two degrees cooler than in West Tennessee. During many winters stock is able to subsist throughout the season upon grasses and especially is this the case in protected situations.

Mineral springs of excellent water are found scattered all over Middle Tennessee. The most noted are upon the Highlands and upon the Cumberland Table Land. The spring region of Middle Tennessee is becoming justly famous, not only on account of the water, but for the beauty of the landscape and purity of the atmosphere. Especially is this the case with the portion upon the Table Land. The magic influence of the mountain air and the healing virtues of the water, impregnated as it is with salts of iron, have restored many a consump-

tive to vigorous health and given fresh vitality to many a frame worn out with over work and anxiety.

For minute details as to the agricultural features and geological formations and industrial interests, the reader is referred to the descriptions of the counties given below.

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## BEDFORD COUNTY.

COUNTY SEAT—SHELBYVILLE.

Whether we regard the fertility of the soil, the rural beauty of the landscape, the abundance and variety of the timber, the excellence of the streams, the high cultivation of the farms, the value of the live stock, the diversity of the products, the high character of the schools, the refinement, elegance and hospitality of the citizens, Bedford county must be considered as entitled to a position hardly second to any in the State. Erected by an act of the Legislature in 1807, and organized in 1808, it has always occupied a prominent place in the commonwealth. When first organized, it included what is now Lincoln county, a portion of Moore, Marshall, and Coffee counties. It has an area of about 475 square miles, or 300,000 acres, and is well watered by Duck River and its tributaries. This stream flows nearly through the center of the county, from east to west, and is fed from the north, reckoning from the west, by Spring Creek, North Fork, Garrison Fork, with its tributary, Wartrace Creek. Barren Fork may be considered the main stream, but the name of Duck River is not applied until after its junction with Garrison Fork. From the south, beginning on the west, there flow into it, Sinking Creek, Sugar Creek, Big Flat Creek, Thompson's Creek, and many smaller streams. Duck River is the great arterial current, and drains, with its tributaries, almost every foot of land in the county. There is scarcely a farm upon which a bubbling spring of pure limestone water does not rise, and after flowing beside, or through green pastures, discharges its waters into some tributary of Duck River.

The topography of Bedford county is very simple. It presents in the main, a gently rolling surface, with occasionally flat topped hills, that rise to an elevation of two or three hundred feet. West of the road that leads from Shelbyville to Murfreesboro, and north of Duck



River, the country is comparatively flat, east of this road it is undulating, with lines of rounded hills. These hills are usually capped with sandstone, and like the slopes and crests, are heavily wooded. The soil is comminuted limestone and sandstone, with an intermingling of rich black humus. It is exceedingly fertile, durable, and generous. South of Duck River, and running west as far as Sinking Creek, the surface configuration continues much the same, while west of Sinking Creek, the hills rise much higher than anywhere else in the county. The elevation of Gentry Hill is about 350 feet above the valley lands below, and a description of this may serve as an illustration of the character of all the hills in the county. This hill occupies, if reduced to a level plain, about 100 acres. The ascent from the south is very gradual. Beginning at a small tributary of Sinking Creek, we first pass through a field, characterized by a large amount of yellowish angular gravel, soil mulatto in color, and very friable. For three hundred yards no large rocks are seen. After this, the limestone rocks in ledges and "nigger heads" appear, with their steep faces beveled off by the accumulations of silty matter. The timber here is characteristic—buckeye, sugar tree, ash, white oak, red oak, elm, and scalybark hickory, with no underbrush, and very few grape vines. This growth continues to the top, while the soil grows more sandy, and the shivery masses of sandstone increase to the crest. On the east side are found all the varieties of timber mentioned, with the addition of walnut and black locust. Here, too, the underbrush of blackberry bushes, matted in thick beds, elder and locust, obstruct the way, and this mass thickens on the north. Blue-grass, which did not show itself on the southern exposure, springs up in all the open places, the soil becomes of a deeper red, which shades off to a deep black on the north. On the west side paw-paw bushes appear, and some of them are of great size. On some of the neighboring hills they are found five and six inches in diameter, and will make from two to four good rails.

From the top of the Gentry Hill, one of the finest views presents itself to be had in the State; a view in which the rural beauty of the landscape is unexcelled. Looking towards the east, a smiling circular valley, covered with cultivated fields and pastoral plains, spreads out for a distance of twenty miles, and a like distance towards the north, the minor hills disappearing when seen from this elevation. Farms and farm-houses, villages, and belts of timber darkened with cedar, and streams like threads of silver, enlivening the landscape, flowing through ample pastures, whose green is flecked with herds of cattle

and flocks of sheep—all these may be seen at a glance. The whole valley appears like an amphitheatre, enclosed with a cordon of gently rising rounded hills. This hill is a type of all the higher elevations in the Central Basin.

*Rocks, Soils, Timber.* Situated, with the exception of the border on the south and east, within the Great Central Basin of Tennessee, the prevailing rocks are limestone, generally thinly bedded and flaggy but with some fine building stones. The limestones belong to the Nashville and Lebanon formations, limestones low in the geological series. West of Shelbyville are quarries of excellent building stone. That of which the pillars to the new court-house are made, and of which the county jail is built, is of a deep blue, hard and compact. It breaks with a smooth fracture, is comparatively free from fossil remains, and is very durable. Two other varieties of an impure limestone are found, called white rock, and sandstone or firerock, that work easily, and will withstand the action of fire for a long while. They do not readily burn into lime like the blue stone first mentioned. Indeed, they are never used for that purpose. The white rock, found in the north-west corner of the county, bears a good polish, and was used for the caps to the lower columns of the court-house. It makes a good appearance and is said to weather well. The sandstone, or firerock so called, occurs in thick beds eight miles west of Shelbyville, and is coarse, very soft and easily worked, but in thin slabs is flexible. It resists the action of the weather, and is much used for gravestones, floors, &c. It has the aspect of a sandstone but has no sand, or a very small proportion in its composition. The sandstone proper, that covers the knobs, is of but little value. There are several varieties of soils, differing in color and productive capacity. They may for convenience be called the mulatto, the red and the black. The mulatto covers a larger extent of surface, than either of the others. It is, indeed, the characteristic soil of the county, and is the best for clover, wheat, oats, sweet potatoes, and cotton. It has considerable tenacity, is stiffer than the red or black, and upon it a stand of grass or clover is much more easily obtained. The native growth upon this is ash, poplar, walnut, butternut, elm, buckeye, sugar tree, several kinds of oaks, hickory, beech, linden, box elder, slippery elm, red bud, sumac, dogwood, and black gum. The prevailing timber, however, is sugar tree, ash, poplar, and beech. The ash timber is as fine as can be found in the State, and is very abundant. Ash trees may be found six feet in diameter, also white oaks of the same size. Black walnut is growing

scarce, but was once plentiful. So much for the native growth of the mulatto soil. When cleared up and put in cultivation, the average yield of crops per acre, is of wheat from fifteen to twenty bushels, of corn forty bushels, of sweet potatoes seventy-five bushels, and of cotton about 700 pounds. Fortunately for the appearance of the county there is very little cotton grown. The very best yield, however, goes far above these averages. Good farmers often make thirty-five bushels of wheat, sixty-five to seventy-five of corn. Timothy takes kindly to the mulatto soil, and yields from one and a half to two tons per acre. Among the annuals, Hungarian grass, and German millet, do best on this soil, and the yield is sometimes as high as three tons per acre, and even more. Of all the soils in the county, it is considered the most reliable for clover, a better stand being secured on it, than on either of the other varieties. Formerly hemp was raised in the eastern part of the county, but mostly on the black soils. The red soil is confined mainly to the Cedar belt. This belt lies, for the most part, on the north side of Duck River. It begins at a point near Wartrace, and extends in an irregular arc as far as Fishing Ford, on Duck River, and from this point bends southwardly, crosses Duck River, and terminates a few miles north of Richmond. The cedar timber covers about ninety square miles. At least two-thirds of the farms in the county are supplied with rails from this cedar forest, which has been considerably thinned out in places, but timber enough yet remains to supply the demands of the county for many generations, if economically used. The young cedars that spring up grow very rapidly after the larger trees are cut out, and will attain a size large enough for rails in forty years, which is not more than the average duration of a good cedar fence. In some spots the cedar trees stand very thickly upon the land, and many of them are from fifty to seventy feet in height, and from three to three and a half feet in diameter. The largest trees are not the best however. The best timber is obtained from trees varying from fifteen to twenty inches in diameter. The timber from an acre of the best cedars, will sell for one hundred dollars, standing in the woods. The red soil is well adapted to the growth of wheat, cotton, oats, and sweet potatoes. It is not so good for corn as the mulatto. The black soil may be subdivided into alluvial and hill-side. The former is upon all the streams, and in the supply of plant food, much surpasses any in the county. It is the best soil for corn and hemp, making by far the largest yields. It also grows hay and grasses of all kinds very luxuriantly, but it is sometimes difficult

on account of its friable nature, to secure a good stand. The freezes also produce upheavals of the soil, which throw these plants, whose roots lie near the surface, entirely out of the ground. These alluvial bottoms are not suited to wheat. The straw grows too rank, and is liable to rust. Neither does it suit clover so well as the mulatto and red. The great difficulty is not in the lack of fertility, but in getting a stand. It is quite possible that the land might be benefited by tramping, rolling, or in some other way compacting the soil. It usually has a large quantity of intermingling gravel, and is very easy to cultivate. The black soil on the hill-sides is composed of comminuted angular gravel, imbedded in black humus. It abounds on the north slopes of all the hills, and is considered very productive and valuable.

*Farms, Stock, Blue-grass and Meadows.* In no county in the State are the farms in better condition than in Bedford. The fences are usually made of cedar rails, and are well kept up. In going through the county one will scarcely see a bad fence, an old field, or an impenetrable thicket in the fence corners. The farm houses, though not elegant, are neat and comfortable, and while the stables and barns might be made in many cases more sightly objects, they will compare favorably with those seen in the best counties in the State. The price of farms may be considered high. Ordinary farms, within five or six miles of the county seat, range from thirty to thirty-five dollars per acre. Good farms well improved are worth from fifty to one hundred dollars per acre, and even higher than this near the county seat. This high price is to be attributed to the fact, that the farmers not raising cotton, have opportunities to keep their farms in a high state of cultivation. Gullies are not suffered to wash, nor noxious weeds and briers to grow, while the enclosures are of a durable nature, and the expense of fencing greatly diminished. It may be mentioned also, that stock-raising, being the chief business of the farmers, labor is relatively in greater supply and is more effective than in the cotton growing districts. Bedford is pre-eminently a stock-growing county, and a large belt of land suitable for blue-grass, makes that branch of farming very profitable. This grass grows spontaneously in a great portion of the county. Beginning a few miles west of the Murfreesboro pike, the blue-grass belt extends eastward nearly to the Coffee county line, then sweeps southward and embraces nearly all the county south of Duck River, extending westward a little beyond Richmond, and northward from that point until it strikes the cedar belt. The entire blue-grass area embraces 150,000 acres, or about one-half of the county. Within

this area, however, are many rocky ledges and glady spots which grow it but sparingly, and where it soon perishes under the blasting rays of a summer's sun. The amount of lands suited to meadows is also considerable. The great number of streams that thread the county, pass through many rich low bottoms, that can be irrigated at a small cost. As has already been said, it is sometimes difficult to secure a stand of timothy, but herds-grass does well and yields hay in satisfactory quantities. The lands adapted to meadows, may be said to begin along the railroad near Bellbuckle and Wartrace, and extend west approaching Shelbyville, and continuing to the western boundary of the county. It is estimated that there are at least 75,000 acres of good meadow land in the county, and with proper attention, hay enough might be made not only to supply the county, but give a very handsome income to the farmers. On some of this meadow land timothy grows as high as a man's head. Some of the bottoms are "crawfishy," but when exposed to the sun and deeply plowed, they warm up and grow grass and hay luxuriantly. In reference to the hay and grass crops of the county, Mr. Shoffner, an intelligent farmer, in a communication, says:

Our soils are better adapted to the raising of grasses than any other crop, While it is necessary in the States north of us to manure their meadows in order to ensure a good hay crop, I have never known one to be manured in this county, except from the droppings of the stock. The grass grows profusely without any top dressing. I have known meadows to remain in grass for twenty years without any change, and they would produce satisfactory yields of hay throughout the whole period. There is not an acre of soil in the county that will not produce some species of grass to perfection, while there are some soils that will not produce any other crop. As an illustration of this fact I need only mention that my father owned a meadow (a low marshy spot) which produced enormous quantities of hay, but becoming, after a lapse of time, infested with weeds, he plowed it up and planted it in corn. The corn yielded comparatively nothing. It was again put to meadow, and yielded bountifully. The grass sown was herds-grass. I have often known the seeds of this grass to be sown without breaking the land, and make fine meadows. I would say, in this connection, that while herds-grass seeks the low marshy land, timothy, clover, blue grass and orchard grass prefer the higher and drier lands. Clover, while excellent for grazing, stands with us in the front rank as a meadow grass. It can always be mowed twice a year, and sometimes, in a good growing season, three times. There is, probably, ten times as much clover used, for the making of hay, as there was twenty years ago. Our best soils will produce from two to two and a half tons per acre, and if properly manured, would produce three tons. As to the number of animals, cattle, and horses, that an acre of Blue-grass will sustain through the spring and fall, I am not very well advised, having made no experiments in that way, but according to the best information that I can procure from others, as well as the results of my own

practice, I think that two acres for three head would probably be about correct.

It may be added that the worst enemy to meadows is the broom-sedge, and farmers are often compelled to plow them up on account of its inroads. Cotton is mainly grown in the north-west part of the county, the amount of production for the year 1873, was 2,338 bales. Eleven gins are in the county, which will average 200 bales each. Hogs, mules, cattle, and sheep claim the attention of a large majority of the farmers.

*The Hog Product.* This is very large, perhaps as large in proportion to area, as any county in the State. It stood fifth in 1870,<sup>o</sup> Maury, Lincoln, Wilson, Giles, and Williamson, ranking it. The favorite breed is the Berkshire, crossed upon the native hog. The latter gives size, while the former gives quickness of growth. One farmer who has 166 acres of land, gave as his hog crop, eighty-five hogs, averaging 350 pounds each, and others are reported as having done better than this. The value of the hog crop at present will probably reach \$550,000.

*Mules.* Almost every farmer in the county raises more or less mules, and many of them raise them for export. Drovers are bought up and carried away every year. The cost of raising mules is very little. They feed upon the blue-grass during spring, autumn, and a good part of the winter. During the hottest months, they are turned upon clover pastures, and upon the newly mown meadows, after the hay has been harvested. They require to be fed on corn and hay, for about two or three months, the time being longer or shorter in proportion to the severity of the winter.

*Horses.* The character of the horses is much the same as that found in the other counties of Middle Tennessee. The blood of many of them has been enriched by importations from Kentucky, Davidson county and other points. Horses are much used for riding. Almost all classes in the country, men, women, and children, ride horseback. Buggies are less used by farmers than in many of the other counties.

*Cattle.* Since the war many fine short-horn bulls have been imported, and crossed upon the native breeds. The graded cattle are preferred for milkers. No county in the State offers more natural facilities for engaging in dairy farming. The numerous streams and sparkling springs, that are seen almost everywhere, as well as the rich meadow land, invite the farmer to this special department of agricul-

ture. In natural facilities it surpasses the Herkimer district of New York, and the time of green grass by reason of climate is prolonged at least six weeks. There is no good reason why Bedford county may not become as famous for its butter and cheese, as any part of the United States.

*Sheep.* Almost every farmer has a small flock of sheep. The Cotswold has been introduced by various persons, and almost all the flocks are more or less intermixed with this breed. Good mutton is common and cheap, and the cost of keeping sheep is inconsiderable. The number killed by dogs is variously estimated at from twenty-five to thirty-three per cent., and great complaint is made that our Legislature has done nothing to eradicate this evil, by levying a tax upon dogs.

The farms in Bedford county will average between fifty and one hundred acres. The number returned by the census taker is 1,667, and only one reported over 500 acres. They are well worked and well cared for. The best farmers subsoil with a bull-tongue plow, after a two-horse turning plow, going to the depth of ten or twelve inches. Fewer badly cultivated crops are seen than in any other county in the State. Indeed, the example which the farmers of Bedford have set in this particular, might be imitated with profit by all the counties. Very few overcrop themselves. The soil is well prepared for the planting by deep and frequent plowings, and the yield always proves remunerative. As a consequence, the farmers are usually contented, and very few desire to remove from the county, except such as desire to procure land in larger bodies for their children.

*Fruit.* Apples, peaches, plums, and pears are raised. Peaches often fail, but one year with another, do probably better than other fruit. But few experiments have been made with the grape, but these have proved satisfactory. John R. Eakin, now of Arkansas, planted a vineyard near Wartrace, and took a premium in 1858, at the exhibition of the United States Agricultural Society, held in Louisville. He planted the Catawba and Isabella, which soon proved worthless. Ives' Seedling, Concord, Norton's Virginia, and Rogers Nos. 1, 2, 3 and 4, are being set out by various persons. The great amount of loose, rich, rocky and well drained soil, together with the gentle slopes, would indicate a brilliant future for this county in the growing of this delightful fruit. There are five or six small nurseries in the county, and many new orchards are being set out.

*Labor.* Labor is not hired usually throughout the year, as in the

cotton-growing and tobacco-growing districts of the State, but usually from the first of March to the 4th of July, which is called the crop season. Good hands can be hired at prices ranging from ten to twenty dollars per month and board. It is unusual for farmers to put out their land for part of the crop, though it is sometimes done. The want of this habit may in some degree account for the good condition of the farms. Land rents for four and five dollars per acre. When rented for a portion of the crops, one-third, sometimes two-fifths, and near the county seat, one-half is given to the landowner. In the raising of wheat, if the landowner furnishes the seed, he gets half, but if the renter furnishes the seed, he pays only one-third.

*Mills, Wheat, and Lumber.* Mills are abundant and excellent. Duck River furnishes fine water-power, and thirteen grist mills are found upon it and its tributaries. In addition to water mills, there are some excellent steam mills, one of which has a capacity of eighty barrels per day, and another fifty. The wheat crops of the county keep these mills running for a good portion of the year, though supplies of wheat are drawn from Marshall and other counties surrounding, and a good deal is brought to the city mill by railroad. An amber wheat, called the Walker wheat, appears to be the favorite. It does not produce so abundantly as many other varieties, but it is plump, makes a fine yield of flour, and is reliable. The Mediterranean is the best for thin soils, and will make a respectable yield when all the other varieties fail. Saw mills are scattered all over the county. Poplar lumber is worth at the mills, \$15 per thousand. Cedar from \$20 to \$25. A great many cedar shingles are made. They sell from \$5 to \$7 per thousand. Boards of white oak and black oak, are worth from 60 cents to \$1.25 per hundred, according to length. One dollar per hundred is paid for making rails. Cedar rails in the cedar brakes sell for two and three dollars per hundred; delivered on the farms, from \$5 to \$7, according to distance hauled, character of roads, &c.

*Factories.* On Duck River, just below the town of Shelbyville, there is a cotton factory in successful operation. It has fifty looms, 1,616 spindles, and employs about forty operatives. It is understood that the net profits will amount to fifteen per cent. on the capital stock. There are several planing mills in operation, at which blinds, sash and door shutters are made. There is also an establishment for making axe helves.

*Domestic Manufacture.* There is some contrariety of opinion as to the quantity of domestic manufacture. It is estimated by some gentle-



men, that fully one-third of the every-day wear is homespun. The census reports give the value of home manufactures of this county at \$30,126. This would show about half the amount of Lincoln county, where the value was \$60,540, not one-third as much as De Kalb, which is put down \$105,421. In Bedford, the value of home manufacture was about \$1.23 for each inhabitant; in Lincoln \$2.16; in De Kalb over \$9. From this it would appear that thirty-three per cent. would be a high estimate for those who wear home spun unless it is brought to the county from other points.

*Smaller Industries.* The number of eggs annually shipped from the county is enormous. During the first week of February, 1874, there were shipped from Shelbyville alone, 4,780 dozen. The same week the following articles appear among the shipments: 246 pounds of butter, 631 pounds dressed poultry, fifty live turkeys, besides one coop, number not given, four barrels of onions, nine barrels of onion sets, and \$100 worth of furs. Almost every farmer has a few hives of bees and some few as many as fifty or one hundred hives. But little attention is given to improved hives—the gums are either made of plank or are sawed off from the trunk of a hollow tree. White clover is a very common growth throughout the county and the bees have a large supply of food.

*Transportation Facilities.* The Nashville and Chattanooga Railroad has a branch leading from Wartrace to Shelbyville, eight miles long. The main line passes through the eastern border of the county. In addition to the railroad, Duck River has been used for the transportation of lumber. Some rafts of cedar are yet sent to Paduach, Memphis, New Orleans and intermediate points on the Tennessee River by means of this stream. There are also eight macadamized roads, seven of them leading to the county seat. Many of them are badly in need of repairs and can scarcely be called macadamized roads. The dirt roads are execrable, and for a county so blessed with fertile soils, so rich in all the resources of a vigorous and elevated civilization, are simply disgraceful. In winter it is not unusual for the wheels of a buggy to sink so deep in the stiff, tenacious mud and sloughs that a single horse is incapable of pulling it out.

*Schools.* For the year 1873, Bedford county levied a tax of ten cents on the hundred dollars for the maintenance of public schools. During the fall and winter of the same year, 100 public schools were kept in operation for four months. The average amount paid teachers

was thirty-nine dollars per mouth. The number of enrolled scholars, 5,039. The public graded school in Shelbyville has 300 students enrolled, with an average attendance of 275. It is conducted on the graded system, and has been able, with the assistance derived from the Peabody fund, to keep in operation ten months in the year. The system of rules and regulations adopted is such as to make the school a model of discipline. In addition to the studies prescribed in the school law, a preparatory course of the ancient languages and mathematics is taught. The county superintendent is John R. Dean. The Shelbyville Female Institute is of high standing, and is presided over by men of great intelligence and learning. To show the disposition of the people of the Shelbyville district in regard to public schools, it is enough to mention that at a recent election in which it was proposed to tax the district twenty cents additional on the hundred dollars, there were 380 votes cast for the tax and thirteen against it.

*Agricultural Associations.* The Bedford County Agricultural and Mechanical Association have erected fair grounds just without the corporate limits of Shelbyville. The buildings will compare favorably with any in the State, and the number and excellence of the articles exhibited show that Bedford county has quite a diversified industry. A farmers' club has been in existence for several years, and has done much to develop thought and to induce thrift amongst the farmers of the county. Several granges have recently been established, and the order of the Patrons of Husbandry is making quite a favorable impression throughout the county. The debt of the county in February, 1874, was about \$17,000, principally contracted in the building of a court-house. Bonds were issued for the amount of indebtedness and a small tax levied to pay them. The county poor-house is a miserable affair, and unworthy the elevated character of the citizens. It has about an average of ten inmates, but the appropriation for its sustenance is inadequate and parsimonious.

*Towns and Villages.* The incorporated towns in Bedford county, are Shelbyville, Wartrace, Bellbuckle, Unionville, Richmond and Flat Creek, having populations in the order named of 3,500, 200, 150, 300, 100 and 200. The three first named have railroad facilities. The other villages are Normandy, Fairfield, Palmetto, Hawthorne, Rover, Fall Creek, Haley's Station and Bedford. Those upon the railroads, Normandy and Haley's Station, are good shipping points. Shelbyville is by far the largest town in the county. It is situated at the terminus of the Shelbyville Branch of the Nashville and Chatta-

nooga Railroad, and on the north side of Duck River. In addition to the population within the corporate limits, it has a suburban population of four hundred. The public buildings are of the best character. The court-house, erected at a cost of about \$90,000, is a model of taste and propriety. It is one of the most correct and convenient public buildings in the State. The principal court room is forty by ninety feet, County Court room twenty by forty, and one of the same size for the Chancery Court. Besides, there are four jury rooms, six offices, and eight basement rooms. The whole building, including porches, is 120 feet long and 91 feet wide. It is two stories in height. The pillars for the lower porches are of blue limestone, square and in Ashler masonry. Those above are cast iron, and Corinthian in style. The latter are twenty in number. The building is surmounted by an elegant cupola, containing a clock and bell that cost \$1,500. The people of Shelbyville are justly proud of this structure, so elegant in design, and so appropriate for the purposes for which it was designed. There are twenty-five commercial establishments in Shelbyville doing business to the amount of \$500,000. There is also a pork-house that has been operating for two years, slaughtering 9,000 hogs annually that averaged two hundred and fifty pounds each, gross. A carriage shop is in operation that employs nine hands, and does a business amounting to \$15,000 annually. Besides these there is a tannery, with a business of \$10,000, also a marble yard doing \$5,000 worth of business. There are two hotels, twenty-two lawyers, six doctors, and three trade and livery stables. The city mills turn out a very superior article of flour, making, annually, about 8,000 barrels, and this besides custom-grinding. Another mill, six miles from Shelbyville, manufactures about 5,500 barrels of flour annually. Over 70,000 bushels of wheat are ground annually at these mills, and they do a business, in flour and meal, amounting to over \$100,000. There are two newspapers published in Shelbyville, the Commercial and the Gazette. The religious denominations are represented by two Presbyterian churches, two Methodist, one Baptist, one Episcopalian, one Christian, and one Roman Catholic. Sunday schools are conducted in most of them. Of Shelbyville, it may be said generally, that the people are public spirited, moral, intelligent, but not so enterprising as those in some other towns in the State; the buildings do not display, with the exception of the court-house, any architectural beauty; the streets are rough and the sidewalks uneven, paved sometimes with flagging stones, and sometimes with brick, and in the latter case more than half the brick are

usually missing. But few new houses go up. Some of the residences are comfortable and neat, and have tasteful yards, ornamented with evergreen shrubs, beautiful and rare flowers, and above all, with a rich sward of blue-grass. The society of Shelbyville is highly cultivated and refined. It would be difficult to find a greater number of intelligent persons in any town of the same size in the State. The princely hospitality of the citizens, and the imperial fascinations of the ladies, always make a favorable impression upon the stranger. The character of the people in the country is very much the same as in town. They have leisure for improvement. They do not raise cotton, but in its place are found fat stock; rich, green meadows, bulky stacks, neat dwellings, commodious stables, clean fence corners, abundant leisure, smiling faces and contented hearts. Owners of farms are free from the corroding cares, the ceaseless complainings and bickerings, the eternal worry and constant dread lest the rains or the boll worm, or some other calamity, fall upon the crop and ruin them. Enterprise is needed. A fresh stimulus is demanded. Old ways are too numerous, and old ruts are adhered to too closely. Capitalists are more disposed to buy notes than to establish manufactories. Something that will change investment into the last-named enterprises would give a wonderful impulse to the material interests of the county. With a proper degree of industrial activity it would be, if not the most desirable, at least one of the most desirable counties in the State to live in. A home market which manufactories would establish, would greatly benefit the farmers.

*Statistics.* The population of the county in 1870 was 24,333, of which 6,484 were colored. In 1830 the population was over 30,000, which was reduced, from various causes, to 20,546 in 1840. In this decade, also, Marshall county was erected, and a considerable portion of Bedford was taken off for that county. Since that time it has been gradually increasing, but not so fast as the excess of births over deaths should ensure. Visions of wealth in new countries have decoyed many of the best citizens from the county, but some of them, after the lapse of a few years, return. There has been more emigration from the county than immigration to it, a fact difficult to account for in any other way than that the high price of land deters immigrants. There is scarcely a county in the State in which a respectable living can be made with so little labor. The scholastic population numbers 7,483. The voting population in 1871 was 4,113; 3,315 white, and 798 colored.

## CANNON COUNTY.

## COUNTY SEAT—WOODBURY.

Cannon county was organized in the year 1836, and was named in honor of Governor Cannon. But few counties in the State have a more varied beauty of scenery than Cannon. Traversed from east to west by the sparkling, rapid waters of Stone's River, with numerous tributaries flowing into it from the north and from the south, with high rounded forest-covered hills between, while valleys as green and soils as fertile as may be found on the American continent lie sleeping in quiet repose by the bubbling streams, resonant and joyous as they dance in circling eddies and playful plunges over pebbly shoals, it would be difficult to find any spot so suited for retirement from the noise and confusion and -distracting occupations of metropolitan life.

*Boundary, Topography and Streams.* The county is bounded by Wilson and Smith on the north, by Warren and DeKalb on the east, by Coffee on the south, and Rutherford on the west. It embraces about 420 square miles. More than half of this county lies in the Central Basin, and the remainder, on eastern and southern edge, on the Highland Rim. Spurs shoot out from the Highlands into the valley, one of which, in the northern part of the county, extends nearly through it, from east to west, and forms the water-shed between the streams that enter directly into the Cumberland, and those which flow in an opposite direction into Stone's River. From the north, beginning on the east, Stone's River is fed by Rockhouse, Carpenter's, Rush and Lock creeks; from the south, Hill's Creek, Hollis' Creek and Brawley's Fork, the latter having several tributaries known as Espy's Cave, Horse Spring Fork and Burgess Creek, the three making Carson's Fork, which empties into Brawley's Fork, one-half mile south of the Woodbury and Murfreesboro Turnpike, and the latter into Stone's River, five miles west of the county seat. Other streams issue from the dividing ridge, which we have mentioned, and flow north. Among these are Clear Fork, Sycamore, Hurricane, Saunder's Fork, and Marshall's Creek. Barren Fork of Collins River, rises on the Highlands, which form the eastern edge of the county, and flows east into Warren county. Nearly all these streams supply good water-power. Stone's River, by reason of its swiftness and constancy, and volume of water is especially suited for milling purposes. On it, within a few miles of Woodbury, are four large flouring mills, with capacities of grinding

from 250 to 700 bushels of wheat daily. Corn mills are located upon nearly every stream mentioned. From Espy's Cave a stream of water issues in sufficient volume to drive a mill. It bursts out at a considerable height above the valley, and a mill, for many years, has been in operation at a point only twenty yards distant from the mouth of the cave. There is, probably, no county in the State which has more useful water-power.

*Soils, Timber and Crops.* The soils, on the Highlands, are light colored, sometimes of a pale yellow, often blue and occasionally red. These soils, for the most part, are thin and unproductive, occupying level areas, and covered with a rank barren grass which affords good summer grazing. Fruits, herds-grass and tobacco grow well upon the Highlands, but these soils are not well suited for general farming. Neither corn, nor wheat, cotton, nor clover will grow or yield remuneratively. They are of the same character as those described in Lewis and Lawrence counties, and while the surface of the country is pleasing to the eye, the soils are almost always deceptive. As a consequence, these lands are cheap. Unimproved lands, in this part of the county, can be bought for one dollar per acre; improved five dollars. Passing from the Highlands eastwardly, we descend a long slope and enter the knobby region of the Central Basin. These knobs cover by far the larger part of the county, and are usually fertile to the top. Limestone crops out in such abundance as to render much of the surface unprofitable for cultivation. The character of the country, as one descends into the Basin, changes entirely. The timber of the Highlands, which usually consists of black jack, chestnut and red oak, is here replaced by poplar, walnut, white oak, sugar tree, ash, beech, red elm, hackberry, buckeye and cherry. Nor does the timber differ less than the grasses and crops. All over the slopes and tops of these swelling hills blue grass springs up, and even upon the glady places, it grows with vigor between the interstices of the rocks, and furnishes a rich pasturage. The crops of corn and wheat, by the luxuriance of their growth, show a soil rich in plant food. The rocks are limestone, and even the pebbles have a character entirely different. Nearly all the lands, in this portion of the county, are enclosed. The knobby lands will yield from thirty to thirty-five bushels of corn per acre, of wheat from ten to twelve bushels, and hay from one to two tons. Clover grows remarkably well. The price of such lands, improved and unimproved, varies from ten to twenty-five dollars per acre. It is estimated that at least one-fourth of the county is embraced in the creek

basins. The soil of these bottoms is rich, loamy and pebbly, easily worked and highly productive. They are esteemed of great value, and rate from thirty to seventy dollars per acre. Nearly the whole of this valley land is in cultivation.

The crops are corn, wheat, hay and clover. Some cotton is raised in the western end of the county, but it is by no means a general crop. With good cultivation, sixty bushels of corn, twenty bushels of wheat, and two tons of hay are considered ordinary crops. Great attention is paid to the sowing of clover, and no farmer deserving the name fails to have a considerable part of his farm given to clover every year. The consequence is, there are no abandoned old fields to be seen. Scarcely an acre of land has been turned out. Gullies are scarce, though the land is rolling. In no county in the State do the farmers pay more attention to the preservation of the soil. In this respect it very much resembles Bedford county. Stock raising in Cannon, as in Bedford, is the main pursuit of the farmers, and, as in Bedford, their farms are in good condition and command a high price. No two counties could be more alike in soils, in the habits of the people, the character of the houses, and the configuration of the surface. Stone's River answers to Duck River. A small portion of the Highlands is included in each. The greatest observable difference is in the fencing. In Bedford the fences are almost wholly of cedar, but only partly so in Cannon. Bedford has cedar forests of large extent; Cannon has a very limited supply of cedar timber. That used in the county is obtained from Rutherford. Fine stock is raised in both counties, and no better idea can be given of the soils and the crops, the stock and the people, than that which we have already given in the description of Bedford county. The latter county is not so knobby, and it has the benefit of a railroad, which Cannon has not. With these differences pointed out, the reader is referred to Bedford county for prices of labor, rents, conditions of contracts, etc.

*Roads and Towns.* Cannon has but few good roads. The Murfreesboro and Woodbury Turnpike is the longest macadamized road in the county, passing over about eight miles. There is also one leading from Auburn to Murfreesboro, and another from Bradyville to the same point. Woodbury, the county seat, nestles in the lovely valley of Stone's River, and is surrounded by a series of beautifully rounded eminences. The scenery around the town is lovely and grand, without being startling. Beautiful farms and comfortable farm houses are seen towards the west, the cultivated fields climbing sometimes to the tops

of the rounded hills. The bright flashes of running streams enliven the landscape. Springs of perennial flow break out from the bases of the numerous hills, and supply good water in great abundance. Yet, despite all the natural beauty of the surroundings, Woodbury has a sleepy appearance. No manufacturing establishments give life to the place. A court house, seven dry goods stores, two drug stores, three groceries, two blacksmith shops, one carriage shop, two saddlery establishments, and the usual number of lawyers' offices and doctors' shops comprise the business portion of the place. It has a population of about 500. There are three churches, one Methodist, one Baptist, and one Christian. The Presbyterians hold worship in the upper story of the court house. School facilities are very good. The Woodbury Press, a weekly paper, is published here. Bradyville, in the southern part of the county, Auburn in the north, and Mechanicsville in the east, are all post villages, with two or three stores each. The county has a poor house, with 150 acres of land attached, within two miles of the county seat. It usually has from ten to twenty inmates.

*General Observations.* The population of Cannon county in 1870, was 10,502, of which 927, or less than one-tenth, were colored. The citizens are industrious and energetic, but not enterprising. They prefer the old way because they believe it to be the sure way. They are greatly attached to the county, and emigration to other states is very rare. They would like to have additions to their population, though labor is sufficiently abundant and cheap. The county is free from debt, and jury tickets are at par. Infractions of the law are not common. Ease, peace and plenty characterize the county. Economy is the ruling trait of the citizens, and they mingle with their labors many of the pleasures of life. The streams abound in fish of delightful flavor, and the woods with various kinds of game. Hunting and fishing form the recreation of almost every class. Simplicity and honesty, intelligence and virtue characterize the citizens. Desirous of a competency, but unambitious of great wealth, they probably come as near as any people in the State to occupying that condition which DeQuincy says is the most favorable for happiness—not so poor as to require unremitting toil, nor so rich as to make labor unnecessary. Nearly every farmer works himself, saves his earnings, and invests them in his own county. For this reason, land is higher in Cannon county than in Davidson. In the latter county there are so many opportunities for investments that land is a drug on the market. In Cannon, land is considered, if not the most profitable, at least the safest investment. There is but



little good land for sale, and when it is offered, there are always a number of eager competitors. The nearest railroad is the Nashville and Chattanooga, twenty miles from the county seat, and by this all the surplus produce is shipped. Stock is driven south on foot—mules, horses and cattle. Sheep raising is almost unknown, though there are but few localities where this business could be carried on more profitably, if protected by law. The farmers greatly complain that the law-makers have failed to give any protection to this branch of farming. On every farm dogs can be seen prowling about, but sheep, one of the most useful of all the domestic animals, are rarely met with. The blue-grass that clothes the rolling hills in such beautiful green, would sustain thousands of flocks, and increase the profits of the farmers largely, but experience has taught them that any attempt at sheep breeding, in the absence of a dog law, is the extreme of folly.

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## CHEATHAM COUNTY.

### COUNTY SEAT—ASHLAND.

Cheatham county was established by act of the Legislature passed February 28, 1856. Its territory was taken from the counties of Davidson, Robertson and Montgomery, and by the act of the last Legislature a very small portion of Dickson county has been attached to it. It is bounded by the above counties and also by the county of Williamson. The Cumberland River runs through the county in a westerly direction, dividing it into two nearly equal parts.

*Towns.* Ashland City, the county seat, is situated on the north bank of Cumberland River, about one mile above the head of Harpeth Shoals. It contains about 250 inhabitants. It has one church, a Masonic hall, and the usual county buildings. The court-house is justly the pride of the citizens of the county. During the past scholastic year the town had three public schools, two white and one colored. There are three dry-goods stores, in all of which groceries and family supplies are kept; one shoe and boot store, in connection with family groceries; with blacksmith, shoe and boot maker, cooper, saddler, &c., and three drinking saloons. There is a tobacco establishment for putting up tobacco in hogsheads, from which about 200 hogsheads are shipped to Clarksville, Tennessee, annually. Also one establishment for the manufacture of chewing tobacco. Sycamore, about four miles north of Ashland, is a flourishing manufacturing village with a population larger than that of Ashland City.

Pegram's Station, Kingston Springs and Craggie Hope are small villages on the Nashville and Northwestern Railroad. All do a small trade in dry-goods and family groceries. Thomasville, on the Nashville and Clarksville Pike, has one store and a tobacco establishment, where several hundred hogsheads are put up annually.

For the most part, the face of the county is hilly. Adjoining Robertson and Montgomery counties, the hill land is quite productive, yielding well corn, wheat, oats and tobacco; while the valleys contiguous to the Sycamore, Half Pone and Barton's creeks, are rich and produce fine crops. The Davidson portion on the north side of the river is mostly broken and the hill land valuable only for the timber. The Marrowbone Creek bottoms are not as productive as those on the streams already mentioned. On the south side of Cumberland, the land on Harpeth River is exceedingly fertile, and on Sam's and Brush creeks is good. The greater portion of the county on the south side is hilly and almost mountainous. Half Pone, Barton and Marrowbone creeks on the north side of the Cumberland River are not valuable for milling purposes, not furnishing a sufficient quantity of water in the summer season. Sycamore Creek, also on the north side of the Cumberland River, affords a much better and more constant supply of water. This stream runs deeply below the general level of the country; its average depth being 140 feet. Its course is very winding. From its source in Sumner county, to its mouth on the Cumberland River, at Harpeth Shoals, it runs a distance of some sixty miles. It falls rapidly and affords many valuable mill sites. Harpeth River and its tributaries on the south side of the Cumberland, have valuable water-power. On Harpeth is a very valuable one, known as the "Narrows of Harpeth." It is made by cutting across the very narrow neck of a bend in this stream, seven miles in its circuit. This is the site of the formerly celebrated iron works of Montgomery Bell.

Hill land unimproved, sells from three to five dollars per acre. Improved land can be bought at from ten to fifty dollars per acre. Farms are generally in worse condition than they were before the war. The average yield of wheat per acre is ten bushels. No cotton is raised and very few peanuts. Corn will average about twenty-five bushels to the acre. About five per cent. of the cleared land has become waste, exhausted by a succession of corn crops and bad cultivation. The average size of farms, cleared land, is about thirty acres. There has been but little attention paid to the raising of stock in the county, and hitherto the money crops have been most profitable. The

soils on the rivers and creeks are well adapted to the raising of herds-grass, though clover has mostly been sown as a renovator.

Turning plows have been almost exclusively used for breaking up as well as cultivating crops, but of late there has been a gradual introduction of shovel plows for the latter purpose. Farm stock is as varied as the tastes and fancies of the farmers; mules, horses and oxen being indiscriminately used. Labor is rather scarce, and is generally paid for in money. The usual terms when part of the crop is given, is for the land-owner to furnish the land, stock and provision for stock, and implements, and divide equally. Farm hands get from twelve to fifteen dollars and board per month; factory hands one dollar to two dollars per day without board. Land generally rents for one-third the produce for grain crops. There is a great deal of unimproved land for sale in the county. Farm products are shipped to Nashville and Clarksville by river, and to Nashville in part by the Nashville and Northwestern Railroad, which is the only railroad passing through any portion of our county, and that only through one corner. Stock, as a general thing, is rather common. Some are, however, introducing a few Essex, Berkshire and Chester hogs, and as a consequence marked improvements are noticeable in the increased amount of pork annually slaughtered. Sheep are not generally raised. The people are not sufficiently prepared with pasture land for their accommodation, and to let them run in the woods would expose them too much to the predatory attacks of the worthless curs.

*Building Material.* Limestones adapted to building purposes are common, though of late years not much used, as brick seems to have superseded its use. There are large quantities of rock, called by the natives sandstone, that has never been brought into use as a building stone to any great extent.

*Manufactories.* The largest manufacturing establishment in this county is that of the Sycamore Manufacturing Company. The works of the company are situated in a beautiful and picturesque valley of Sycamore Creek, four and a half miles north of the Cumberland River and about half way between Nashville and Clarksville. The water-power for the works is obtained by cutting across a very narrow neck of a bend in the creek. The stream in its course around this bend falls about fourteen feet, so that, with a dam fourteen feet in height, a head of water is obtained twenty-four feet in height, affording one of the best water-powers within sixty miles of Nashville. The principal business of this company is the manufacture of gun-powder, although

they have in addition a saw mill of large capacity, and a flouring mill with a capacity to turn out about seventy-five barrels of flour per day. Prior to the war the manufacture of cotton yarn and cloth was carried on at Sycamore, but the machinery having been ruined by standing idle during the war, that branch of business has been abandoned and almost the entire attention of the present company is now given to the manufacture of gun-powder. Since the war the business has been organized under a charter with a cash capital of \$100,000, with authority in their charter to increase the same to \$300,000. The permanent capital of the company has already been largely increased by the addition to their mills of the entire machinery of the Confederate powder works at Augusta, Ga., which were very large and perfectly built. When this machinery is put into operation, (which will be done during the present year), the permanent capital of the company will be increased to very nearly the limit allowed by its charter, \$300,000. The Augusta machinery has all been removed to Sycamore, and is now being put up. The buildings for the same are already completed. The buildings for the incorporating mills, where there is the most danger of explosions, are six in number. They are massively built, the walls being of heavy limestone rock, five feet wide at the base and three feet wide at the top, with four buttresses on the outside of each wall three feet square. The buildings are open at opposite ends, so that in the event of an explosion, no other buildings will be in danger. To supply the want of water in seasons of great drought, there is a steam engine of 100 horse power for the powder mills, and a double steam engine of forty horse power for the other works. The capacity of the powder works, when the additional machinery is put into operation, will be 240 kegs or 6,000 pounds of blasting powder per day, or 3,000 pounds of sporting powder. The company has brought the quality of its sporting and blasting powder to great perfection, there being none made in the United States superior to it. Our State, as well as the whole south, has reason to be proud of the success of the company in this respect as well as of its success as a business enterprise. Upwards of thirty-five families, besides several single men, are supported by the business of the company. It provides a room for religious services for its operatives, and a hall for the Good Templars, a temperance organization. It gives liberal support to schools, and has on its premises boarding school buildings for boys, probably more spacious and certainly superior in architectural beauty to any in the State. One practice has been adopted by this company worthy of imitation by all manu-

facturing companies. They give to each head of a family at the close of the year, as a Christmas offering, a newspaper, to be selected by the operatives out of any newspapers published in the United States. North of Sycamore mills, about four miles, is a flouring mill with three runs of stones, where a superior article of flour is manufactured. There are other smaller corn and flouring mills, and many saw-mills in different parts of the county, but the manufacturing capacities of the county are but little developed. At the Narrows of Harpeth the manufacture of iron was formerly carried on extensively by Montgomery Bell. Four forge hammers were kept in constant operation. The iron made there was of a superior quality, and was the favorite iron for the manufacture of steam boilers. The ore beds are extensive, and the ore, limonite, yielding about 45 per cent. These works are now in the hands of the widow of the last proprietor, and are not in operation.

The people are quite domestic in their habits, observing primitive customs and dress, and wear a great deal of home-made clothing. As a general thing farming is not as remunerative as it should be, for one reason, among others, that the farmers adhere with too much tenacity to old modes and customs, and do not keep up with the spirit of improvement, noticeable in some other parts of the State. The great drawback to farming is the lack of labor-saving machinery, improved farm implements and a regular system of rotation of crops, very few paying any attention to these vital matters, continuing to run land in corn without using fertilizers or renovators until the soil is exhausted, then it is thrown out to grow up in sassafras and persimmon sprouts, while another field is cleared to undergo the same exhaustive process. Superadded to all is a shallow plowing, one-horse plows in a majority of cases being the rule, a subsoil plow being regarded as one of the vagaries of "book farming."

*Smaller Industries.* The people pay but little attention to the smaller industries of life. Fruit-raising is only in its infancy, there being very few orchards worthy the name; however, there is a marked improvement in this branch of industry of late years. Doubtless more fruit trees have been planted in Cheatham county in the last three years than in any ten years before. There was a spasmodic effort made about three years since in bee culture, but owing in part to the failure of the hive generally adopted, the interest soon died out, and now there is scarcely any effort made in that direction. Butter and cheese making, especially

the latter, has but a small place in the list of industries of the people of Cheatham county. Considerable numbers of chickens and eggs are annually shipped to Nashville and Clarksville. The grape has not been tried to any considerable extent, but from the character of the soil and the number of its favorable exposures, it might be successfully cultivated. When proper care and diligence have been used, the apple and the peach do exceedingly well. There are no nurseries in this county, most of the trees planted here now are obtained from Davidson, Robertson and Montgomery counties, the people having pretty generally come to the conclusion to patronize home industry, at least so far as fruit trees are concerned.

*Timber, Immigrants, &c.* The most valuable timbers are the various kinds of oak, hickory, poplar, walnut, cherry and chestnut. The poplar, walnut and cherry timber is sawn into lumber and shipped to Nashville and Clarksville. Large quantities of saw logs are rafted to the latter place. Poplar and chestnut shingles, in large quantities, are also made and shipped to the above points. Many thousands of boards and staves are annually made and shipped, while a good many are made into flour, whisky and lard barrels for exportation. This is the principal use to which the oak timber is applied. Considerable numbers of wagon-spokes are also made of the white oak. The hickory timber is used for axe handles, spoke timber and axletrees, as also for hoop poles, which are shipped as above, though sometimes pipe staves are shipped direct to New Orleans. The people are favorably disposed to immigrants, and would kindly receive any who would help to develop the resources of the county. They have no use for that class who propose to live by their wits, at other people's expense, but if immigrants come to identify themselves with the fortunes of the county, a hearty welcome is extended to them. They will be made to feel at home, and as a part of the people. The county needs men of energy and public spirit to infuse new life into the various industries. The farmers are, as a general thing, not disposed to sell out their farms to immigrants, or any one else, but out of the abundance of unimproved land, are willing to sell them homes on reasonable terms. The population is about fourteen thousand, and has increased in the last decade. There is but little concert of action among the farmers. They have no agricultural or mechanical associations. The county debt is about \$1,200, to meet which it has the taxes of this year, and real estate and notes for real estate, amply sufficient to meet it all. Upon a fair balance being struck, the county would be entirely out of debt.

*Schools.* At the opening of the public schools, under the present law, there were some ten or twelve private schools, but poorly sustained. The public schools were continued for three months, thirty-six in number, about 1,400 children receiving instruction therein. There are now no colleges or academies in the county. Before the war there was one near Sycamore that commenced with fair prospect of success, but the war coming on, the enterprise was abandoned, and nothing now remains of it but the very extensive, convenient and well-arranged buildings, standing as a monument of the devastating effects of the late civil strife.

Mineral springs are abundant. Kingston Springs, on the Nashville and Northwestern Railroad, furnishes red, white and black sulphur water; Sam's Creek, red and white sulphur. Harris' Sulphur Springs are about two miles from Ashland city. King's Sulphur Springs, and various others of less note, are in the county.

There are plenty of saw and grist mills—among the latter two or three flouring mills—to supply the necessities of the county. The county has no poor-house; what few paupers there are in the county are kept by appropriations made at the quarterly sessions of the county court. There is only one macadamized road in the county, and that only for a few miles. The dirt roads are not kept in good order.

The soil is moderately fertile, and when properly cultivated, yields sufficiently for the support of a much larger population than we have at present. Education is rather at a low ebb. The present public school law meets with strong opposition, which is giving place to a better feeling.

For assistance in the preparation of this county the Secretary is indebted to S. D. Power.

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## CLAY COUNTY.

COUNTY SEAT—CELINA.

This is a new county, created by the Constitutional Convention of 1870, and organized on the 17th day of December, in the same year. The territory was taken in nearly equal parts from the counties of Jackson and Overton. Three places were put in nomination for the county seat, Celina, Butler's Landing and Bennett's Ferry, but the

election resulted in favor of the first. The county comprises ten civil districts.

*Towns.* Celina, the county seat, is situated on Cumberland River, at the mouth of Obey's River, and for many years has been one of the most important points on the upper Cumberland. It is the depot and shipping point for a very rich agricultural region. The new courthouse is one of the most substantial and elegant buildings in this part of the State. Celina is growing rapidly, but its present size is by no means commensurate with its commercial importance. Population, about 300. Butler's Landing is also on Cumberland River, below Celina, and is an important shipping point. Population, about seventy-five. Centreville is a quiet little village, in the north-western part of the county, within half a mile of the Kentucky line. It has several stores and shops, and a population of about seventy-five.

*Topography.* The county is nearly a parallelogram, forty miles in length from east to west, by twelve miles wide. In order to facilitate a correct understanding of its topography, it is best first to imagine a plain of the above dimensions, with a moderately undulating surface, nearly level in the west. Then imagine the middle of this plain cut diagonally across from north-east to south-west by a valley of irregular outline nearly 600 feet deep, and averaging a little more than one mile in breadth between the bases of the opposite hills. This is the valley of Cumberland River. Opening into it on the east side near the center of the county, is the long, winding valley of Obey's River, with a general direction from east to west. A number of smaller creeks emptying into these two rivers, have valleys of their own, extending outward, and separated from each other by ridges or fingers of the plain to which the general surface of the county has been referred. These ridges and the intervalles may be compared to the teeth of a saw, broad at the base and growing gradually narrower toward the apex. It must not be supposed, however, that they are of uniform size or regular shape. Some of the valleys have branches ramifying back among the Highlands and breaking the surface of the plain irregularly. The extremities of some of the ridges have been cut off, leaving isolated knobs standing out in the valleys. It is worthy of remark that the ridges generally have flat tops, which are in the plain of the Highlands. In the eastern part of the county there are some ridges elevated considerably above this highland plain.

*Rocks, Soils and Timbers.* The geological and agricultural features of the Highland plain, and of the valleys, are so different that we must



consider them separately. In the eastern part, as already observed, there are high hills, which are the termini of spurs or outliers of the Cumberland Table Land. The Mountain Limestone here gives the country a character similar to that of the belt extending all along the western base of the Table Land. The surface is broken, caves and sink-holes are common, and the soil is rich, lying on a strong clay subsoil. The hills and hollows, except where the land has been cleared, are covered by forests of large trees, among which walnut, beech, poplar, buckeye, linden and several kinds of oaks are common. Further west, the Lithostrotian limestone continues to underlie the surface, often cropping out on the hillsides; the country is rolling, and the soil is generally a rich, dark brown loam, with a red clay subsoil. North of Obey's River the red clay and limestone prevail to the Valley of the Cumberland, and even west of the latter there are extensive areas of red rolling lands reaching nearly to the western boundary of the county. All of this red land is naturally rich, and with good management its fertility will never be impaired. Even when worn out by slovenly farming and constant cropping, its recuperative power is wonderful. Hickory, beech, sugar maple and dogwood are common on the hillsides and in the hollows or basins, and oak and chestnut on the hills and ridges. These red lands occupy a larger proportion of the area of the county than any other one class. Though not held in such high esteem as the river and creek bottoms, they possess many advantages over them. In other parts of this Highland plain, particularly in the south and west, sandstones prevail, and the lands are less fertile. The red clay gives place to a yellowish subsoil, which is so hungry that the effect of manuring is scarcely perceptible after the first or second season. In some places on the hills are extensive beds of siliceous chert, known locally as "bastard flint." These gravelly soils are always leachy. Most of the timber consists of small post oaks and black oaks. But even in these parts red clay and limestone, affording good lands, are found in spots. Small hickories are the prevailing timber in such places, and they are generally called "hickory barrens." In the north-west part of the county, on the head waters of a creek which flows north-west into Barren River, the surface is more generally level, and there are some fine lands. In the valleys, the prevailing rocks are all limestones of a different kind from that which appears on the surface of the highlands. They belong, geologically, to the Nashville Group of the Lower Silurian, consequently the soils are like those in the Central Basin. This limestone underlies all of the valleys and

outcrops on the sides of the hills about half way up on each side. It is highly fossiliferous, and by disintegration is continually adding to the fertility of the soil. In the valleys of the creeks, and also to some extent in the larger valleys, the soils have been modified by drift which comes down from the surrounding hills, so that they contain a larger proportion of sand than the same kind of soil otherwise situated. This sand mixed with the calcareous and argillaceous materials furnished by the rocks, makes a very mellow, friable loam. Most of the creeks bring down also large quantities of chert, which gives a gravelly character to the soil where it is deposited. This gravel, however, rarely reaches out into the larger valleys in sufficient quantity to impair their quality. In the beds of all the creeks this chert is found in immense quantities. All along Cumberland and Obey's rivers there are alluvial bottoms of considerable extent. These are naturally the richest lands in the county. The deposits of fertilizing mud brought down by the river renew every year the waste of the soil, and some of them have for more than half a century continued to produce crops of corn every year with no manure, and without any decrease in the amount produced. But there are some disadvantages to counterbalance these good gifts. Fences are often carried away by high water. Not unfrequently, when the fields are ready to be planted, a sudden freshet in a few hours obliterates the work of many days, and in some cases growing crops are destroyed by an unseasonable overflow.

*Valleys.* In this connection, a particular description of some of the principal valleys may not be out of place. The largest and most important is that of Cumberland River. The part included in Clay county is fifteen miles long, with an average breadth of a little more than one mile. Crossing the State line a little east of north from Celina, it extends obliquely across the county in a direction rather more south than west. The numerous smaller valleys opening into it give to the escarpments on either hand a serrated character. The river meanders through the valley, often crossing from side to side, and many towering cliffs rise perpendicularly from the water's edge to the height of several hundred feet. In passing up or down the valley by land, it is necessary either to cross the river many times or to pass over these bluffs by rugged, toilsome roads. Obey's River Valley is, in its general character, similar to that of Cumberland, except that it is smaller. Reckoning from a few miles above the mouth of Wolf River, where it properly begins, it meanders first west south-west and then a little north of west, to the center of the county, where it opens

into the Cumberland Valley at Celina. Following its serpentine course, the distance is perhaps thirty miles or more, but, in a direct line, not exceeding twenty. It has an average breadth, between the bases of the hills, of one-half to three-quarters of a mile. Mill Creek has a fine valley coming in on the east side below Celina. It is eight miles long, and averages nearly half a mile in width. Iron's Creek Valley, having about the same dimensions, comes into Obey's from the south, in the eastern part of the county. The line of the proposed South-western Railroad passes through this valley. Kettle Creek Valley comes into Cumberland from the north-west near the State line, about three miles of the lower end being in this county. It has an average breadth of half a mile. There are a number of less important valleys, all of which contain good farms. Of these, Mitchell's Creek, Proctor's Creek and Brimstone are the largest.

*Farms.* The amount of waste land in the county is estimated at about one-third of the entire area. By waste land, we mean land that is yielding nothing. There is no farm, properly so called, less than eighty acres, and the largest perhaps never exceed two thousand acres. Two to three hundred acres in a farm are not uncommon. The small farms are almost always cultivated exclusively by the owners, while on those that are large hired labor is employed to a greater or less extent. Labor is scarce. The negroes, of whom in slavery times there were large numbers, have nearly all left the county, and but few laboring men have come in to supply their place. Wages for farm hands range from \$10 to \$20 per month, and there is no difficulty in finding employment.

Good, well improved farms on the uplands can be bought at five to ten dollars per acre. In the valley, prices range considerably higher. Twenty to fifty dollars may be taken as the limits. The prices, of course, are governed by various considerations, such as quality of land, value of improvements and location. Farm improvements are scarcely as good as at the beginning of the war, and lands are not generally in so high a state of cultivation. This falling off is due mainly to the scarcity of labor. But most of the farmers are enterprising and industrious, and are regaining, as fast as circumstance, and the means at their command will permit, their former degree of prosperity. Unimproved lands vary in value from one dollar to thirty dollars per acre, the latter are, of course, in the valleys. We would recommend, as a means of supplying the lack of labor, a more extensive use of labor-saving machinery than is now common. On most of the farms drills,

gang plows and reapers could be used with great advantage. Two-horse turning plows are now in common use. Subsoiling is often done with a home-made gopher plow. We are not aware that there are any hill-side plows in the county. Single and double shovels are commonly used in cultivating the crops. The latter are increasing in popularity. Horses or mules are generally used for drawing plows. Oxen are employed for carting, and sometimes for heavy plowing. Large land-owners often let a part of their farms to tenants, either for money-rents or on shares. Sometimes farms are leased for several years. Money-rents vary, according to quality of land, from two to seven dollars per acre. Those who cultivate land on shares usually pay to the owner one-third of the crop for ordinary, and one-half for best lands. If the owner furnishes an outfit, he has an allowance for that.

*Crops.* The leading crops in the order of their importance are corn, tobacco, clover and grasses, wheat, oats and rye. Potatoes and turnips are also raised to some extent as field crops. About one-tenth of the cultivated land is kept in grass, of which almost all is meadow. Some grass is sown for pasture, but not to any considerable extent. Old meadows that have become foul are often plowed up and planted, but not generally for the purpose of enriching the land. Clover is sometimes used as a green manure, but by no means so generally as it should be. In the rich alluvial bottoms, no crop can compete with corn. It may be grown on the same field year after year without any apparent decrease in the quantity produced. Eighty bushels per acre are common, and 100 are sometimes reached on the best lands. This brings a net income of thirty to fifty dollars per acre. Such farming pays. On the Highlands tobacco is the leading crop, and its production is annually increasing. We have no statistics by which to estimate the amount raised, but Clay county, according to area and population, no doubt, ranks among the largest tobacco-producing counties. Considerable quantities of wheat are shipped. The Walker variety of red wheat originated a few miles below Celina. It is still quite popular, but the Tappahannock is taking the lead since the white varieties have become fashionable. The Mediterranean, also, has many friends.

*Live Stock.* For the county at large there is nothing more profitable than the rearing of live stock, and many of the largest farmers make it the leading business. Horses and mules in considerable numbers are driven to the southern market every year. But little effort has yet been made to improve the stock of horses. There are in the county

several stallions with approved pedigrees, but a large majority of the horses are of unknown lineage. There are three Spanish jacks in the county. Scrub cattle are still common on the hills, but most of those in the river valleys are Short-horns and grades. Many fine animals have been brought from the "blue-grass region" of Kentucky. Clay county, also, boasts a race of hogs superior to the common stock. In the valleys very few are to be found, except Berkshires and grades. But villainous looking razor-backs still roam over the ridges. Sheep are not numerous. Most of the old stock have been killed by dogs, butchered for mutton or sold out of the county. The number which fall a prey to the dogs every year is estimated at one-fourth of all in the county. There is no effectual remedy but a wholesome dog law. Many farmers would be glad to embark in the business of sheep-breeding on a large scale, if they could have protection for their property. Large areas of land might be utilized in this way that are now valueless. The sheep now on hand are generally good, and farmers are buying of the improved breeds.

*Smaller Industries, Household Manufactures, &c.* Fruit growing has not received the attention that it deserves, and good orchards are not so common as in some other counties in this part of the State. Even the fruit that is produced is generally allowed to waste, very little being dried or canned. Butter-making receives more attention. With better facilities for transportation, dairying would be quite profitable. Poultry and eggs are sold in considerable numbers. Articles of home manufacture include jeans, linsey, home-made carpets, cotton and woollen socks, and many other articles used in the family or on the farm.

*Transportation and Markets.* There are few counties in the State more favored by nature, in regard to facilities for transportation. Cumberland River is navigable for steamers for about seven months in the year. During the winter and spring, boats run regularly. Obey's River is navigable for small steamers to the eastern border of the county, usually for three months or more. Most of the products are carried to market by water, and merchandise is brought up from Nashville in the same way, during the boating season. When the water is low it is carried in wagons either from Nashville or from Glasgow, Kentucky.

*Streams and Water-power.* The rivers have already been sufficiently described. The creeks are all so much alike that a general description

will suffice. Several small streams flowing from off the Highlands, unite their waters in or near the head of the valley. The volume of water is increased by springs and by other streams coming in on either hand. It is now a creek, and meanders gracefully through the quiet valley, often leaving the bases of one or the other of the opposite hills, while a broad bottom, usually a level field, stretches out on the other side. The banks are low, and generally composed of chert mixed with sand. The sides and bottom of the channel are unusually nothing but chert. From this general character it will be seen that the streams do not offer many advantages for manufacturing. Some of the streams, which are of considerable size where they come down from off the Highlands, afford good powers. Irvin's Creek has several mills, Mill Creek has two in Clay county. Both of these have their head waters in Overton county. Most of the mills are run by steam. Of these there are five saw-mills, three grist-mills, a planing-mill and a carding-machine.

*Minerals.* In the neighborhood of Irvin's Creek, and lying partly in Overton county, there is a ridge which is believed to contain extensive beds of iron ore. It has been dug into at several places, and rich specimens obtained, but none of the ore has been worked. It is near the line of the Southwestern Railroad. Another iron region is reported to exist in the northern part of the county, but of its extent or value we have no accurate information. The completion of this railroad, which we hope will not be long deferred, would afford an opportunity for developing whatever valuable minerals exist. The Black Shale which underlies the sandstone of the Highlands and crops out on the sides of the hills, and is often exposed in the beds of the streams, contains alum and copperas, and it is possible that these substances might be profitably eliminated. The Black Shale is also the source of sulphur springs, particularly in the eastern part. Petroleum oozes from the same formation at several points in the county. These are called oil springs. They occur on Brimstone Creek in the south-west, on Sulphur Creek in the north, and on Mill Creek in the south. There is an oil well on Mill Creek, from which several barrels of petroleum have been obtained.

*Miscellaneous.* The area of the county is one hundred and ninety-five square miles, nearly. No census has been taken since the county was formed, so that we are unable to give the exact population, but basing an estimate upon that of the neighboring counties, it is, in round numbers, 6,000, being about thirty to the square mile. The scholastic

population is nearly 2,000. The public schools are working successfully in every district, and the means of education are within reach of all. There is at Celina a county academy, where a good school is regularly kept. At Concord, ten miles north-west of Celina, there is a good private school, which has been carried on regularly since the war. Philomath Institute, near the Cumberland River, seven miles below Celina, has been open most of the time. The taxes and restrictions on the sale of tobacco are a subject of complaint, and the means of transportation are not so good as is desirable. But the farmers generally are well contented, and there is not much disposition to move away. We believe that, in general, they are as prosperous as their brethren in any part of the State. There has been but little immigration, but the citizens would gladly welcome to their midst enterprising and industrious people from any quarter, and will treat them as they do their neighbors and friends.

Other items of interest may be obtained by consulting chapter xxii.

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## COFFEE COUNTY.

COUNTY SEAT—MANCHESTER.

This county was originally composed of fractions of Warren, Franklin and Bedford, and was organized May 2, 1836. At an election held in March previous, the following magistrates were elected from the ten (now fourteen) civil districts into which the county was divided, to-wit: Adam Rayburn, John G. Walker, Alfred Ashley, John Lusk, Larkin Burnham, Robert S. Rayburn, Alexander Downey, James Yell, Gabriel Jones, William Hodge, Johnson Garrett, Josiah Berry, John Charles, William Montgomery, Wade Straud, Lecil Bobo, John W. Camden, Jesse Wooten, James M. Arnold and William Holmes. John W. Camden was elected chairman, and the following officers were required to come forward and give bonds, with security, and be qualified for their several duties at the first term of the County Court, in May, 1836: G. W. Richardson, Circuit Court Clerk; Daniel McLean, County Court Clerk; John Bell, Sheriff; James A. Brantley, Register; Moses F. White, Trustee; and William P. Harris, Coroner.

The first term of the Circuit Court was begun on the first Monday in May, 1836, Judge Samuel Anderson presiding. The unpretending log residence of a private citizen served as a temple of justice for the time.

*Towns and Villages.* Manchester, the seat of justice, was laid out on lands given by Andrew Erwin for that purpose, on a high, beautiful level, about half a mile above the great falls, on the banks of the Bark Camp Fork of Duck River, on an elevation of about 650 feet above Nashville, and in sight of the Cumberland Mountain range, some ten miles to the east and south-east. The population in 1870 was about 600, with the usual public buildings, one college, and primary schools to which all the scholastic population may have access on easy terms. There are four churches in the place, and the community are noted for their uniform attendance on public worship. The Democrat, published here, is the county paper, and seems to be *living*. The old court-house, destroyed by fire in December, 1870, has been replaced by one of the most beautiful and conveniently arranged in the State. There are six business houses in Manchester, doing good business, though, since the destruction of the paper mill in October, 1873, there is not as much done as before, especially in the shipping trade. The hotel has lately changed hands, and is to be entirely refitted and refurnished.

Tullahoma is a flourishing town on the Nashville and Chattanooga Railroad, where the McMinnville and Manchester Railroad terminates, and is a place of considerable trade, with an orderly, progressive population. Situated on the Highland Rim, at an elevation of some 600 feet above Nashville, it is, on the whole, the most desirable location within the same distance of Nashville, as a summer residence—proverbially healthy at all seasons of the year, with churches and schools of a high order for the education of the youth of the place and the county. Near the town there are a woolen factory, a spoke and hub factory, besides other smaller manufacturing industries, all doing a prosperous business. Its location and population give promise of a large manufacturing town at no distant day. The hotel is now being refitted and enlarged for the accommodation of summer visitors who may resort there as a pleasant summer retreat. The place has been gradually growing since the war. Its business men are wide awake, alive to the interest of *Tullahoma*, and are putting forth their best energies to make it what they deem it should be with *such* surroundings and advantages. Success to their energy and enterprise! By an oversight, this place is put down in the map as in Moore county. It should be in Coffee.

Beech Grove, in the north-western portion of the county, on the Garrison Fork of Duck River, was so called by the late William S. Watterson, on whose land it stood, and by whom its improvements



were made to accommodate the trade of that section long before a new county was thought of. It was then Bedford county. The country around is very productive and thickly settled, consequently Beech Grove has been, and still is a prosperous village, with stores, churches, and school houses, and is the center of a very lucrative business. No section of the State was more prosperous before the war; but, having been the camping ground of both armies, and subject to all the waste that followed, it has not been so prosperous since. However, the soil remains, the waste is gradually being repaired, and her people hope soon to recover their wonted prosperity. The best lands in the county lie in the neighborhood of Beech Grove, while the owners are generally the most progressive and intelligent farmers in the county. A narrow gauge railroad from Wartrace to Woodbury, through Beech Grove, is in contemplation.

Hillsboro, in the south-eastern section of the county, eight miles from Manchester, was formerly in Franklin county, and was at one time a place of active trade, with a number of stores and workshops, churches and schools, but now not so prosperous, as most of the trade has been transferred to Manchester and Tullahoma, on the line of the McMinnville and Manchester Railroad.

Summitville is a village situated on the highest point between Nashville and McMinnville, on the McMinnville and Manchester Railroad, eight miles from Manchester, near Flat Mountain. It is a thriving place, with an orderly and industrious population, and is beautifully located. The Flat Mountain lands are equal in fertility to the best on the Cumberland Plateau, with an abundance of the best timber and limestone rock.

Pocahontas is a small village in the north-east of the county, in the "Barrens," without much trade or population.

Needmore is a village of recent origin, eight and a half miles north of Manchester, on Noah's Fork of Duck River. The country around it is good, and the denizens of the foot-hills find it a very convenient point for the exchange of their products for supplies of goods and groceries.

The water-power near Manchester is, for many reasons, probably the best in the State. It is easy of access, being hardly a mile from the depot of the McMinnville and Manchester Railroad, at Manchester, with an excellent road sloping gradually to the river, and most conveniently situated in almost every respect. The supply of water of

the smaller stream nearest Manchester, the Bark Camp Fork of Duck River, is constant, being furnished from a number of springs near the town, no loss or inconvenience is occasioned during the summer months from low water, nor is there any danger in winter from freshets or freezes. The Bark Camp Fork, as before stated, takes its rise a short distance above town, and is increased by the town springs. It has a succession of falls for nearly a mile, making in the aggregate a descent of more than one hundred feet in that distance. The bed of the stream is on solid rock. At the first and principal fall it cuts through the bed of Black Shale. At this point the large flouring mill of W. S. Huggins formerly stood. It was destroyed by fire in the fall of 1871, and has never been rebuilt. Below where the mill stood, the stream makes an S-shaped curve, falls rapidly, and affords great water-power, which could easily be made available. The large stream—the Barren Fork—rises some ten or fifteen miles away in the Barrens, and, flowing westwardly, approaches to within one or two hundred yards of the Bark Camp Fork, opposite the first fall mentioned, and then rushes downward in a succession of falls, similar to those described, for half a mile, to the point at which the streams unite. On this large stream, and just below the first fall, were situated the extensive paper mills of the Whiteman Brothers, burned last October. Between the two rivers, here flowing nearly parallel, is the ridge or backbone upon which the Old Stone Fort is situated. The two streams afford the amplest power for any kind of machinery, the most conclusive evidence of which is the fact that, in a report made thirty years ago by the Secretary of War, it was recommended as favorable in all respects for the location of a United State's armory, and rejected only because of its distance from navigation and railroads at that time. Under the direction of the Secretary, two careful surveys were made by United State's engineers, the last of which was made in the winter of 1840 or 1841, by Cols. Long and Armistead and their assistants, and the location reported to Congress as favorable in all respects—water, timber, soil and health. The streams were measured and weighed, showing that they afforded ample motive power to move all machinery required in a United State's armory. This is proof conclusive as to the sufficiency of motive power to drive machinery for the largest class of factories or mills. The report is not at hand, but the writer was cognizant of the survey, saw the report, and recollects distinctly the facts. At that time, we had not thought of railroads in Tennessee. If we had then had the Nashville and Chattanooga Railroad, we should now

have an armory at Old Stone Fort on the Great Falls of Duck River.

*Copperas Cave.* A short distance west of Manchester, on the Bark Camp Fork, below the site of the flouring mills, is "Copperas Cave," so called. It is a great rock-house or opening under a huge shelving rock. The shelving or projecting rock above is a mixture of flint and limestone. Below this is the bed of Black Shale, by the disintegration and removal of which the cave has been formed. At the bottom is a great bed of blue limestone. The width of the cave, or excavation between the flinty limestone above and the blue limestone below, increases from the outer ends of the cave to the center. The cave is semi-circular, and lies beneath a considerable precipice, over which a stream of water pours, falling fifty feet right at the center of the arc, and is dashed into spray on the rocks below. During the summer months, this forms a delightful and wholesome shower bath, and is a favorite resort for the citizens of Manchester at eventide. In winter it forms a solid icicle, colossal in its proportions and beautiful in its prismatic colors. Under the circular canopy of Copperas Cave large parties congregate in summer on picnic excursions, and the sound of music and the gayety of the dance are enjoyed in a temperature a little under seventy degrees, while the thermometer marks nearly one hundred degrees in the town above. The coolness of the atmosphere, the cheerfulness of the waterfall, the roaring of the cataracts in Bark Camp Fork a hundred yards distant, the frowning cliffs and the beauty of the forests, all lend a fascination to the scene, and make it a delightful retreat from the heat and toils and dust of a summer's day. The disintegrated shale is rich in copperas and alum, and during the war persons came from a great distance to procure the debris for dyeing purposes. With the natural advantages offered, we see no reason why an establishment for the manufacture of copperas and alum may not be made profitable near Manchester. Surely, if it can be manufactured in New England and shipped to the South and sold at a profit, it can be made here at a profit, if nothing is realized but the cost of transportation. While the late Dr. Troost was State Geologist, which was about the year 1837, he visited Coffee county, and made a report on the soil, timber and minerals. He reported iron ore of the most superior quality in more than one place. He described one locality below Manchester, near the mouth of Compton's Creek, as having ore banks sufficient to warrant the erection of a large furnace, with all the timber close by to work it, and then water-power enough in the stream to work up the iron, or to put it in shape to meet the demands of the

country. He gave the names and analyses of the two kinds of ore near Manchester. That found in the bed of the river about the falls he described as most desirable in quality, but not so abundant in quantity. In the same report, he spoke of the inexhaustible beds of aluminous shale at the falls, dwelt on its commercial value, and gave the mode of making the alum of commerce from it.

*Stone Fort*, one of the ancient ruins of an extinct race, lies between the rivers, enclosing an area of thirty-seven acres, with its regular gateway opposite the Great Falls. Its walls of loose stone, covered with earth, on which trees thought to be five hundred years old are growing, are evidently not the work of the same hands that built the mounds that are so numerous in Tennessee, and no Indian looking from his happy hunting ground can claim them as his own. It is more probable that they were erected by the same people that left such evidences of civilization in Mexico. The interest attaching to the Stone Fort, as a relic of a past age, cannot be easily exhausted, but so much has been written as to its probable builders, and the date of its erection, which is at best mere surmise, that we decline to enter a field where, not having even the stories of old men to guide us, we must be lost in a labyrinth of conjecture. All we know is that an intelligent race of people once existed within its confines.

*Lands.* The lands in the northern or north-western section of the county, known as the Beech Grove country, are not surpassed in productive fertility by any lands in the State. The country is beautifully diversified with hill and valley, abounding in springs of pure water, through which the Garrison and Noah's Fork of Duck River passes, and affording numerous small mill privileges after their descent from the Highlands into the Central Basin, which are occupied by grist-mills, saw-mills and wool-carding factories. The soil is admirably adapted to the production of corn, wheat, rye, barley, oats and hemp. The grasses—clover, timothy, herd's-grass and orchard-grass—grow in the most luxuriant profusion, as the meadows and grazing fields of Mr. A. B. Robertson and others abundantly show. The fruits also here find a congenial home. Apples, peaches, pears, plums, cherries, and particularly the grape, all bear abundantly, and might, under competent culture, be made profitable industries. The small fruits may also be produced in great abundance.

*Timber.* The timber in this portion of the county is beech, sugar maple, elm, ash, hackberry, black walnut, white walnut, cherry, mul-

berry, yellow poplar, (six or seven feet in diameter) pawpaw, black locust, honey locust, buckeye, linn, white and black haw, etc. All these varieties, besides some that are not enumerated, cover the lands that have not been cleared.

The rocks are the same found everywhere in the Basin—the blue limestone and shell limestone. This description applies to all the lands on the waters of Duck River in the county below the Highland Rim, or that portion of the county lying in the Great Central Basin of Middle Tennessee. The Rim or Highlands come next in order, which are higher as you approach the base of Cumberland Table Land, of which, in fact, this is the first bench. Here the country is comparatively level, capable under careful cultivation of producing a large variety of crops, but not so well adapted to the production of the cereals as the lands in the north and north-west sections of the county, yet all the cereals grow here, and, when well cultivated, in all cases make fair average yields as compared with other counties, with the single exception of Indian corn, and the best of these barren lands produce average corn crops. No lands in the State make more productive meadows or better hay from timothy and herds-grass than the best of these flat lands; and many persons regard this as among the best tobacco regions in Tennessee. The yield is heavy, and of a quality far superior to that grown on the strong limestone lands below; in fact, equal to the best grown in Virginia or North Carolina. No one can doubt this who has witnessed its growth upon a soil where hickory, post oak, white oak, dogwood, etc., is found. An analysis of the soil would doubtless show the same properties as the tobacco lands of Virginia and Kentucky. The same class of lands produces large crops of the finest short staple cotton, and at one time large crops of both cotton and tobacco were produced in Coffee county on these elevated lands. The lands in the southern and south-eastern portion of the county are excellent in quality, and well adapted to stock-raising. Along the base of Cumberland Table Land the lands are much more productive than in what is called the Barrens, and corn, wheat, etc., are raised in abundance. This is a thickly settled and highly cultivated section, and although on what is known as the Barrens, it is yet slightly depressed, forming a beautiful valley between the Barrens and the mountain, where the lands, especially on Bean's and Bradley's creeks, are all tillable and very productive, and for cotton and tobacco are equal to the best lands in the State.

## CUMBERLAND COUNTY.

## COUNTY SEAT—CROSSVILLE.

Cumberland county was created by act of the General Assembly of Tennessee, in the year 1856. The first court was held at Crossville, which was selected as the county seat. The territory of the new county was taken from the counties of White, Van Buren, Bledsoe, Rhea, Roane, Morgan and Putnam. Crossville, the county seat, is the only town in the county. It is situated on the Cumberland Table Land, nearly midway between Sparta and Rockwood. It has a population of about seventy-five, two stores, a good hotel, post-office, and a wagon shop. The public buildings are a court-house and a jail, the latter of which is rarely used.

*Topography.* The topography of the county is comparatively simple, there being less variety than in any other county in this part of the State. With the exception of a small part of the head of Sequatchie Valley, it all lies on the Cumberland Table Land. The surface is generally level or undulating, and thinly wooded. In many places there are glades of greater or less extent, which are, in fact, small prairies, destitute of timber, and covered with coarse, rank grass. The superabundance of water in the soil and on the surface is the cause of the absence of timber. Besides the glades there are extensive flats, covered mainly with post oak and black jack. The ridges and hills, which, with a few exceptions, are but little elevated above the general level, are often gravelly, and sustain a larger and more dense growth of timber, among which are several valuable varieties of oaks, chestnut, hickory, white poplar, pine, and sometimes elm and maple. The larger streams generally flow in narrow valleys, depressed, more or less, below the general level, and the abutting hills are often very rugged and steep. In their neighborhood the surface is usually very much broken on each side. In some places there are knobs and ridges rising to a considerable elevation above the Table Land. The most remarkable of these is Crab Orchard Mountain, which has an elevation of 1,000 feet above the mountain plateau on which it rests, being, in fact, a mountain on top of a mountain. Beginning near Big Emory River, it extends south-westwardly, rising gradually till an elevation of 1,000 feet above the Table Land is attained above Crab Orchard Gap, through which the road from Crossville to Kingston passes. At this gap it is cut completely in twain,

leaving room for a large farm between the abutting ends. Continuing its course in the same direction, but having a less elevation, it is abruptly cut in two at another point a few miles from the last by Grassy Cove. This cove is one of the most remarkable topographical features of the Table Land. Here we have between the two opposing ends of the mountain a beautiful and fertile valley eight miles in its greatest diameter from north-east to south-west, and four miles wide. It is depressed 300 feet below the average elevation of the Table Land, by which it is completely surrounded. The Crab Orchard Mountain, beginning again at the south-west end of the cove, continues in a direct line to its abrupt termination at the head of Sequatchie Valley. About three miles of the head of Sequatchie Valley are included in Cumberland county, which is the only part of the county not on the Table Land. Though comprising but a small part of the area, it contains a very large part of the population and wealth. The surrounding mountain sides, or more properly, the escarpments of the Table Land bifurcate immediately at the terminus of Crab Orchard Mountain, each forming a crest, which is higher and more distinctly marked on the south-eastern or Walden's Ridge side. By their gradual divergence greater width is given to the valley, until at the county line it has a breadth of about one mile. The depression of the valley below the level of the Table Land is about 1,000 feet. Its surface is considerably broken, but there is little of it too rugged for cultivation.

*Soils.* The prevailing rocks of any region give character to the soil. The entire surface of the Table Land, with a few exceptions, lies upon sandstone and conglomerate. Most of the county has, therefore, a light sandy soil, with but little humus, and is greatly deficient in calcareous matter and other elements of fertility. In some places the subsoil is a yellowish red clay, strong enough to bear improvement, and responds readily to generous treatment, but the elements of fertility must be supplied before it can produce satisfactory crops. On such sites good farms can be made by penning cattle on each field until it becomes thoroughly fertilized. But we cannot undertake to defend the capabilities of these lands for the production of grain. The expense of adding a sufficient quantity of lime to the soil would more than pay for good lands where nature has supplied it. For the production of fruits, grasses, root crops and most garden vegetables they are scarcely surpassed. There are other places where the subsoil is yellow, sometimes inclining to blue or white. It is frequently so porous that a walking-cane may, with little effort, be thrust in to the

head. Of course no amount of manure would satisfy its craving hunger. But even these lands are not without their value. They might be converted into extensive sheep-walks, and made to yield a return scarcely less than that from those more favored by nature. Besides these two leading classes of mountain lands, we may consider the wet lands along the small streams and in the glades as another possessing peculiar characteristics. Their color, when wet, is a dark blue, sometimes nearly black, but when dried they assume an ashen hue. Blue clay generally accompanies them as a substratum. They are now regarded as of little value, and the few experiments that have been tried upon them have generally been without satisfactory results. The absence of timber, except a few valueless kinds which delight in water, has added to the disrepute in which they are held. We do not like to venture an opinion which contravenes the experience of nearly all who have tried experiments upon them, but may it not be that those experiments have failed because their peculiarities have not been well understood? So far as we have been able to learn, the efforts to improve them have been limited to draining off the water. This, of course, must be done, but this is not all. Their *sourness* must be corrected. The partially decayed vegetable matter which they contain in large quantity is too acid to nourish the growth of any plants, except hardy and gross feeders. This acid must be neutralized by the liberal use of some alkali, and for this purpose there is nothing better than wood ashes. But while the population is so sparse and lands are so cheap, we cannot expect much effort at improvement. The want of humus in the soils of the Table Land is owing in part to the annual fires in the woods, which consume all the leaves and dried grass and other combustible material, and leave the ground bare. These fires are kindled by the people to facilitate, as they say, the early growth of the grass. It is true that it leaves the surface very smooth and clean, and we will not deny that pasturage is thereby obtained a few days sooner. But we cannot commend the practice, for it destroys the only natural source of fertility, and causes the land to grow poorer and poorer every year. Another evil growing out of this barbarous custom, is the injury thereby done to the timber, and particularly to the valuable chestnut trees, most of which are ruined before the time when they should be most vigorous and fruitful. As an evidence of the injurious effects on the soil, we may observe that the north hill-sides, where the forest debris, being less exposed to the sun, is often too wet to burn, are always more fertile than lands otherwise



situated. Along some of the larger creeks there are narrow bottoms, depressed more or less below the general surface of the county. The lands in such situations, though light, are tolerably productive, and where they are not encumbered with masses of round water-worn rocks, are easy of cultivation. The anticlinal dip of the strata in the Crab Orchard range shows that it has been upheaved by a folding of the earth's crust. By this means the mountain limestones, which lie under the cap rock of sandstones and conglomerates, have been brought up into, and even above, the plane of the Table Land, and where the superimposed formations have been removed by denudation, as at Crab Orchard Gap and Grassy Cove, they appear on the surface and give character to the soil. Consequently we have, at these places, lands similar to those in the limestone region along the western base of the Table Land. Grassy Cove is worthy of especial mention. Its fertile soil and other advantages as an agricultural region have been admired by all visitors, and it has been not inaptly called "The Gem of the Mountain." There are in it several excellent farms, the best of which is owned by Mr. Stratton, who is becoming famous as a breeder of Devon cattle. The head of Sequatchie Valley has already been spoken of at some length, and it only remains to add that the soils are, without exception, good, being derived from calcareous rocks, and for many years have continued to produce good crops of corn, small grain, grasses and fruits. The lower slopes of the surrounding mountains are covered with heavy forests of timber, among which many valuable varieties, such as walnut, ash, yellow poplar, wild cherry and several varieties of oaks are abundant.

*Farms and Crops.* The Table Land, as an agricultural region, is not in the best repute, and we cannot deny that it will suffer by comparison with any other natural division of the State; but, at the same time, we believe that its advantages have been too much under-valued. The price of lands is very low, and a very large proportion of the area of the county is yet unimproved. The *farms*, generally, consist of a few small cleared fields on a tract of several hundred acres. Not unfrequently from one to twenty thousand acres in a body are owned by a single proprietor. Of course it is not often profitable to the owners, and it has become a common saying that "the more mountain land a man owns, the poorer he is." Much of it has been sold and resold, time and again, for taxes, and many law suits result from conflicting titles. About the only profitable use that is made of these large tracts of waste land, is as a summer range for cattle and sheep from the

farms in the valleys. Ranches or "cow-pens" may be met with at many places, which, during the season of pasturage, are occupied by the herdsmen, who vary the monotony of tending the cattle with hunting deer, bear and wild turkies. But there are some good, well improved farms on the Table Land, which yield to their thrifty and industrious owners a comfortable living, and we are glad to note the fact that the number of these is every year increasing. The leading crops at present cultivated are Irish potatoes, corn, rye, oats, buckwheat, tobacco, sorghum, sweet potatoes, turnips and beans. Most garden vegetables grow in perfection, but as there is no market, their production is limited. It is a notable truth that almost every thing that will grow on the mountain is of better quality than the same article produced elsewhere. This is especially true of Irish potatoes, the meanness and fine flavor of which cannot be surpassed. By the use of fertilizers and good cultivation grain can be successfully grown. Experiments in this line have been tried to a considerable extent within the past five or six years, resulting in one instance in the production of thirty bushels of wheat per acre. Mediterranean and Walker wheats are the varieties generally cultivated. A very satisfactory proof of the nutritive qualities of the wild grasses is found in the fact that cattle, sheep and horses fatten on them rapidly and easily. The various cultivated grasses do well with fair treatment. This is particularly true of red-top and orchard-grass. The soil and climate are also favorable to red clover and timothy, and with good farming, they are generally successful. Grasses are usually mown, sometimes pastured, but rarely or never given to the soil as manure. The amount of land appropriated to the cultivated grasses is much smaller than it should be. In the *ante bellum* period, Mr. J.W. Dodge, who resided a few miles west of Crossville, "made himself and the mountain famous" by raising superb apples, which carried off the prizes at fairs in all parts of the State. His worthy example has been followed by many others, and orchards, producing fruit of quality far superior to the same varieties grown in higher latitudes, are now quite common. It is now an admitted fact that fruits grown in a sandy soil are richer in saccharine matter than those of the same name grown in a limestone or clay soil. Grapes have been tested sufficiently to show that they can be successfully grown. All varieties of fruit, which are adapted to a temperate climate, can be profitably cultivated on the Table Land, and as a correspondent truthfully remarks, "it is easy to have a thrifty orchard where you cannot have a good cornfield."

*Live Stock.* But the rearing of live stock will probably continue to be the leading and most profitable pursuit of the people of Cumberland county. The "range" of the woods affords unlimited pasturage, and the natural meadows, or glades, furnish coarse hay of good quality. The glades and wet lands along the smaller streams, when drained, make the best of meadows, and if the farmers would give more attention to the cultivation of grass, they would find it much more profitable, and better for forage than cut corn, which is now the chief reliance. But little effort has yet been made to introduce the improved breeds of stock. The common, or scrub breeds, are generally good of their kind, but there is an increasing desire to improve them by crossing with the different varieties of thoroughbreds which have been introduced since the war. Essex and Berkshire hogs are scattered in considerable numbers over the county, and have made their influence felt in producing a race of superior animals, instead of the native "razor-backs," which, for generations, have depended on the mast alone for a subsistence. The greatest difficulty in the way of swine-breeding, is the frequent destruction of young pigs by foxes and other vermin. The breeding of sheep is subject to the same casualties, and to a still greater extent, in consequence of which but few are kept. The sheep is remarkably healthy and long-lived on the Table Land, and nature has done everything to render this department of husbandry profitable, if some means could be devised for their protection from dogs and vermin. A dog tax, however, would not be popular in the county at present. The effort to improve the breed of sheep is limited to the recent introduction of a few Merinos. Mr. Stratton, of Grassy Cove, has gained considerable reputation as a breeder of Devons, and several fine animals from his herd have gone to improve the stock of cattle in neighboring parts of East Tennessee. Mr. Wilson, in the same neighborhood, breeds Short-horns, but the Devons are generally preferred by the farmers of the Table Land, and wisely we think. In the head of Sequatchie Valley, where the soil is rich and blue-grass grows freely, Short-horns would perhaps be more profitable.

*Status of Agriculture.* Considerable improvement has been made since the war in the kind of farm implements used, and the modes of cultivation. But "bull-tongue" plows still have some advocates. Double shovels are gaining in popularity, and coming into general use. Two-horse turning plows are common, but larger ones are rarely used. Subsoiling is not believed to be advantageous, and is rarely or never practiced. On lands so light and loose as those of the Table Land, it is

not best to plow too deep, and, indeed, the chief difficulty is to render the ground sufficiently compact. For this purpose the roller, which is now almost unknown, might be used with great advantage. Most of the plowing is done with horses and mules. When the work is unusually heavy, as it always is in the boggy land, oxen are used. Very few farmers ever employ any hired labor, except on extraordinary occasions, and even then the extra help is usually obtained by "swapping work." The average of wages is from eight to ten dollars per month. In a few cases, fifteen dollars has been paid for the best hands. Wages per diem are usually seventy-five cents where the laborer finds himself, and fifty cents if found. There is never any difficulty in procuring labor at the above rates. Land is frequently leased for the purpose of having it cleared, the person who leases having the timber and use of the land for three years for his labor in clearing. When open land is rented, one-third of the crop is always allowed the owner. The great wants of the county are better facilities for transportation, and more and better labor. The farmers are tolerably well contented, and there is but little emigration, but many would go if they could sell their lands. There are many well-improved places offered for sale, and unimproved lands in any quantity that might be desired. Live stock is generally driven to market. Rockwood, in Roane county, has a large manufacturing population, which gives a good market for the poultry, dairy products, &c. Bacon, lard, flour, and other articles, are sometimes carried to Nashville or Knoxville in wagons, and merchandise brought back in the same way. The people are kindly disposed toward immigrants, and are anxious to have them come. The immigration since the war has been quite large, especially of people from the north. Not less than 150 families have come into the county, most of whom have remained, and are well contented. Those who have returned or gone elsewhere have done so on account of the failure of their expectations in regard to the location through the county of the Cincinnati Southern Railroad. The sparseness of the population renders it a difficult matter to sustain good schools. The public schools, which have been but recently established, are generally well attended, and are likely to be productive of good results.

*Streams and Water-power.* Daddy's Creek and Obed's River, both of which are tributaries of Big Emory River, receive most of the streams in the northern and eastern parts of the county. Caney Fork flows from north to south through the western part, and conveys off all

the waters of that portion. Sequatchie River rises in Grassy Cove, where it is called Cove Creek. After flowing for several miles in an under-ground channel very far below the surface, it breaks out again in a large spring at the head of Sequatchie Valley. The best water-power in the county is on Sequatchie River, a short distance below the Big Spring. In Grassy Cove, ten miles south-east of Crossville, there is upon Cove Creek a mill with an ample supply of water throughout the year. Stony Branch, a tributary of Daddy's Creek, has a fall of seventy feet within a few hundred yards. There is a mill here which is propelled mainly by the water of a large spring. Near where the Crossville and Sparta road crosses Caney Fork, there is a good power for a small mill, throughout the year. For about half the year there is abundance of water for large machinery. There are a number of smaller creeks, the most important of which are Wilkinson's, Fall, Piney, Big Laurel, and Basin. All of the mountain streams have abundance of water in winter and spring, but in summer the sandy soil absorbs it so that many of them become dry. From this cause the permanent facilities for manufacturing by water-power are limited. Domestic manufactures embrace jeans, linsey, cotton cloth, flax, linen, buckskin pants and gloves, woolen and rag carpets, cotton and woolen socks, fur and woolen hats, split-bottomed chairs, baskets, shuck collars, and wooden ware. There are also several tanneries and boot and shoe shops. The products of the smaller industries are greater, in proportion to the population, than in almost any county in the State. Butter and cheese of good quality are manufactured for the market, and it is a noteworthy fact that the dairy products of the Table Land, where care is taken in their manufacture, have an excellence of flavor that is peculiar to this region. This is owing no doubt to the purity of the air and water, and to the qualities of the wild grasses and herbs. Poultry are healthy and thrifty, but large numbers are destroyed by vermin. Large quantities of honey are produced. It is light colored, and has generally a sprightly aromatic flavor. Chestnuts and ginseng are gathered in the forests and sold for good prices. The total value of taxable property, according to the late assessment, is \$614,019.

*Minerals.* Chalybeate springs may be counted by the hundred. The most noted are the Howard Springs, four miles west of Crossville. There are three springs, two of which are chalybeate, and the other freestone. There are at this place a boarding house and several very neat residences. Gibson's Spring, eighteen miles east of Crossville, is very strong chalybeate. It has the credit for some remarkable cures.

Two miles south of Crossville, near the Pikeville road, is a good chalybeate spring, and ten miles south-east is another which is said to be "equal to Gibson's." Coal crops out on the side of a ravine three-quarters of a mile south-east of Crossville, but has never been worked, and its thickness is unknown. Six miles south of the county seat are two very fine banks near together—Davis', thirteen feet thick, and Andrew's, said to be eighteen. We give these figures as reported, but cannot vouch for their accuracy. We saw specimens of the coal which is black and lustrous, and appears to be free from sulphur. Ten miles north of Crossville there is a place where Clear Creek runs, for about one hundred yards, over a continuous bed of block or cubic coal. Mr. W. W. Powell, postmaster at Crossville, has some specimens which are as symmetrical as if cut by a lapidary. On the north-west slope of Black Mountain, which is a part of the Crab Orchard range, coal in large quantities is known to exist, but has never been worked. Haley's Bank, in the same range near Crab Orchard Gap, has furnished coal for blacksmiths' forges for a number of years. It is pronounced by those who have used it to be of very superior quality. These were the only points that were reported, but they will serve to indicate the mineral wealth of this region. The entire county, except the head of Sequatchie Valley and Grassy Cove, belongs to the great Cumberland Coal Field, and no doubt enough of this valuable mineral might be obtained from this county alone to supply the State of Tennessee for an unlimited number of years. Clay ironstones abound in the strata of the coal-measures, and many good specimens of ore may be found at various points on the Table Land, but their extent and value are not known. In the head of the valley the bed of red hematite, or "dyestone," which appears to underlie all the eastern part of the table land, crops out on both sides, but it has never been worked. Its quality is the same as that at Roekwood and Oakdale, in Roane county. Other minerals doubtless exist, but their extent or value is unknown.

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## DAVIDSON COUNTY.

COUNTY SEAT—NASHVILLE.

This large, excellent and populous county was organized under the State of North Carolina in 1783. It comprises about 550 square miles, or 352,000 acres, and is bounded on the north by Robertson and Sumner, on the east by Sumner, Wilson and Rutherford, on the south by

Williamson, and on the west by Cheatham. The Cumberland River, with eight convolutions, passes through the county from east to west, dividing it into two parts nearly equal. The surface configuration of the county is, for the most part, gently rolling, swelling in places to considerable heights, and forming lines of rounded flat hills, or mamillary protuberances, and occasionally long ridges from which shoot out subordinate ones more or less at right angles. There are three of these main ridges: 1st. The Paradise Ridge, in the north-western part of the county, at the heads of White's, Mansker's and Marrowbone creeks. This ridge forms the edge of the Highland Rim. 2d. The Harpeth Ridge, which is the water shed between the Cumberland and Harpeth rivers. 3d. The ridge dividing the Harpeth from Little Harpeth. In addition to these, or rather subordinate to them, are many inferior ridges between the streams, which also have spurs putting out from them to such an extent as to give to the surface a very rough and broken appearance. Especially is this the case in the north-western part of the county.

To enter more minutely into the surface features of the county, we shall assume Nashville as the starting point, and confine ourselves, for the present, to the south side of the river. South and south-west of the city is a series of rounded hills, sweeping in almost a semi-circle about the city. These hills are symmetrical in form and rise very gently to the height of 150 or 200 feet. Between them and the city the soil, mulatto in color, and considerably mixed with rocky fragments, rests upon a bed of limestone that comes very near the surface. This soil was once quite fertile, but much of it is now comparatively worthless, except in level places. With a radius of nine miles, if the segment of a circle were described from the Cumberland River opposite Bell's Bend to Mill Creek, it would enclose a body of as fertile land, with the exception of that mentioned, as can be found in the State. With a slightly rolling surface just sufficient for drainage, it grows in large quantities all the crops cultivated in the Central Basin. This area is drained by Richland Creek, Little Harpeth, Brown's Creek, and Mill Creek. It embraces the 7th, 8th, 9th, and 11th districts, and parts of the 10th 12th, and 14th. This section embraces the best bluegrass lands in the county. The native growth is poplar, walnut, maple, and several varieties of the oak. Beyond this segment, on the west, is a dividing ridge, heretofore spoken of as Harpeth Ridge, running east and west. South of Harpeth River, and including most of the 14th

district, the land is, for the most part, high, rolling and thin, though there are some excellent bottoms on the river.

Taking the section now east of Mill Creek, and South of the Cumberland, we find the best soils for cotton, wheat and clover in the county. The color of the soil, except in alluvial bottoms, is mulatto, and the timber consists of poplar and white oak, with a very small sprinkling of maple and walnut. This section is drained by Mill Creek and Stone's River, with the exception of the 4th district, which is drained by Stoner's Creek, mainly, and Stone's River, and a considerable portion of it known as Jones' Bend is drained by the Cumberland. The Hermitage is in the 4th district.

Turning our attention to the lands on the north side of the Cumberland, and beginning on the western side of the county, we meet with the Marrowbone Hills, high, poor, gravelly siliceous spurs, jutting out from the Highlands with minor spurs as numerous as the branches of a tree, and between these, numerous streams with a hundred branches ramify the whole country. A bold ridge runs north and south for a few miles, and culminates in Paradise Hill, from which the waters flow in every direction. Almost the whole country embraced between White's Creek and the Cheatham county line is rugged and poor, with the exception of the river and creek bottoms and some of the uplands near the Cumberland. The lowlands on the upper part of White's Creek are very narrow. Nearer the mouth, the bottoms become wider, and the uplands more fertile. The soils on this creek are well adapted to the cereals, and grow blue-grass luxuriantly. East of White's Creek, and embraced between that and the Cumberland River on the east and south, and comprising the 18th, 19th, 20th and 21st, and part of the 22nd districts, the country is considerably diversified, though not so broken as the last section just described. In the portion of the county under consideration there are some good, warm, valley lands, with occasional ridges or spurs too steep for cultivation. The soil is a mulatto, with a good many surface rocks, and with the exception of a portion of Neeley's Bend, is well suited to the growth of wheat, corn, potatoes, and clover. The soil in a portion of Neeley's Bend is dark and well adapted to the grasses. This section is well drained by White's Creek and its tributaries on the west, and by Mansker's Creek on the east, and Dry Creek through the center. The northern part of this section abuts against the Highlands, and many finger-like projections shoot out from these into the lowlands, between which nestle many



beautiful coves, whose southern exposures shorten the number of the frost days, and woos spring to their embrace some weeks earlier than the bleak level plateau overlooking them from the north. The soil and situation here are suitable for the growth of early vegetables. The only serious objection to this area is the nearness of the underlying rocks to the surface, rendering it unable to resist drought. The corn crops are often materially injured with a few days of dry, hot weather in summer. In seasons of great humidity, however, the crops are unusually large, and many of the fields in this portion of the county will, with suitable seasons, yield from fifty to sixty bushels of corn per acre.

*Geological Features.* The greater part of this county presents an outcrop of the Nashville or Cincinnati formation. The rocks are mostly an impure blue limestone, generally containing many shells, and easily disintegrating into a loose, mellow, arenaceous soil, easy to till and wash. The impurities consist of clay and fine sand. A detailed section of the rocks as they occur in Nashville, and which may be taken as a type of the whole county, was made out by Dr. Safford. This section, given below, commences beneath the wire bridge and ascends to the top of Capitol Hill. The section is numbered from the bottom up, but the highest is described first:

(6.) *College Hill Limestone.* When freshly quarried, a dark blue, highly fossiliferous, coarsely crystalline and roughly stratified limestone, with more or less of its laminæ shaly. The mass weathers, generally, into rough, flaggy limestones, and shaly matter interstratified, often liberating multitudes of fossils—especially small corals. Some of the layers of this limestone are wholly made up of corals and shells. *Stenopora*, *Constellaria antheloidea*, *Tetradium fibratum*, *Columnaria stellata*, *Stromatopora pustulosa*, *Strophomena alternata*, *Orthis lynx*, *O. occidentalis*, and others, are abundantly represented by individuals. *Bellerophon Troosti*, species of *Cyrtodonta*, *Ambonychia radiata* occur. This division is well seen on *College Hill*, and in the upper part of the bluff at the *Reservoir*. There is, also, a fine presentation of it on *Capitol Hill*, around the Capitol. Its lowest layers are at the top of the bluff at the *Wire Bridge*. These rocks pertain to the highest stratum in the vicinity of Nashville. The division, as here presented, may be taken with the upper division, ((2) Middle Member), of the Columbia Section, as typical of the *Nashville Formation* in general. This division, at *Capitol Hill*, measures 120 feet.

(5.) *Cyrtodonta Bed.* Immediately below the College Hill Limestone, is a remarkable bed of coarsely crystalline, ashen gray, or light yellowish gray limestone, in great part made up of valves of species of *Cyrtodonta*, individuals of *Bellerophon Lindsleyi*, and *B. Troosti*. Of the *Cyrtodonta*, *C. Saffordi* is especially abundant. This bed is best developed in the bluff at the *Wire bridge*. It is here ten or eleven feet thick, and forms one solid layer. The shells are silicified, and pretty generally have their edges

rounded and worn, as if they had been rolled in currents of water, or by waves. The bed is seen again at the engine house of the water-works, where it is six feet thick. In tracing it beyond the engine house, it very soon runs out, and is replaced by a compact, dove-colored limestone, like No. 3, below. Descending the hill on the west side of the Capitol, it is also seen, but it is, for the most part, replaced by the compact limestone spoken of. It is well exposed at other low points about the city, and has been traced, in some directions, a mile or two beyond the city limits. This rock has been used for building purposes to some extent, and for making corner posts. Maximum thickness eleven feet.

(4.) *Bed of Limestone* of the common type; much like the college hill limestone, coarsely crystalline, fossiliferous, &c. It occurs below No. 5, on the west side of the Capitol. In the bluff at the wire bridge, it is twenty-three feet thick. In the bluff above the engine house of the water-works, it measures twenty-eight feet.

(3.) *Dove Limestones.* This is a group of three layers, for the most part. The upper layer is a light dove-colored, compact limestone, four feet thick, breaking with conchoidal fracture, containing strings (mostly vertical) of crystalline matter, which show points on a horizontal surface. (Birdseye.) The middle layer is, mainly, the common dark blue crystalline limestone, (two feet). The lowest layer, (four feet), is mostly like the upper, but more or less mixed with blue layers. Such is the group as seen at the foot of Gay Street, in a quarry on the river bank. This group presents itself at many points in and around the city. It is conveniently studied at the quarry mentioned, at the foot of Gay Street. At the end of the bluff beyond the water-works, it may also be seen, and it is here ten or eleven feet thick. The group may also be seen in the region of the penitentiary, and of the old State quarry, overlying the rock of that quarry. It appears at many points in Davidson county, outside of Nashville. The layers are generally of desirable thickness, and are quarried at numerous points in and about the city, for building and other purposes. The group contains a number of species. Detached *siphuncles* of *Orthoceras Bigsbyi*, and of an allied species, are numerous at some points, especially in the middle layer. *Tetradium*, *Bellerophon*, *Murchisonia*, *Pleurotomaria*, and other genera are represented. It is in this group that *Leperditia Morgani* is found. Thickness, eleven feet.

(2.) *Capitol Limestone.* This bed supplied the rock to build the Capitol, and was formerly well exposed in the old State quarry, west and in sight of the building. It is limestone, but has the appearance of a laminated sandstone. When cut and ground smooth, a block of it, presented edgewise, shows well the laminar character. Such a surface is bluish gray, plentifully banded with darker lines. The capitol is a splendid presentation of this rock as a building material. The rock often contains rolled fragments of the beaded *siphuncles* of species of *Orthoceras*. Some specimens of these are seen in the faces of the blocks in the walls of the Capitol. It exhibits, also, examples of cross stratification, another evidence of the current-action to which it was originally subjected. The mass contains some little siliceous matter, mostly in grains, and in small fragments of silicified shells, so that they do not interfere, materially, with the working of the rock. It is easily quarried, and can be obtained in blocks of any desirable size. In its natural exposures it exfoliates in laminæ by long weathering. The bed, pretty

generally, underlies the city; has been quarried at the foot of Gay street, on the river; is near the water, under the wire bridge, and appears beyond the water-works, where it has also been quarried, and is twenty feet thick. The lamellar structure of this bed runs into the one just below, to some extent, and it is not always easy to draw a line of separation. Below the wire bridge my measurements make the thickness of the bed twenty-five feet.

(1.) The *Orthis Bed* underlies the last, and is the lowest member of the Nashville formation. It is in the water below the wire bridge, but rises in going down the river, and may be studied in the bluff below the railroad bridge. It may be seen, too, and its *Orthis* gathered, at the first mile-stone on the Murfreesboro Turnpike. It rises at the end of the bluff, beyond the water-works; and still further east, as at Mount Olivet, it may be seen resting on the Carter's Creek Limestone—the upper member of the Trenton formation.

One of these strata takes the name of the Bosley stone, and is quarried in the tenth and eleventh districts, near the Hillsboro turnpike. It is a light gray, fine-grained, and easily worked limestone, and makes a handsome, durable front. Quite a number of the fronts of the best buildings in Nashville are made of this stone; among others may be mentioned that of the Methodist Book Concern and Ensley's block adjoining, also the elegant front of Burns' block. This rock is also quarried in Bell's Bend, below Nashville.

There is a large number of minerals found in the county, but in such small quantities as to be undeserving of notice.

The sulphur springs are numerous, the most famous of which is situated within the corporate limits of Nashville, which was bored to a great depth in search of salt. The water is much used during the summer months, and large quantities are sold on the streets by boys. In the early history of the county, this spring was known as the Big French Lick, called so because a Frenchman, name unknown, built a cabin on the mound on the north side of the spring branch as early as 1710. When the first white hunters came to this region, in 1770, they found a Frenchman named DeMonbreun living on the same spot.

*Soils, Timber, Farms and Crops.* In giving the topographical features of the county, we incidentally mentioned some of the varieties of soil. These may be classified into 1st, the siliceous; 2nd, the limestone proper; 3rd, the alluvial. The first is of a brownish yellow color, with intermingling water-worn gravel and underlying sandstone. The native growth upon this soil is poplar, walnut, chestnut, beech and oak. The best timber in the county is found upon it. It is specially adapted to the growth of fruits and watermelons, peanuts and cotton.

The second exceeds in extent all the other soils of the county. It is, as has been mentioned, considerably mixed with arenaceous material, and is light, porous, and easily worked. It varies in color and consistency, giving it different capacities. Upon it grows all the blue-grass of the county, as well as the largest proportion of all other grasses except herds-grass, which grows better upon the silicious and alluvial. Injudicious cultivation has impoverished much of this soil, once so generous in its yield of all the crops of the county. Of the alluvial soils, there are three sub-divisions:

1. *The Black*, which is sticky, without sand enough to give it mellowness. It opens in great cracks or seams during dry weather, and upon a smooth surface resembles blocks of detached black rock. It grows corn, millet, Hungarian grass, clover and barley in great luxuriance, but is not so well adapted to wheat, cotton, blue-grass, herds-grass or timothy. It is admirably suited to orchard-grass and lucerne. The fertility of this soil is very great, and will equal the best soils in the Mississippi bottoms.

2. *White or "Crarfshy,"* retentive of water, cold, and inclined to be marshy. Well drained, this soil warms up, and is excellent for timothy and herds-grass. It is also good, when drained, for corn and oats, but they are longer in maturing.

3. *Sandy.* This soil is remarkably productive in a wet season, but vegetation parches up during seasons of drought. When there are frequent and abundant rains during the corn-growing season, the largest crops are made upon this sandy, alluvial soil. It washes easily, making great drifts, but is of inexhaustible fertility.

*Timber* is growing scarce and dear. The most valuable varieties in the best cultivated parts of the county, such as cedar, walnut, oak, sugar tree and hickory, have been picked over until the quality of that standing is very inferior. Upon the spurs and ridges in the north-western parts of the county, in White's Creek Valley, Harpeth Valley, and upon the Cumberland, we find valuable bodies of poplar, walnut, oak, ash, hickory and chestnut. Occasionally a good grove, that has been protected, may be found in other parts of the county, yet they are very scarce. Usually the woodlands are open, the trees standing thinly upon the surface, and of an inferior kind, such as hornbeam, elm, scrubby oaks, honey locust, &c. And yet the farmers are, to a great extent, independent of timber for enclosures. The vast amount of rock that everywhere may be found

near the surface, supplies a cheap, ready and durable material for the construction of fences. The price of poplar lumber at the mills is from \$15 to \$20 per 1,000, walnut \$25, cedar \$35. Coal is now used on many farms, being much cheaper than wood. About one-half the land in the county is still in timber, but the quantity of timber is not one-fifth of what it was originally. The census report gives 1,948 farms for the county. There is only one farm given as containing over 1,000 acres, which is certainly incorrect.

The farms before the war were in a very high state of cultivation. The number in such condition is still very great. Farm-houses and fences, stables and yards, all show refinement of taste and a marked appreciation for rural elegance and beauty. In the better districts of the county elegant brick dwellings and stone fences are general. There are several farms that have from eighteen to twenty-five miles of stone fencing, the average cost of which was one dollar per linear yard. In improvements, thorough tillage and the extirpation of noxious weeds and briars, the condition of the farms does not compare favorably with that before the war. Farm improvements have been greatly impaired and much valuable soil has been taxed to such a degree as to be almost unproductive. In consequence of this state of things, farms do not sell so high in Davidson county as in many of the counties adjoining. The very magnitude of some of the improvements, requiring large sums to keep them up, has affected the price of first-rate farms. Farms of the same quality of soil are higher in Maury, Bedford, Lincoln and Giles counties. Very good farms with good improvements may be bought within six miles of Nashville for forty and fifty dollars per acre, though the best improved places are held at much higher rates, ranging from sixty to one hundred and twenty-five dollars, though none are sold. The knobby lands, which are extensive in the north-western part of the county, may be bought from one dollar and a half to twenty dollars per acre. They are chiefly valuable for the timber and for pasture lands. Most of them grow blue-grass well, and will subsist large flocks of sheep and cattle. Rents vary from four to six dollars when paid in money, or if in crop, one-third. The chief crops grown besides vegetables, are corn, wheat, oats, barley, rye, timothy, herds-grass, Hungarian grass, German millet, native millet, and cotton. The following will show the average yield on the best soils in the county, according to the estimate of two of the most successful farmers in the county: oats forty, corn fifty, wheat twelve, barley forty, and rye twelve bushels; timothy hay two, herds-grass

one and a half, Hungarian grass three, German millet three to four, and native millet three and a half tons; cotton eight hundred pounds. The yield of wheat, whether from the exhaustion of the suitable constituents in the soil, or from bad tillage, or from the nature of the climate, is very small. Immense quantities of straw are produced and very large heads are formed, but they have but few grains of wheat. Judging from the straw, one would expect a bounteous yield, but expectations are seldom realized in this particular. Another crop grown in this county extensively, for market, deserves mention. We refer to watermelons, which attain an extraordinary size and sweetness. They grow in this county to their greatest perfection, especially upon limestone soils that have a considerable admixture of sand. A farmer, one of the best in the county, a year or two ago, being desirous of having an old sedge field cleared up preparatory to seeding it in grass, gave one of his employees five acres for one year free of rent, on condition that it should be put in some crop and cultivated well. This laborer put it in watermelons, and used no fertilizer. He realized in the Nashville market, \$600 clear of all expense, and more than one-third of the whole number rotted upon the ground. Some of them weighed from sixty to ninety pounds. All other melons grow well. Sweet potatoes also grow to a very great size. The quality of the soil, loose, rich, with a considerable admixture of sand, is just suited to their growth. They grow too large oftentimes, and those of less size are preferred. We have seen them in the Nashville market so large that four would pass for half a bushel. One hundred and fifty bushels per acre are often raised. The quantity raised will equal 25,000 bushels annually. Irish potatoes grow to perfection on the black soils. The yield is about one hundred and fifty bushels per acre, and the total product of the county for the year 1870, as given in the census report, was 66,243 bushels. The estimated crop for 1873, was 40,000 bushels. Of sweet potatoes, the crop of 1870 amounted to 66,854 bushels. Snap beans are raised on the series of high hills from Brentwood west, and are made a staple crop. These hills are very fertile to the top.

*Stock.* In the blue-grass districts, which embrace a large proportion of the county, stock-raising is by far the most profitable branch of husbandry, and no county in the State has such an abundance and variety of fine stock. Indeed, there is scarcely a place in the United States more famous for the character of its thoroughbred horses, cows, sheep and hogs.

*Horses.* Since the beginning of this century, the rearing of fine horses has always been a favorite occupation with the people of Davidson county. Many fine racers for breeding purposes have been imported, some of them of national reputation, among which we may mention Haynie's mare Paolet, Truxton, Wilke's Wonder, and many others, a partial list of which may be found in the chapter on live stock. All these have left their blood in their descendants. The excellence of the blooded horses of Davidson county is well known and appreciated by stock men everywhere. The war was a very serious drawback to the breeding of fine horses. Many of the best having been lost to the county by the exigencies of war. Among the most distinguished breeders of blood horses in the county are W. G. Harding, B. F. Cockrill, A. Turner and Samuel Murphy. These gentlemen are well known by stock men throughout the United States, but there are various instances of individuals having raised distinguished animals without being regularly in the business. Trotters received some attention before the war, but since, this special branch of breeding, stimulated by demand and high prices, has received a new impulse, and promises to become of leading interest. At present, there are more than a dozen trotting stallions kept for breeding purposes within the county, many of them of high character and great value. The number of horses reported for the county is 5,646, which does not include horses in the cities, but only on the farms. At present the estimated number is 6,500.

*Mules and Asses.* Of these there were in the county 2,278 in 1870, but the number has been considerably increased since that period. The estimated number at present is 3,000. A large majority of these are raised in the county, and many have been sent to the southern markets. The quality of the mules raised is of the very best, some of them from mares of the highest blood.

*Cattle.* The cattle of Davidson county are generally of a high order of graded cattle, being mixed with Short-horn, Devonshire, Ayreshire and Alderney. The milch cows are of much more than ordinary excellence, owing to the importation of the improved breeds with which they have been crossed. There are many establishments that have gone to great expense and care in getting the very best breeding animals, and perhaps as fine specimens and as perfect types of each breed may be had in Davidson county as in any portion of the world, England not excepted. The county is indebted to the late Dr. John Shelby,

Henry Hill, Mark R. Cockrill and others for the introduction of the better breeds of cattle, these gentlemen having procured of Murdock, Bagg and Waite and others the best short-horns to be found at that day in England. The natural adaptation of the soil and climate of Tennessee for the rearing of fine breeds was manifest to them, and their forecast in this particular will appear still more conspicuous in the future history of cattle breeding in the State, for it is clear that dairy farming must in the future hold a high place among the industries of Middle and East Tennessee. And in this connection we desire to say a few words in reference to the

*Dairy Farming of Davidson County.* Already there is a growing disposition in this State to engage in this business, and nowhere is this more apparent than in the county of Davidson. There are at present about forty dairies in Davidson county, with 1,500 cows. These dairies average from ten to one hundred cows. They are all near Nashville, and supply that city with sweet milk, butter milk and butter. Only one is yet engaged in the manufacture of cheese. The many cool springs of sparkling water, green, perennial grasses and fertile soils of Davidson county, with a home market, would make this branch of industry one of the most profitable in which the farmer could engage. A majority of the cows used in the dairies about Nashville is of mixed breeds. They are fed with bran, meal, hay, still slop and malt during the winter, while grass furnishes their principal food from the first of March to the first of December. Sweet milk is sold by the quart at  $8\frac{1}{2}$  cents; butter milk, 15 cents per gallon; and good butter the year round at 40 cents per pound. Upon the supposition that these cows will yield only 600 gallons of milk, each, annually, the gross amount each year for each cow would be, according to the estimate of one of the most successful dairymen in the county, \$200, and allowing \$100 as the cost of feeding, there would be realized on each cow the net sum of \$100. It is true that the dairy business, as pursued around Nashville, is very laborious and exacting. A great portion of the work has to be performed at night, involving the loss of much sleep. However bad the weather, the milkman, if he would retain his customers, must deliver his milk before breakfast. But with all this it is profitable, and could be made more so if, in addition to the selling of milk, the cheese from a co-operative manufactory could be sold. The average cost of dairy cows is about \$30 each, so that it appears the product of milk one year pays for more than three times the value of the cow, a realization of 333 per cent. No estimate is made of



the worth of the offspring or of the manure, both of which, near a city, are quite valuable.

*Sheep.* Every variety of sheep has been tried in this county with more or less success. The late Mark R. Cockrill gave a world-wide reputation to this locality, for the production of the finest wool in the world, a premium for which was awarded to him in London, at the great International Exhibition in 1849-50. The great fact was demonstrated that the soil, climate, and latitude of Tennessee, are better suited for the growing of wool, superior in quality and quantity, than any place then known. Dr. G. R. Brown, of Philadelphia, whose researches into the cuticular productions of the animal kingdom gave him an extended reputation, having occasion to analyze specimens of wool from all parts of the world, declared that the finest specimen came from Davidson county, and from the flock of the late Mr. Cockrill. At present, the favorite breeds of sheep are the Cotswold, Merino, Leicester and Southdown. The first and last mentioned are chiefly raised for mutton. The rising hills of Davidson county afford ample herbage and protection for numerous flocks of this valuable domestic animal. But for the insecurity given to this branch of productive industry, by reason of the indifference or neglect of our lawgivers, it would become of leading importance in the county.

*Hogs.* More than 30,000 hogs are annually raised in this county. Almost every breed is met with. The problem the farmers have had to solve since the advent of hog cholera, is how to produce the greatest amount of pork in the shortest possible time, at the least possible cost. This disease, when it appears in its most malignant form, sweeps away the entire surplus production. In consequence of the frequency with which this disease occurs, the farmers have been led to discard all breeds of slow growth. Those which mature in the shortest space of time have been substituted—the Berkshire and the Essex. It would be difficult to find a drove of hogs in the county that is not more or less mixed with one of these breeds. The Chester White has been sparsely introduced, but latitude and climate do not seem to agree with them. They are subject to the mange, and this tendency increases when they are carried to more southern latitudes.

*Goats.* Several years anterior to the war, an impression obtained that the Cashmere goat could be raised with profit in the rich pasture fields of the great Central Basin. Some of the enterprising farmers of Davidson county, wishing to keep step with the progress of the times,

bought from importers several fine bucks and does, paying for them in some instances \$1,000 each. These were crossed on the native goat, and their appearance greatly improved. The investment, in a pecuniary point of view, proved a failure, owing to the lack of demand for the hair or wool. Large flocks of these graded goats are on some farms, and they prove serviceable workers in keeping down bushes and weeds on old pasture lands. Some farmers estimate the saving in labor by their flocks of goats at several hundred dollars. Owing to their propensity to transcend all bounds and roam at will, the value of goats has never been appreciated on a farm. The flesh of this animal when young is extremely juicy, tender, well flavored and wholesome, and as they subsist in a great measure upon what the farmer is glad to get rid of, the aggregate profit, directly and indirectly, from a flock of goats is probably almost as great as that from a flock of sheep.

Mules and horses are both used on the farms. The very best implements are employed in the making of crops, and in no county in the State is subsoiling done to the same extent. The benefits derived from it are very great. It aids the crops to resist drought, and enables the land in a wet season to absorb and carry away the surplus water. Experience shows that a farmer who uses the subsoil plow rarely fails to make good crops.

Labor is scarce, and dear for the quality. It is cheap enough if it was reliable. Many of the farms show a great lack of this indispensable article in the slovenly condition of the fence corners, and in the general air of untidiness which prevails. The breeders of stock pay in money for all the labor they employ. The price varies from \$10 to \$20 per month and board. In the cotton-growing districts a part of the crop is given, usually one-half when the owner finds tools and teams and feed for the latter. When the laborer finds everything, the landlord gets one-third for the use of the land. The want of a sufficiency of labor is probably the greatest drawback to the farmers of the county.

*Fruits.* There are many counties in the State better adapted to fruit-growing than Davidson, nevertheless, the proximity to market has made it the banner county in the State in this particular, her orchard products being valued at \$43,915. One of the best fruit-growers in the county, in answer to a letter of inquiry says in regard to apples and pears:

I commenced planting in 1865, and from that time have sought to ascertain the experience of old planters and my contemporaries. Like most new

beginners, I coveted all varieties; I have at least 63. I find that I have lost thereby. Near large cities summer varieties of apples may be grown at a profit if energy is used in disposing of the fruit, and even at points remote from cities, some sorts of summer apples may be dried. I think it undeniable that many favorite sorts are "running out," as the "Early Harvest," the trunk and limbs of which are filled with warty excrescences, and the Rawls Jennet, a splendid apple forty years ago, Turner's Green, ditto, White Pippin, Horse apple, Striped June, and, indeed, many others whose decaying trunks (much larger than modern trees) are still to be seen in old orchards. I draw the inference, that it behooves planters to look well as to what sorts they plant. It is best to look around for newer and tried varieties. Among these may be found some as good as ever pleased the palates of our fathers. It must be admitted that natives ought to be the most desirable, and the trees are vigorous when the apple attains a degree of perfection, to which we of the "Basin" may not hope to aspire, if we attempt to grow the sorts of which they may justly boast; yet we have, in my opinion, some sorts of prime excellence. As summer sorts, the Russian, the Astrachan Red, which is a magnificent July apple; the Summer Pearmain, a little later, is a very fine apple; the Red June; the Summer Queen, a fine large apple; and the Horse, not so large as formerly. As fall apples we have the Gloria Mundi, Muskmelon, very fine, Lady Finger, Maiden's Blush, Cheese, High Low Jack, Winter, Nigger-head or Pennock, Penn. Cider, Black Apple, Ben Davis, Shockley, small but very fine, Nickajack, excellent, Kinnard's Seedling, Hatchie, Jo Andrews, and Wine Sap. These comprise the best I have seen, and are most generally preferred by fruit-growers of experience. I omit some of those splendid old sorts, as Turner Green, &c., because I believe the days of their vigor are past. Pears grow well in the Basin, and I have not seen, except when grown in volcanic soil, any finer than Bartlett's, Sickels and Sheldon. I have grown on standards and also on dwarfs. There is a small summer pear which grows finely, and a great many summer and fall sorts grow very well. The winter sorts, with me, do not do so well, as they drop too soon from the stem. The Julienne or Belle pear ripens in July, and grows in great perfection. There are numerous others that might be added.

Dwarf pears are grown with great success in some localities, and are a failure in others. Peaches grow very well upon the high slopes, but decay early in the low parts of the county. Many farmers do not try to raise them on account of liability of the trees to disease. Yet very fine peaches, richly flavored, large, juicy, and luscious, are raised in the county, and sold in the Nashville market. One-half of the lands grow them to perfection. Plums, and most especially the Wild Goose plum, that was first propagated in the vicinity of Nashville, do very well. Grapes are raised with success, especially on the elevated hills. Some vineyards in the northern part of the county, near Paradise Hill, have supplied an almost incredible amount of grapes. There are others, varying in size from one to five acres, that bear well. The most usual varieties grown in the county are the Concord, Ives'

Seedling, Delaware, Hartford Prolific. The Catawba is a great favorite, but is liable to rot. Strawberries and raspberries, currants and gooseberries, are found growing in almost every farm garden. There are five nurseries in the county that sell 1,500,000 trees annually, the gross income from which will amount to \$250,000. These trees consist of apple, peach, pear, (both standard and dwarf) plum, cherry, and miscellaneous trees or shrubs. About three-fourths of the number sold are apple trees, and they are shipped to all the States south, and to almost every county in the State of Tennessee.

Honey is produced in large quantities. The largest apiary in the south is in this county.

*Mills.* Both saw and grist-mills, driven by steam or water, are everywhere convenient in the county, besides some excellent flouring mills and saw-mills in Nashville. The whole number is about forty. The water-courses of Davidson are not usually well adapted for the construction of mills. The water is inconstant. During the summer months many of the streams dry up. As the county becomes denuded of timber, the streams become more uncertain in the volume of water. In some localities, even stock water is becomes scarce in summer. Harpeth is the best milling stream in the county. It furnishes seats for a half dozen good mills. Stone's River and Mill Creek also furnish some good water-power for mills.

*Roads.* Of all the counties in the State, Davidson has the largest number of good macadamized roads. The abundance of surface rocks makes the labor and expense of metalling roads small, compared with many other counties. There are twelve turnpikes running into Nashville, from every part of the county. The dirt roads are badly kept up. They run over many soft, rich, miry places, that become almost impassable in winter.

*Railroads.* Six railroads enter Nashville, viz., The Louisville and Nashville and Nashville and Decatur, consolidated; Nashville and Chattanooga and Northwestern Railroad, consolidated—making the Nashville, Chattanooga and St. Louis Railway; Tennessee and Pacific, extending to Lebanon, Tenn.; St. Louis and Southeastern. Two others are now being put under contract, the Owensboro and Russellville, and the Cumberland and Ohio, and a route for a narrow gauge from Nashville to Clarksville is being surveyed.

*River.* Cumberland River is navigable below Nashville for about nine months in the year, and to Carthage, above, for about the same time. See chapter on Transportation—Rivers.

*Churches.* There are forty-two churches outside of Nashville and Edgefield, and school-houses are to be found in every district, many of which are used as churches.

*Schools.* We are indebted to R. W. Weakley, the Superintendent of Public Schools for Davidson county, for the following information:

The public schools of this county have been in successful operation for several years. In 1870 the school law was so modified as to leave to separate county action the subject of public schools. This county took the lead under that law, levied a tax on property, polls and privileges, and through the School Directors of each district formed a "County Board of Education." This board adopted an admirable code of regulations for the government of the schools, and a uniform series of text-books. These regulations, slightly changed to adapt them to the present school law, passed in March, 1873, are still in force, and the text-books have been gradually changed so as to incur the least expense, when, found by experience to be not well suited to the wants and capacities of pupils. The school districts are twenty-six in number, and conform, with one exception, to the civil districts. Schools for white and schools for colored children, located at points deemed by the directors to be most eligible, are continued in some districts ten months, and in other districts for shorter periods, averaging for the county about seven months in the year. The tax for school purposes, both State and county, is two mills on the dollar of property, two dollars on polls, and a privilege tax, and amounts to about \$80,000. This is apportioned to each district by the County Trustee, according to its scholastic population. There have been employed, for the term ending the last Friday in January, about one hundred teachers, at an average salary of \$45 per month. The scholastic population for the present school year is 21,193—in the city of Nashville 8,877, and in the other districts 12,316—between the ages of six and eighteen. Orthography, reading, writing, arithmetic, English grammar, geography, elementary geology of Tennessee, and history of the United States, are the branches prescribed by law, and, by our regulations, are divided into seven classes or grades, viz., two primary, two intermediate, and three grammar. Higher branches are taught in many of the schools by the pupil paying a moderate tuition fee. Declamation, compositions, select readings, &c., are also prescribed at weekly and monthly reviews. Within the last year commodious school buildings have been erected in the town of Edgefield and the 13th district, presenting a handsome appearance and furnished with clocks and bells. In many of the districts neat frame school-houses have been erected and furnished with good desks, while in others, churches are used for school-houses, and rented buildings, devoid of the proper furniture and apparatus. Good discipline cannot be easily attained in a house badly designed for school purposes and seated with old-fashioned benches. I feel the want of proper buildings and school appliances in many portions of the county, and what is true here is true of every portion of the State.

*Towns and Villages.* Nashville, (lat. 36°10' north, and long. 86°49' from Greenwich) is situated on the left bank of Cumberland River,

200 miles above its mouth, and a little north of the center of the State. It has a population of about 40,000, and is fast growing in commercial importance and wealth, but its political influence has greatly diminished since 1835, about which time it dictated the national policy of the government. The city is founded literally upon a rock, the river bluffs rising to the height of seventy or eighty feet above low water mark. The surface of the land upon which Nashville is situated is irregular, but not abrupt, rising in long, gradual slopes, with the exception of Capitol Hill, which rises with more precipitancy but with great symmetry, resembling a great Indian mound. It covers the space of several acres, and overlooks the entire city. The city is laid out into rectangular streets, most of them rather narrow, but at convenient distances. The public buildings of the city are numerous and some of them elegant. The State capitol is built upon Capitol Hill, and according to Parton, is one of the most elegant, correct, convenient and genuine public buildings in the United States, a conspicuous testimonial of the wealth, taste and liberality of the State. The corner-stone to this magnificent building was laid on the 4th day July, 1845. The last stone of the tower was laid July 21, 1855, and the last stone of the lower terrace March 19, 1859. The building was first occupied by the Legislature October 3, 1853. The whole appropriation from 1844 to 1859 was \$900,500. Small appropriations have been made since for the improvement of the grounds, which are still in an unfinished condition. The length of the building is 239 feet 3 inches, width at ends 112 feet 5 inches. Including side porticos, the width is 138 feet 5 inches. The total height of the building is 206 feet 7 inches. It is completely fire-proof, no wood having been used in its construction except for the doors, window frames and sash. The rock used in its construction is a laminated limestone filled with fossil remains, and not the most durable. It exfoliates upon exposure, and a few of the stones in the building are beginning to show signs of disintegration and exfoliation. The railings and columns of the interior are made of the variegated East Tennessee marble. Most of the work was performed by Tennessee mechanics, under the supervision of the architect, Wm. Strickland, of Philadelphia, who died before the building was finished, and lies entombed in a recess in the wall on the east side of the north portico. Altogether, the building is an ornament to the State, and it has enlisted the pride of every class and profession. The market-house and court-house are situated on a square of several acres in extent, and are neat models of architectural taste, beauty and convenience. The

State penitentiary is on west Church street. The buildings occupy three sides of a hollow square, all enclosed by a massive stone wall twenty-five feet high, and four feet thick at the base. In it are numerous workshops, in which the convicts are required to work every day. Within the past few years, under a new system, a majority of the convicts is employed in coal mines, in the construction of railroads, and in working upon the capitol grounds. The present number imprisoned is over 900, of whom the greater number are negroes. The county jail is a substantial structure, built of stone, and is upon the very spot where the first fort was erected, nearly a century ago. There are also a city work-house, a pest-house just without the city limits, several hospitals, an institute for the blind, a house of industry for females, two orphan asylums, city water-works, gas-works, fair grounds, race-course, etc. Within six miles of the city is the county poor-house, and about the same distance is the Tennessee hospital for the insane, which, through the persevering endeavors of Miss D. L. Dix, was established by the Legislature in 1848. It has about 350 inmates. There are twenty-five more men than women. There are many other charitable and benevolent institutions in and around Nashville, but as the details in regard to them do not come strictly within our province, we pass on to consider the

*Nashville Public Schools.* In the spring of 1852, Alfred Hume, Esq., long an eminent teacher of a select classical school in Nashville, was engaged by the city council to visit various cities in which public schools were in operation, to investigate their practical working, and report to the Board. Having returned and signified his readiness to make known the result of his inquiries, he was requested to do so in public. Accordingly, on the 26th of August, he appeared before the Board and a large concourse of citizens, at Odd Fellows' Hall, and read a lengthy and masterly report, two thousand copies of which were published. That report may be regarded as the corner-stone of the system of public schools in this city. In the same year the lot, 185x270 feet, at the corner of Spruce and Broad streets was purchased, and proposals received for the erection of a building. On the 19th of May, 1853, Dr. W. K. Bowling delivered an oration, in the presence of a large audience, at the laying of the corner-stone. The building was completed within the following year, and was called the Hume school, in honor of the distinguished scholar who had taken such an active part in inaugurating the new enterprise. On the 14th of October, 1854, the city council elected the first Board of Education, the following gentlemen being chosen: F. B. Fogg, W. K. Bowling, R. J. Meigs, Allen A. Hall, John A. McEwen, and Alfred Hume. They held their first meeting on November 5, following, and the schools were formally opened to pupils February 26, 1855. Much of the unvarying prosperity of the schools is due to the fact that they have always been controlled by boards of active, intelligent, discreet gentlemen, many of them the most distinguished citizens of the place, as will appear from the following list of those who, at different times, have served in that

capacity: Charles Tomes, W. F. Bang, J. B. Lindsley, Isaac Paul, M. H. Howard, J. B. Knowles, S. Cooley, J. W. Hoyte, J. P. Coleman, Wm. Stockel, C. K. Winstou, P. S. Fall, J. L. Bostick, B. S. Rhea, J. O. Griffith, M. M. Brien, M. G. L. Claiborne, M. M. Monahan, J. S. Fowler, H. H. Harrison, T. A. Atchison, H. S. Bennett, L. D. Wheeler, D. D. Dickey, E. H. East, R. B. Chéatham, Ira P. Jones, John A. Callender, M. C. Cotton, Eugene Cary, D. W. Peabody, D. Rutledge, J. Jungerman, John Rhum, J. Sample, John J. McCann, James Whitworth, T. H. Hamilton, Samuel Watkins, J. B. Craighead, L. G. Tarbox, J. L. Weakley, Charles Rich, George S. Kinney, A. D. Wharton, A. J. Baird, R. A. Young, J. T. Dunlap, M. B. Howell. In the year 1856, the lot on the corner of Summer and Line streets was purchased with the proceeds of property donated by Colonel Andrew Hynes, and a building erected upon it was called by his name. In the year 1859, M. H. Howard, Esq., gave to the city a fine lot on College Hill, on which now stands the school-house named for him. The Trimble school, at 524 South Market street, was so called in honor of John Trimble, Esq., who presented the lot on which it stands for school purposes. In 1867 the Belle View building was purchased and converted into a school-house for colored pupils. The new Ninth Ward school-house, at the corner of High and Madison streets, has just been completed. There are, therefore, six different buildings occupied by the public schools of the city. They contain thirty-three study-halls, and thirty-eight recitation rooms, furnishing 3,300 sittings. The scholastic population last year was 8,370, the total number enrolled 3,722, the average number belonging 2,630, average attendance 2,514, total number tardy 2,451, per cent. of attendance on number belonging 95.60, on enrollment 67.54, on enumeration 44.46, per cent. of tardiness on attendance 0.49, average age of pupils 11.7 years, cost of tuition per pupil belonging \$16.91, total cost \$21.89, average salary paid teachers \$684, total outlay for tuition \$44,477.20, entire cost of schools \$57,588.47, tax levied by city two mills, by county two mills, total four mills. The schools embrace primary, intermediate, grammar, and high school departments, requiring ten years to complete the course of study. The first two grades, or primary, are devoted to teaching orthography, reading, notation, &c.; the next three, or intermediate to the elements of arithmetic, geography, &c.; the two following, or grammar, to advanced arithmetic, grammar, history, and composition; and the high school of three years embraces elementary, algebra, geometry, Latin, French, German, and natural sciences. Vocal music, penmanship, and drawing are taught by special teachers throughout the schools. The officers of the board of education now in charge are Gen. Jas. T. Dunlap, President; Jos. L. Weakley, Esq., Treasurer; Prof. A. D. Wharton, Secretary; Capt. S. Y. Caldwell, Superintendent.

No better conducted schools are found anywhere. The teachers are the best the country can afford, and the officers are all energetic and skillful, devoted to their duties, and are animated by a desire to make the schools equal in every respects the best to be found in any country.

*Other Educational Institutions.* Nashville is destined to become a great educational centre, for in addition to the well-regulated system of public schools, it has several private institutions of learning of high merit and with growing patronage. Among these are the University



of Nashville, which dates its existence back more than ten years anterior to the admission of Tennessee into the Union. It was chartered by the State of North Carolina in 1785, and endowed with two hundred and forty acres of land, which was included within the corporate limits of the city. This institution has passed through various phases, and has had many names—first Davidson Academy, then Cumberland College, and finally the University of Nashville. It has never received any aid from the State, though it has received several endowments of lands from North Carolina and the general government. It has almost always been presided over by men of great learning and ability. First the Rev. Thos. Craighead, then Dr. James Priestly, and in 1824 Rev. Phillip Lindsley, formerly President of Princeton College. Dr. Lindsley held his position for twenty-six years, and during that period the institution rose to a high position and influence. In 1850, after having passed through a career of brilliant prosperity, it was compelled to suspend operations for want of funds, and a few distinguished gentlemen of the medical profession organized the medical department of the University of Nashville, and since that period, the buildings have been used for that purpose. The buildings for the literary department, as they now exist, were erected in 1853-4, a short distance from the old college. The literary department was again opened in 1855, and Gen. Bushrod R. Johnson made Superintendent. It was conducted on the military plan until the breaking out of the civil war, when the buildings were used as a hospital. After the war, the trustees of the University located the Montgomery Bell Academy in the buildings of the literary department of the University. The fund for this academy was derived from a bequest of \$20,000 by the late Montgomery Bell—a man whose name is inseparably connected with the development of the iron interests of the State, and who had the honor of furnishing to Gen. Jackson, at the battle of New Orleans, all the cannon balls used in that famous conflict. A Pennsylvanian by birth, he began the manufacture of iron as early as 1810, and became thoroughly wedded to his adopted State. He was one of those pioneers in industrial enterprises that give direction to capital and energy. It was through his influence, and by reason of his financial success, that more than thirty furnaces shed their ruddy light over the Western Iron Belt previous to the war. A man of indomitable energy, of commanding intelligence, of genuine philanthropy, and of extended views, he made such an indelible impress upon his age that it will be seen and felt for many generations to come. The bequest made by this public-spirited

citizen was for the free education of twenty students from the counties of Davidson, Montgomery, Dickson, and Williamson. By judicious investment it has increased one hundred and fifty per cent., and the whole amount now is \$50,000. During the eighty-nine years of its existence, according to its agent, Dr. Shelton, the University has received a total of \$89,000. The college funds and property are now worth :

The College fund.....	\$ 50,000
Montgomery Bell fund.....	50,000
Buildings and grounds.....	120,000
Medical College.....	50,000
Libraries, Cabinets, etc.....	30,000
	<hr/>
Total.....	\$300,000

*Ward's Seminary* for young ladies has made a character far and wide for its thoroughness of instruction, excellence of teachers, and for the refinement, accomplishments and solid learning of its graduates. It has taken the place of the old Nashville Female Academy, which for so many years educated the daughters of Middle Tennessee.

*St. Cecilia's Academy*, under the control of the Sisters of the Dominican Order, is beautifully situated on a commanding eminence two miles north-west of the city. It was erected in 1860. The course of study embraces the French, German and ancient languages, besides the regular English branches. There are two other schools under the control of the Catholics, and several private schools under no particular denomination.

*The Vanderbilt University.* This institution, the buildings for which are now being erected, had its origin in the desire of the Methodist Conference to have an institution which would worthily represent it, and was assured by the donation of \$500,000 by Cornelius Vanderbilt, of New York. To this amount are added other gifts, until its funds reach nearly \$700,000. It is under the control of the Methodist Episcopal Church, South, and will unquestionably be one of the most richly endowed institutions in America. It is in contemplation to make a thorough University of it, with theological, law, medical, scientific and literary departments.

*Fisk University* was established by the liberality of several northern gentlemen shortly after the war, for the benefit of the colored children of the State. The curriculum is quite full. The ancient languages

and the higher mathematics form a regular part of the course. There never has been a time when the educational prospects of Nashville were so flattering as at present, and the broad stream of steady intellectual light which her institutions of learning will annually shed over the State, must have a powerful effect in stimulating enterprise, elevating thought, refining grossness, diminishing sensuality, lessening crime, and lifting our people into a higher scale of intelligence, morality and civilization. The common schools of the city have already, by their excellence and example, aroused a deeper interest in the public mind throughout the State for better schools, and will doubtless prove the silent but secret power to disarm prejudice against education in every county in the State.

There are over thirty-five churches, of all denominations, in and around Nashville. Of these the Methodists have the largest number.

## WHOLESALE TRADE OF NASHVILLE.

For many items relating to this we are indebted to James T. Bell, the former commercial editor of the Union and American.

*Cotton.* The following is a statement of all the cotton transported from the city, and to what destinations, for the year beginning Sept. 1st, 1872, and ending Sept. 1st, 1873.

TO WHAT POINTS.	NO. BALES.
New York, N. Y.....	38,523
Boston, Mass.....	3,277
Philadelphia, Pa.....	1,789
Baltimore, Md.....	1,252
Providence, R. I.....	1,747
Fall River, Mass.....	1,526
Lawrence, Mass.....	400
Utica, N. Y.....	45
Harrisburg, Pa.....	101
Alleghany, Pa.....	42
Dayton, O.....	878
Pittsburgh, Pa.....	540
Lockport, N. Y.....	5
Rockford, Ill.....	3
Cincinnati, O.....	1,891
Louisville, Ky.....	1,313
Evansville, Ind.....	27
Savannah, Ga.....	417
Charleston, S. C.....	16
Mobile, Ala.....	2,088
New Orleans, La.....	7,171
Total.....	63,051

In addition to which there were 38,645 bales shipped through Nashville without stopping. Taking the table of cotton receipts and shipments, and instituting comparison between the year under review and the previous one, we find the excess of receipts in favor of the year just closed. A recapitulation shows receipts to August 31, 1872, 55,936; receipts to August 31, 1873, 67,627; making a difference of 11,691 bales in favor of the last year. As to the extent of the cotton trade of Nashville for that year, and the amount required to handle the crop, we can put it down in round figures at \$4,260,000, a smaller amount than former years, owing to the inferior quality of the bulk of the staple handled. For the season of 1873-4 the amount handled will be over 100,000 bales.

*Leaf Tobacco Trade.* This trade is increasing with great rapidity. For the year ending September 1, 1872, there were only 946 hogsheads received in Nashville, but the subsequent year, ending September 1, 1873, there were 2,002 hogsheads, showing a rapid increase in this important branch of business. It is thought that the year ending September 1, 1874, will show double the number of hogsheads as the one just past. A large proportion of the tobacco shipped to Nashville is raised in Smith, Trousdale, Wilson, Macon, Jackson, Putnam, DeKalb, Overton, Clay, Fentress and Sumner, the largest quantity coming from the two counties first named. The following will show the receipts from the Upper Cumberland at the wharf.

For New Orleans.....	4,925 hhds.
For New York.....	258 "
For Louisville.....	203 "
For Clarksville.....	2 "
For Nashville.....	1,242 "
	<hr/>
Total.....	6,630 "

## RECEIVED AT NASHVILLE WAREHOUSES

Via river.....	1,242 hhds.
Via railroads.....	1,299 "
	<hr/>
Total.....	2,541 "

## SOLD AND SHIPPED

To New Orleans.....	672 hhds.
To New York.....	1,718 "
To Baltimore.....	7 "
For consumption.....	144 "
	<hr/>
Total.....	2,541 "

*Provision Trade.* This business aggregated for the year ending September, 1873, nearly double that of any previous year. The receipts of hogs amounted to 35,000, about 10,000 of which were shipped south, and the remainder packed in the city. They were mostly from the north side of the Cumberland River, but few coming from the counties south of Nashville. Those raised in Wilson, Williamson, Maury and Giles counties, were purchased by drovers and shipped on southern account. The method of curing pursued in Tennessee makes a very superior bacon, which is the standard of superiority in the leading markets in the South.

*Dry Goods Trade.* The aggregate of this trade amounts to about \$4,000,000 annually. It is conducted by solid men with an abundance of capital, and the failures that have occurred amongst this class are very few and at long intervals.

*The Liquor Trade.* The proportions which this trade has assumed during the past five years are immense. The manufacture of whisky in the fifth district, in which Nashville is embraced, is being increased by machinery backed by a large amount of capital. So superior is the article manufactured, that imitation brands are being made in many of the western cities. The demand for Tennessee whisky is extending in every direction, and now reaches as far south as Texas, and as far north as Michigan. For the last commercial year the sales amounted to 100,000 barrels, valued at \$5,000,000—\$1,000,000 more than the dry goods trade. If to this are added the imported brandies, wines, &c., it will swell the trade to between \$6,000,000 and \$7,000,000. There is also a considerable trade in the malt liquors. One brewery in the city turns out 600 kegs per week, worth \$2.75 per keg; value of annual product, \$85,800. Add to this the amount brought from the Cincinnati breweries, which is estimated to be half of the above, we shall find the business in lager beer to amount to \$128,700.

*Boot and Shoe Trade.* This amounts annually to \$2,000,000. There are six firms with large capital engaged in this business, and they send out to all divisions of the State, to North Alabama, North Georgia, North Mississippi, and Southern Kentucky, about 40,000 cases of goods annually. There is no branch of business in the city more prosperous than that of the boot and shoe trade.

*Hat Trade.* This is on the increase, and the sales of the wholesale houses amount to \$300,000 annually.

*The Hardware Trade.* The extent of this business is rapidly increasing. In 1871 it amounted to \$900,000; in 1872, \$1,300,000; in 1873, \$1,500,000. This business rests upon a substantial basis, and will, doubtless, continue to increase until it takes in all the principal points in the southern adjoining States.

*The Grocery Trade.* The following is the estimate of the sales made of the staple articles for the year 1871: 14,000 hogsheads of sugar, 18,000 barrels sugar, 13,000 barrels sirup and molasses, 50,000 bags coffee, 50,000 kegs nails, not to say anything of the many other articles that belong to this trade. The total sales amount to \$10,000,000 for the year—a figure that will do to compare with the footing up of other places of more pretensions.

*Notions and White Goods.* Two houses, which are among the largest in the United States, are devoted exclusively to the articles embraced in this classification. The total trade in these goods amounts to \$1,300,000.

*The Drug Trade.* For the year 1872 this trade amounted to \$900,000, and for the year 1873 to \$1,600,000, which is an increase of nearly eighty per cent.

*The Clothing Trade.* At the close of the war the business of the city amounted to \$100,000. For the year ending September 1, 1871, it footed up \$600,000, the year following, \$850,000; and for the past year, \$1,200,000; which shows a rapid and successful growth.

*Flour and Grain.* The excellent wheat and corn-growing districts that environ Nashville, with the facilities for transportation, have made it a great grain and flour emporium. There are now five large flouring mills within the city, with a capacity of 800 barrels of flour per day, and 2,000 bushels of meal. Contiguous to the city are also several large establishments, which, with the city mills, turn out daily about 1,500 barrels of flour and 4,000 bushels of meal, or the enormous sum of 450,000 barrels of flour, and 1,200,000 bushels of meal annually. This, with imports from other points, will swell this trade up to \$5,000,000. Add to this the grain trade, about \$1,500,000, and the grand aggregate will amount to \$6,500,000. With the increasing facilities for transportation, and an improved agriculture, we may hope soon to see this business attain a growth of \$10,000,000 annually.

*Corn and Oats.* During the year under review Nashville handled 1,100,000 bushels of corn, worth \$638,000; 100,000 bushels of oats, worth \$50,000.

*The Salt Trade* amounted to 60,000 barrels, valued at \$175,000.

*Leather.* There are three tanneries in the city, which produce as follows:

13,000 sides harness at \$6 per side.....	\$78,000
5,000 sides skirting at \$4 per side.....	20,000
2,000 sides sole leather at \$7 per side.....	14,000
1,000 sides wax upper and kip at \$3.50 per side.....	3,500
	<hr/>
Total amount.....	\$115,500

Add to the above 15,000 sides of country leather, rough and finished, at say an average of \$3 per side, making \$45,000, and French and American calf, and linings, &c., imported, say \$50,000, handled by our leather dealers, and we find the total business foots up \$210,000.

*China, Glass and Queensware.* This trade foots up to \$200,000 annually, with prospects for a large increase.

*Cigars and Tobacco.* This business has increased to about \$2,000,000. One house is reported to have sold, in eight months, a quarter of a million of one brand of cigars.

*Live Stock Trade.* The excellence of Tennessee beef and mutton, especially of that made in the great blue-grass region of the Central Basin, is making Nashville a focus for drovers and shippers. The following is an approximation of the sales in the Nashville market:

21,000 cattle, average weight 800 lbs. at 4c.....	\$672,000
16,000 sheep, average price \$2.50 per head.....	40,000
30,000 hogs, average weights 265 lbs. at \$4.50 per cwt.....	331,250
	<hr/>
Total sales.....	\$1,043,250

*Furniture.* The business in furniture is estimated at \$500,000. This trade is rapidly extending. It is to be regretted that, with the immense amount of valuable timber within reach of Nashville, more capital is not engaged in the manufacture of furniture.

*Paper.* The manufacture of paper, including news, book and wrapping, is assuming respectable proportions. Ten thousand pounds of rags are used daily, and the business is set down at \$3,000,000 annually.

*Hides.* An average of 40,000 hides are annually handled by the dealers in Nashville, worth, probably, \$200,000.

*The Coach and Saddlery Hardware* business is estimated to equal \$250,000, and the saddle and harness trade \$200,000.

*Millinery.* In this business there are two wholesale houses doing business to the amount of \$110,000.

*The Coal Trade.* More than upon any other one article, must Nashville rely upon this product for a rapid and successful growth. Three coal-fields lie convenient and accessible, viz: the coal lying contiguous to the Nashville and Chattanooga Railroad, the upper Cumberland River coal-fields, and the coal-fields of Western Kentucky, which are reached by the St. Louis and Southeastern Railroad. No city in the Union has a larger area of coal to draw from than Nashville, and the cheapness of this indispensable article of fuel, which will result from a heathful competition, will make Nashville, in time, a great manufacturing center. The present trade in it amounts for the city to 2,500,000 bushels, which is sold at an average price of sixteen cents per bushel, amounting to \$400,000 annually. And this leads us to speak of the

*Manufacturing and Mechanical Interest.* There are at present in the city seven saw-mills, five flour mills, eight planing mills and sash and blind factories, two cotton seed oil mills, two tanneries, one cedar ware, two chair, four furniture, three wagon factories, four carriage, several for making mattresses, saddle-tree and trunk factories, six foundries, six machine shops, two brass foundries, brewery, distilleries, paper mills, broom factories, manufactory of fertilizers, shoe and clothing factories, and quite a number of smaller establishments, representing, exclusive of the mammoth cotton factory, \$1,500,000.

*The Cotton Factory* alluded to is situated in North Nashville, and is one of the largest establishments in the country, rivalling in the number of spindles, quantity and quality of products, some of the famous cotton factories of Rhode Island. Upon a capital stock estimated to be worth \$400,000, these mills only half finished were able to pay a profit of ten per cent., and with the new machinery now being put up, the President confidently expects, with reasonable management, to pay at least three per cent. per quarter. As we learn from the Secretary's report, the amount of cotton used for the year ending September 1, 1873, was 2,328 bales, weighing 1,106,465 pounds, costing \$175,347.11, at an average price of fifteen cents per pound. From this amount of cotton there were produced in the same period 1,981,406 yards of 4-4 sheetings, 20,000 yards panolas, 312,384 yards of 7-8 sheetings, and 315,117 yards of 7-8 drills, besides 30,245 yards of batting, remnants of cloth, waste for paper, 107,076 pounds. The actual loss amounted



to 36,272 pounds. These goods were shipped to New York, Chicago, St. Louis, Cincinnati, and about half of the quantity made sold directly to merchants in the State. The cost of manufacturing 2,628,907 yards, divided as above, and weighing 891,795 pounds, was \$90,159.14, or 10.1 cents per pound, or 3.42 cents per yard. The whole number of operatives employed is 268, of whom 202 are females. The average price paid factory hands is a little over \$5 per week. The number of spindles that were in operation, 7,520; shortly to be added, 6,300; making 13,820. Number of looms, 250; to be put up, 150; making 400. The entire assets of the company, exclusive of fourteen acres of land, amount to \$469,297.29, and their liabilities, exclusive of the capital stock, which is \$320,187.10, are \$149,110.19. The company has recently ordered additional machinery, amounting in value to \$75,000, cost and carriage, and have also issued bonds which are at par in financial circles. The net profits for the year under consideration was \$41,353.65. The success of this enterprise is highly gratifying to the people of the State. It shows the advantages the State affords for the manufacture of heavy cotton goods, in saving transportation, and making a market for home products. In regard to the supply of labor, the President in his report says:

It is the policy of nearly all large mills to furnish their operatives with houses convenient, and charge them rent, or give them the houses free, and reduce the wages paid, which, in the matter of dollars and cents, certainly could be made beneficial to the company, besides it would greatly tend to locate and make stationary the better class of operatives, by reason of the fact that each family that might occupy one of our houses would regard themselves at home so long as they desired to work in the mill. I must say that first-class skilled labor is not always obtainable at short notice, but under the management of our mill it is increasing rapidly in this section of country, and ere many years have passed by we will have as much as will be needed. We find no difficulty in getting unskilled operatives—in fact, the pressure is daily upon us to take more hands into the mill than we can use, and many that we took at first, who were inefficient, are becoming quite efficient.

The State needs, for its prosperity, a hundred such establishments to work up its wool and cotton, and to give employment to a large class that is now a drag upon its industry and enterprise. The supply of raw material and fuel is ample, and when it is once impressed upon capitalists that such investments will pay, there will be no lack of capital to make Tennessee a great manufacturing and industrial center. Continuing the trade of Nashville, we find

*The Produce Trade* to be considerable, and may be summed up as follows:

Peanuts, 150,000 bush. @ 80c.....	\$ 120,000
Dried Fruit, 250,000 lbs. @ 4c.....	100,000
Eggs, 20,000 bbls. @ \$15.....	300,000
Butter, 500,000 lbs. @ 20c.....	100,000
Feathers, 300,000 lbs. @ 65c.....	185,000
Beeswax, 100,000 lbs. @ 30c.....	30,000
Ginseng, 50,000 lbs. @ 90c.....	45,000
Wool, 200,000 lbs. @ 33c.....	66,000
Potatoes, 50,000 bbls. @ \$ 3.50.....	175,000
Green Apples, 16,000 bbls. @ \$3.00. <sup>1</sup> .....	48,000
Total.....	<hr/> \$1,069,000

A great portion of the eggs, butter, feathers, beeswax and ginseng is brought by the river from the counties above. To recapitulate the trade of Nashville, we find

Cotton.....	\$ 4,250,000
Leaf Tobacco.....	416,320
Provisions.....	1,300,000
Dry Goods.....	4,000,000
Liquors.....	7,000,000
Boots and Shoes.....	2,000,000
Hats.....	300,000
Hardware.....	1,500,000
Groceries.....	10,000,000
Notions and White Goods.....	1,300,000
Drugs.....	1,600,000
Clothing.....	1,200,000
Flour and Wheat.....	5,000,000
Corn and Oats.....	688,000
Salt.....	175,000
Leather.....	210,000
Hides.....	200,000
China, Glass and Queensware.....	200,000
Cigars and Tobacco.....	2,000,000
Live Stock.....	1,043,250
Stoves and Tinware.....	750,000
Furniture.....	500,000
Paper.....	300,000
Coach and Saddlery Hardware.....	250,000
Saddlery and Harness trade.....	200,000
Other manufactures.....	2,500,000
Produce.....	1,069,000
Millinery.....	110,000
Coal.....	400,000
Books and Stationery.....	500,000
Lumber.....	300,000
Total amount.....	<hr/> \$51,261,570

There are published at Nashville, the following newspapers and periodicals, devoted to politics, religion, literature, trade, agriculture and commerce: Republican Banner, daily, tri-weekly and weekly; Conservative and Progressive. Nashville Union and American, daily, semi-weekly and weekly; Democratic. Nashville Bulletin, weekly; Republican. Nashville Journal of Commerce, weekly; Immigration and Trade. Commercial Reporter, weekly; Trade. Rural Sun, weekly; Agriculture. The Tennessee Post; German. Nashville Christian Advocate, weekly; Methodist. Banner of Peace, weekly; Cumberland Presbyterian. Baptist Watchman, weekly; Baptist. Gospel Advocate, monthly; Christian. Theological Medium, quarterly; Cumberland Presbyterian. Sunday-school Visitor, weekly; Methodist. Sabbath-school Gem; Cumberland Presbyterian. Sunday-school Standard; Baptist. School Journal, monthly; Educational. Law Review, quarterly; Law. Nashville Directory; annual. To write in detail, or even notice all the objects of interest in Nashville, and around it, would require a volume, but we may add that several lines of street railroad traverse the city. The city is well lighted by gas, at a cost to consumers of \$3.50 per 1,000 feet.

*Edgefield* lies just across the river from Nashville, and has a population of about 4,000. A wire bridge connects the two places. Though there are some forty commercial establishments in Edgefield, besides three saw-mills, a broom factory, &c., its chief distinction lies in the great number of elegant residences, occupied mainly by persons who do business in Nashville. It has an excellent system of public schools, some good private ones, and many neat churches. It has a quiet, orderly appearance, excellent society, and is noted for its health. Even when the cholera rages with greatest violence in Nashville a case rarely occurs in Edgefield. This is attributable by many to the use of eistern water, with which the citizens, in the absence of water-works, have supplied themselves.

The other towns in the county are Madison and Edgefield Junction, on the Louisville and Nashville Railroad; Goodlettsville, on the St. Louis and South-eastern Railroad; McWhirtersville, on the Lebanon Pike, about six miles from Nashville; Brentwood, on the Decatur division of the Louisville and Nashville Railroad, and Bellevue, on the St. Louis division of the Nashville, Chattanooga and St. Louis Railway. These are small villages containing from two to four stores, churches, schools, &c.

*Statistics.* Davidson county has a population at the present time of

quite 70,000, of which 25,000 are colored. Number of polls, 10,914. The number of acres of land assessed for taxation in 1873, was 305,244, valued at \$8,855,160, or nearly \$23 per acre. Number of town lots 8,357, valued at \$13,461,780. The entire taxable property of the county amounts to \$26,683,765. The indebtedness of the county is not large, and was mostly incurred in the building of railroads and turnpikes. The census report of 1870, which in reference to this county is totally unreliable, gives 1,948 farms, and only one over a thousand acres, while within a radius of six miles from Nashville there are at least ten ranging in number of acres from 1,000 to nearly 4,000. The whole number of acres of land, improved, woodland, and other unimproved, according to the census of 1870, amounts to 278,315 acres, while the amount given in for taxation, exclusive of town lots, is in excess of this by over 26,000 acres. In the matter of live stock, the value as given is \$1,269,870, while Giles county is accredited for the same, \$1,736,504; Bedford, \$1,471,421; Gibson, \$1,319,242; Lincoln, \$2,155,474; Maury, \$2,015,355; Rutherford, \$1,519,939; Shelby, \$1,418,349; Sumner, \$1,435,431; Williamson, \$1,403,202; and Wilson, \$1,919,019. In forest products, Davidson ranks all the counties except Shelby, and takes the lead in orchard products, barley, Irish potatoes, sweet potatoes, cheese and milk.

As to the industries, there were reported by the census, 373 establishments employing 82 steam engines and 12 water wheels, aggregating a power equal to 2,613 horses. In these establishments were employed 2,311 males above 16 years of age, 129 females, and 173 youths. Capital invested \$2,513,679; wages paid \$1,059,255; cost of material \$2,840,745; value of products \$5,321,293. The value of its manufactured products far exceeded any county in the State except Shelby, and these may be set down as fully double what they were in 1870. New flouring mills, saw-mills, cotton and wool factories, and various other establishments have been erected since 1870, while the capacity of those then in operation has been greatly increased. Take for illustration the flouring mills, of which six were reported for the county, with products valued at \$824,325. By referring to the statement of the trade of Nashville, it will be seen that there are five flouring mills in the city, alone capable of turning out 800 barrels of flour per day, which, by running two hundred days in the year, would manufacture 160,000 barrels of flour, worth \$1,280,000. Add to this amount the worth of the meal ground, and the value of all the products of the country mills, of which there are forty, and it will readily appear that

the value of mill products is four or five times as great as reported in the census of 1870. The value of sawed lumber has increased from \$198,670 to over \$500,000. And so it may be said of nearly every article manufactured in the county. Everything strengthens the belief that Davidson county will, in a short time, become the center of an immense manufacturing and agricultural population. The cheapness with which food can be produced, the vast deposits of iron that lie on the west side, and the inexhaustible quantity of coal that sleeps with its latent power on the others, the splendid educational facilities that are offered, the lines of railroad that place it in communication with all the world, a navigable river which will insure cheap freights to the seaboard, the proximity of the cotton fields, the salubrity of the climate and its pleasant vicissitudes—all these foreshadow and assure the incoming of a population, skilled in the arts, frugal, temperate, industrious, progressive, intelligent and energetic, that will make the very atmosphere ring with the hum of industry, and scatter abroad the lights of a benign and splendid civilization.

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## DICKSON COUNTY.

COUNTY SEAT—CHARLOTTE.

This county is situated on the Highlands, which lie between the Central Basin of Tennessee and the Tennessee River. Its surface is, therefore, mainly high table land. Cut out of this, however, are many creek valleys. On the north, it includes the south half of the valley of the Cumberland, and near its eastern side, a portion of the valley of Harpeth River.

The county lies immediately south of Montgomery, and about twenty-five miles from the Kentucky line, and was established October 3, 1803, the territory being taken from Robertson and Montgomery. It contains about 470 square miles. It began to be settled about the year 1793, at which date a large body of land was granted by the State of North Carolina to Robert Bell, described as lying in the county of Robertson, on Jones' Creek. The first entry in the Register's office was made in 1801, and all deeds were proven before Andrew Jackson, one of the Judges of the Superior Court of Law and Equity for the State of Tennessee. The first Register was James Walker, who showed fitness for the position by the excellence of his chirography.

The early settlers were mostly from North Carolina and Virginia, and appear to have been attracted to Dickson county on account of the plentifulness of wood and water. Game, too, which at that early day was so abundant, was another inducement which the early pioneers could not resist. Many of them relied for provisions upon the deer and wild turkeys, which roamed the wild woods by thousands. Fish abounded in the streams, and even to this day the salmon and trout of Dickson are well known to the disciples of Izaak Walton. During the summer months scores of citizens seek the "shady nooks and bushy dells" on Jones' Creek or Harpeth, for the purpose of angling.

To us, at this day, it appears a little singular that the rich and level lands of Christian, Todd and Logan counties, of Kentucky, should have been neglected by these early settlers for the comparatively thin soils of Dickson. But it must be remembered that land was then no object. Millions of acres were to be had for a trifle, and the disadvantages of not having wood and water convenient overbalanced every other consideration. It should be borne in mind that cisterns, a comparatively modern invention, were unknown, and wells and springs were the sole dependence for water. As the digging of wells was expensive, those parts of the country that had the largest number of springs were first settled; then the wooded regions. Nearly all the old dwellings in the country are situated in low places, near a stream of water, and to which wood might be easily hauled by a yoke of cattle, in which, oftentimes, a half dozen families had an interest.

*Towns.* Charlotte, the county seat, was laid off into town lots in 1804. The surface of the town is very uneven, rising gradually from a small stream that skirts it, and is broken by deep ravines and washes. Some of the streets are rendered impassable from this cause. The surroundings are picturesque, hill rising above hill, covered with dense forests. Among the earliest settlers were John Reed, Sterling Brewer, Benj. Josline, Frank Ellis and Marble Stone. The first house was erected by Peacock, about the year 1801, and for the next thirty years Charlotte appears to have been a place of importance. The Supreme Court held its regular sessions there, and the iron interest made it a place of much traffic.

In 1830 the court-house was destroyed by a hurricane which swept over the country, destroying houses and forests, the course of which may be easily traced at the present day by the red mounds which mark the spots where the trees were uprooted. In 1834 the new

court-house was completed, which, though small, is much more conveniently arranged than most public buildings. Charlotte has two churches. There are four commercial establishments in the place, one hotel, one blacksmith shop, and many comfortable private residences. Altogether, Charlotte is a pleasant rural town, where one may steal away from the hurry and excitement of railroads and cities, and enjoy that quietude and ease so promotive of long life and philosophic reflection. The population is about three hundred and fifty. Dickson is a flourishing little village on the Northwestern Railroad, 42 miles from Nashville, settled since the war by Pennsylvanians. About three hundred have bought land in and around the town, and are displaying an amount of energy and enterprise that should put many of our native born citizens to the blush. White Bluff is another growing village on the railroad, and is about equal in size to Dickson, and has a church, school, postoffice and several stores. The quality of the land about White Bluff is superior to that around Dickson, and the timber much better. Nothing is wanting to make this village a flourishing place but an increased population. Mouth of Harpeth and Raworth's Landing, on Cumberland River, are noted as shipping points for staves and hoop-poles. Burns' and Gillam Stations, on the railroad, are respectable villages, and do a good local trade.

*Farms and Crops.* The physical features of the county are varied. Much of its area is rolling, with a deep reddish subsoil, resting usually upon chert or upon limestone, or, in some cases, on a bed of soft sandstone. In the river bottoms the land is alluvium and exceedingly productive. The valley of Harpeth and Turnbull Creek bottom, and the valleys of Jones' Creek are as fine as any lands in the State. Tobacco is raised only to a small extent in the county, although the land is well adapted to its growth. One instance was reported where 1,800 pounds were raised to the acre, though the usual average is not above 600 pounds. Farmers rely more upon stock and corn than tobacco. Some of the finest mules to be found in the State are raised in Dickson county, the uneven surface of the country giving full play and development to every muscle. We also observed large flocks of sheep running on the commons getting a sufficient quantity of food through the winter from the ferns and grasses growing in sheltered coves and nooks. Blue-grass also shoots up spontaneously in some parts of the county, and supplies good grazing to the stock that range the woods. Peanuts are sometimes raised in considerable quantities. A man may cultivate six acres in addition to his usual crops of

grain. No crop requires cleaner culture than the peanut. When matured in the fall, the vines are dug or plowed up, and the nuts are left adhering. After drying in the sun for several hours, they are stacked around a pole, with an interspace between the pole and the vine, so as to permit the free circulation of air. The nuts are placed next the pole and the tops of the vines form the surface of the stack. About thirty bushels per acre are the usual yield. Wheat is not generally a very productive crop. This is doubtless owing to the want of proper preparation of the soil. As an evidence that it may be made to do better, we saw one field near Dickson belonging to a Pennsylvanian that had been thoroughly and deeply plowed and manured that would yield twenty bushels per acre. This is encouraging, when the fact is remembered that the county has never perhaps averaged six bushels. The Pennsylvanians who settled around Dickson have given a fresh stimulus to agriculture, though it is to be regretted that they did not select more fertile lands, but it is understood that all who bought just what land they could conveniently pay for are satisfied with the country. They first of all raise the products that are required to support the family and the stock, and then put in such crops as will sell readily in the market. They sow a great deal of clover and save the seed, of which four bushels per acre are sometimes raised. Under their judicious treatment, the soils, originally sterile, are beginning to improve. They have erected neat houses and barns, and if the soil was equal in productiveness to the industry of the citizens, there would be no more thrifty community in the State than that around Dickson. Some of the finest farming lands in the county are on Barton's Creek, near the old Vanleer (now Cumberland) Furnace. They are very valuable for the production of corn, clover, wheat and tobacco, and it is to be doubted whether there is in Middle Tennessee any land more constant in its yield or reliable in its character. Improved tillable lands are worth from \$8 to \$12 per acre; creek and river bottoms, from \$20 to \$30; productive uplands, from \$5 to \$15, unimproved. Mineral lands sell from \$2 to \$5. On the railroad lands are valued for the timber more than for the soil. There are many old wornout fields in the county, an everlasting disgrace to the former habits of tillage. The principal timber on the uplands is post oak and red oak; on the valley lands, almost every species found in the State. There is some excellent walnut timber near the Montgomery county line, and in places good poplar is found. Some good stock has been introduced. Twenty-five per cent. of all the sheep are annually destroyed by dogs. Labor



is not reliable, but probably of the kind is sufficiently abundant. Compared with Davidson or Maury, not half the amount of labor in proportion to area cultivated is employed. Most farmers prefer to do their own work, hiring only occasionally. From \$12 to \$20 per month and board are given for first-class hands. House servants from \$5 to \$6. Rails are split and put up in some neighborhoods at \$1.25 per hundred, and lumber made of good poplar may be bought at saw-mills for \$10 per thousand feet. Chestnut is used for fencing, and the rails made from it will last until they wash away. We have seen in this county a fence of chestnut rails which was fifty-four years old and still tolerably good. Fruits grow well, and the rolling, rocky, well drained surface is especially suited to the grape. We may add here that a gentleman living at Burns' Station has erected a mill, and shipped, as we have been informed, as much as seventy or eighty tons of ground sumac leaves, for which he got \$70 per ton. The work of gathering the leaves is somewhat tedious, but may be performed by women and children. This is a new industry, and is worth looking into.

*Iron Interests.* The first furnace ever erected in Middle Tennessee, was by Montgomery Bell, in 1810, and in Dickson county. From his furnace he sent all the cannon balls that were used by General Jackson at the battle of New Orleans, and through his influence, the iron interests of the Western Iron Belt were first brought into notice. The iron banks in the county are numerous and rich, and are usually found capping the flat ridges or on the slopes as they descend into the valleys. Before the war half a dozen furnaces were in successful operation and many thousand tons of iron were made. At this time there are but two in blast, Worley, (situated on Pine Creek) and Cumberland furnaces, the former making about seven tons of pig metal per day, and the latter from ten to twelve. The iron interest is an important one in Dickson, and we trust that very soon a furnace will be in operation at each important locality of ore. There is but one county in the Western Iron Belt that probably has a larger amount of iron ore, and that is Hickman. The two furnaces in operation give employment to about 400 hands.

*Water-power.* One of the most noticeable features of Dickson county is its water-power. A remarkable water-power is found at the "Narrows of Harpeth," a point near the Dickson and Cheatham line. Harpeth River makes here an extensive bend, enclosing a large peninsula of land, the neck of which is rock and but a few feet through. Mr. Montgomery Bell, the founder of the Montgomery Bell Academy,

and the same gentleman referred to above as inaugurating the development of the iron interests of the county, conceived the idea of tunneling the narrow neck and the work was done by E. W. Atkisson, a citizen of Cheatham. The fall gained by this tunneling gave a powerful force to the current, and a sufficient power was thus secured for driving a number of large manufacturing establishments. In addition to the Harpeth, there is Jones' Creek, a fine bold stream, that winds with graceful beauty through rich bottoms and by high bluffs, the escarpments of limestone rock often rising a hundred feet above the surface of the water; opposite these bluffs are usually low bottoms, that yield in bounteous profusion all the products of the climate. Sometimes, however, the banks rise to a moderate height on either side, and in such situations the lay of the land is excellent for the erection of mills. There are also Turnbull Creek, Barton Creek, Piney Creek, Yellow Creek, Johnson's Creek—all large, beautiful streams, with a sufficient capacity to drive the machinery of a hundred mills and manufacturing establishments. The position of the county is favorable for the establishment of manufactories. Midway between the coal-fields of Kentucky and the cotton-fields of the South, with an abundance of water-power, with the Cumberland, one of the best streams for navigation in the south, sweeping the whole north-eastern boundary, with the North-western Railroad traversing its center from east to west, with a fine, healthy climate, and a large quantity of cheap land, the average price of which is only five dollars per acre, it will be the fault of its citizens if Dickson county does not yet become one of the leading manufacturing counties in the State. The large immigration which has come to the county in the past few years is a step in the right direction, and we are glad to know that the people of Dickson fully appreciate the advantage it will be to the county.

*Statistics and Schools.* Dickson county has twelve civil or magisterial districts. The number of acres assessed in 1873 was 291,623, valued at \$1,077,460; total value of taxable property, \$1,232,543; number of polls, 1,502; number of voters, 2,225. According to the census returns it had, in 1870, 50,334 acres of improved land and 155,606 acres of unimproved, the whole valued at \$1,381,330. The value of farming implements was \$49,960; annual wages for the year 1869, \$38,108; value of farm products, \$533,057; orchard products, \$940; value of manufactures, \$17,421; value of animals slaughtered or sold for slaughter, \$112,957; value of live stock, \$366,935. There were 1,622 horses; 937 mules and asses; 1,917 milch cows; 655 working

oxen; 6,043 other cattle; 6,925 sheep; 11,557 hogs. There were, in 1869, 319,085 bushels of Indian corn raised; about 36,000 bushels of wheat and 58,810 bushels of oats; 462,130 pounds of tobacco; 9 bales of cotton; 15,028 pounds of wool; 3,290 bushels of peas and beans; 12,584 bushels of Irish potatoes; 12,554 bushels of sweet potatoes; 98,798 pounds of butter; 5,586 gallons of sorghum, and 543 pounds of honey. The population of the county was, white, 7,663; colored, 1,677; in all, 9,340. There has been a decrease in the population of 642 during the decade between 1860 and 1870, 500 of whom were colored. The county has no debt. Public schools are kept up for several months in the year. Tracy Academy at Charlotte and Cloverdale Seminary on Barton's Creek, are flourishing schools. The county recommends itself by its cheap lands, facilities of trade, salubrity of climate, and the high-toned liberality, integrity and virtue of its citizens.

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## DEKALB COUNTY.

COUNTY SEAT—SMITHVILLE.

DeKalb county was organized by act of the General Assembly of Tennessee in the year 1837, the territory being taken from the counties of White, Warren, Cannon, Wilson and Jackson. The first court met at Barnard Richardson's, near Smithville, on the first Monday in March, 1838. Smithville was selected as the county seat. There are seventeen civil districts in the county.

*Towns.* Alexandria, in the north-western angle of the county, is the largest town. It has seven stores, one good school, one good hotel, two cabinet shops, four resident lawyers, three churches, one tannery, and one steam mill. Population about six hundred. Smithville, the county seat, has, besides the public buildings and offices, ten stores, county academy, one hotel, eight resident lawyers, four churches, one tannery. Population about four hundred. Liberty, midway between Alexandria and Smithville, has five stores, two good schools, one lawyer, two churches. Population nearly three hundred. Laurel Hill has two stores.

*Topography.* About two-thirds of the county lies on the Highland Rim, the remainder being in the Central Basin, and in the valleys. The Highlands occupy the eastern and northern parts of the county.

They are part of the extensive circular plain known as the Highland Rim. For the sake of convenience, we may consider this part of the county as a single, natural division, though it is cut diagonally across from south-east to north-west into two unequal parts by the long, narrow and winding valley of the Caney Fork, the larger division being on the southern side. The surface is gently undulating, the beds of the streams, except near the escarpments, being depressed but little below the general level. The western part of the county, as already observed, lies in the Central Basin. It embraces several valleys of considerable size and great agricultural value, separated from each other by irregular ranges of hills, and there are isolated peaks and short ridges, some of which mount up to a level with the Highlands. These ridges are often connected with spurs jutting out from the serrated escarpment of the Rim Lands, and enclose between them valleys of greater or less size, which are ramifications of the Basin.

*Valleys.* The Valley of the Caney Fork, as already observed, is long, winding and irregular in outline. It begins below the falls between White and Warren counties, near the south-east corner of DeKalb, and meanders first toward the north-west, and then westwardly till it opens out into the Basin, in the north-western part of the county. It is very narrow at the upper end, allowing room for only a few small farms wedged in between the bluffs and the river. But below Sligo Ferry, where the road from Smithville to Sparta crosses, it has an average width of half a mile. Its greatest width is about one mile. Its length, following the general direction, is about thirty miles. The Valley of Smith's Fork extends from south to north, through the western part of the county. It lies along the western base of the Highland Rim, and receives the valleys of the smaller streams flowing westward from off the Highlands. On the west side it has no distinctly marked natural boundary, but there are broken chains of short ridges and knobs, which form the water-shed between its waters and the tributaries of Stone's River, in Cannon county, and Round Lick Creek, in Wilson and Smith. Its length is about fifteen miles, but its breadth is very variable. At some places it spreads out for a space of two or three miles, while in others, it is cut in two by projecting spurs from either side, leaving barely room for the bed of the stream. Each of the tributaries of Smith's Fork has a valley of its own, lying either between the fringing spurs of the Highlands on one side, or ramifying back among the disjointed ridges and knobs on the other. These smaller valleys contain many beautiful tracts of level land.

*Rocks, Soils and Timber.* The cap rock of the Highlands is silicious and calcareous, often soft when quarried, but becoming hard when exposed. Layers of flinty chert are found in many places superimposed upon a bed of yellow clay which rests on the rocks. Where the earth has been removed, through the agency of water, the chert is scattered on the surface, and makes a gravelly soil. Large quantities of this chert are washed down by the streams and deposited in beds along their course. The underlying strata are very hard silicious limestones, which are exposed in the beds of many of the streams, and crop out along the escarpments of the Rim. They resist the action of the elements to such a degree as to make them valueless as a fertilizer. Of course the soils found in company with such rocks cannot be naturally fertile. The humus is thin, and the sub-soil sometimes leachy, but there are some tracts where red clay appears, and all such give a grateful return for liberal treatment. There are considerable areas of boggy land, overgrown with whortleberry bushes, which, when drained, makes excellent meadows. But the best lands in these parts are found on the hill-sides and along the streams, and in such situations there are many valuable farms. One cause of the peculiar character of these Barren lands is, no doubt, the reprehensible practice of burning the woods every spring. The debris of fallen leaves, logs and dried grass is thus consumed instead of being allowed to decompose and mix with the soil. The timber of the Barrens is usually of small size, but includes many valuable varieties. Post oak, and small white oak, suitable for railroad ties, black oak and hickory are the most numerous trees. Underlying all the valleys, and extending about half way up the hills, is found the limestone common to all parts of the Central Basin. It is highly fossiliferous, easily decomposed, and yields, by disintegration, a soil of inexhaustible fertility. Even the hills, except the highest, which are capped with silicious rocks are rich to the very tops, and wherever they are not too rugged for the plow, can be cultivated year after year with scarcely any loss of fertility. In the larger valleys, especially that of Caney Fork, are many broad, alluvial bottoms, which are renewed every year by the deposits of fertilizing mud brought down by the overflow. Some of these have been producing annual crops of corn for half a century or more, without any decrease in the quantity. The timber of the valleys and hill-sides is very dense and heavy. Gigantic poplars, beech, sugar maple, ash, linden, walnut, and many other varieties furnish a constant and seemingly inexhaustible supply for the many lumbering mills now at

work among them. Poplars twenty-five feet in circumference are not uncommon.

*Farms.* There is little waste land in the valleys; one per cent. of the entire area would, perhaps, include it all. But on the hill-sides and in the Barrens there are hundreds of acres yielding nothing—thirty per cent., we think, at least. Unimproved land in the Barrens can be bought at very low figures. Farms in this part of the county are often large, but rarely well cultivated. The prices of improved lands vary from \$1.50 to \$6 per acre, according to quality, location and other advantages. In the valleys there is considerable range in the size of farms. There are a few not larger than twenty or twenty-five acres, while others contain six or seven hundred. One hundred and fifty acres, we suppose, is about an average farm. The smaller farms are generally worked by the owners, while hired labor is largely employed on those of greater extent. The laborers employed are generally colored, of whom there are large numbers in the wealthy sections. There is no difficulty in securing any desired number of laborers at any ordinary time, but sometimes it is difficult to find enough to supply the demand for harvesting. Wages range from eight to twenty dollars per month, twelve dollars being the average. Farms on the Highlands usually rent for one-third of the crop, the tenant being obligated to keep up the repairs, and sometimes to make improvements. In the valleys a fixed rental is generally demanded, the terms for good lands being, for each acre, ten bushels of corn or four dollars in money. Farms in the valleys differ much in price, owing to advantages of situation, quality of soil and improvements. We may safely state the minimum price at ten dollars, and it is rare that a farm sells for more than fifty dollars per acre. The average price is about twenty-five dollars. The farmers of DeKalb county are generally prosperous, and the improvement in the condition of farm-buildings, fences and other appointments of the farm is highly commendable. They have not only regained all that was lost, but have even reached a higher state of improvement. As an evidence, and at the same time a cause of this prosperity, we may notice the extensive and increasing use of improved implements. Good turning plows, double shovels, and gang plows have almost supplanted the old and laborious custom of doing all the work with a bull tongue. Hill-side plows have been used with advantage in some localities. Reapers and mowers, grain drills and good harrows are common in the valleys. Mules and horses are used on farms in about equal numbers. The large farmers generally prefer

mules. Oxen are used for heavy draft, and sometimes for plowing.

*Crops.* The leading crops, in the order of their importance, are corn, wheat, tobacco, oats, rye, sorghum, barley and cotton. The corn crop is perhaps equal in value to all the others combined. It is sometimes shipped, but more frequently used for fattening stock, principally hogs. The production of wheat is increasing every year, and it bids fair to become the leading crop. The red varieties are more extensively cultivated than the white, the Walker and the Red wheat being most common. Mediterranean is preferred by some; but the white varieties are increasing in popularity, the Tappahannock taking the lead. Tobacco receives considerable attention, and is found to be quite profitable. Mr. T. L. Seawell is doing a thriving business by manufacturing it at Smithville. It is estimated that one-third of the cultivated lands are devoted to clover and grass, one-half of which is meadow. On the Highlands, grass is by far the most profitable crop, and there are some extensive and beautiful meadows. It is not common in this part of the country to sow grass or clover for pasture. A meadow is allowed to stand until it becomes foul, and is then plowed up and cultivated for a year or two to kill the weeds, after which it is resown. In the valleys where the common range is limited, it is necessary to have extensive pastures. Much of the land that is too rocky for plowing is set in blue-grass or orchard-grass, and the pasturage, per acre, is worth almost as much as any cultivated crop. Clover is also cultivated extensively, being sometimes mown, but more commonly for pasture. After standing two years, the land is plowed up and cultivated for one or more seasons.

*Live Stock.* The rearing of live stock is the most profitable branch of farming, both on the Highlands and in the valleys. With a few acres of meadow and the "range" for pasture, a farmer in the Barrens can keep a large number of cattle and sheep with very small expense. In the valleys and on the hills blue-grass grows spontaneously wherever the underwood is cleared out, and orchard-grass succeeds equally as well. The rich fields produce, besides the cereals, heavy crops of millet, clover, timothy, and other grasses, which furnish winter forage with very little labor. The cost of rearing to marketable age is, for cattle, about \$10 per head; for mules, \$50; for horses, \$50; for sheep, 75 cents; for hogs, \$3. There is but little improved stock of any kind in the county. There are, however, some very good animals, a few of which are thoroughbred. Among the latter is an imported trotting stallion, the property of Henry Schurer, near Alexandria.

Several other stallions with good pedigrees are kept in different parts of the county. Two jacks bred from imported stock, and five or six others with good pedigrees, make up the number of this class. Mr. John Reynolds, seven miles below Alexandria, has an imported Short-horn bull. There are a few other thoroughbred Short-horns, and quite a number of high grades in the western part of the county. There are several small flocks of Cotswold and Southdown sheep, most of which are in the valleys. But the risks of sheep husbandry are so great that farmers are shy about investing capital in that way. Not less than twenty-five per cent. of the whole number are killed annually by the dogs. Berkshire hogs are numerous in the valleys, but in the Barrens "razor-backs" still have the ascendancy.

*Smaller Industries.* Orchards are numerous and very profitable, particularly on the Highlands, and the production of dried fruit is a business of considerable importance. Butter is made for home consumption and for market. Many families buy their supplies of groceries with butter and eggs.\* Chickens and other poultry are carried to Nashville, the dealers realizing handsome profits. Bees are very profitable and the honey is of good quality. Household manufactures embrace jeans, linsey, cotton cloth, flax linen, blankets, coverlets, carpets, and cotton and woolen socks. The amount of home manufacture is \$9.00 per head. The Caney Fork River is navigable for small steamers from the first of December to the first of March, and occasionally at other times. But most of the carrying is done by wagons to Nashville, which is sixty-seven miles from Smithville. The nearest railroad station is McMinnville, twenty-one miles south. One survey for the Tennessee and Pacific Railroad passes through Smithville.

*Streams and Water-power.* There are several good mill streams along the Caney Fork, and some of the smaller streams which flow from off the Highlands form beautiful falls near it, some of which afford good water-powers. Smith's Fork has some good rapids, but the supply of water in summer is not sufficient for machinery. Pine Creek, rising near Smithville, flows east into Caney Fork. It is a rapid stream, and affords abundant power for large machinery all the year. Sink Creek rises near Short Mountain and flows east for several miles, then disappears in a cave; after running about three miles it reappears in a large spring; from this point to the river it is a good stream for machinery. Fall Creek rises one mile west of Smithville, and flows east into Caney Fork. At the falls, two miles below Smithville, there is a flouring and saw-mill; but the main fall, ninety



three feet high, is a short distance below the mill. Eagle Creek rises one mile north of Smithville and flows north-east into Caney Fork. It is a little smaller than Fall Creek, but has a fall of about equal height. Hurricane Creek rises two and a half miles north of Smithville and flows north-east into Caney Fork. It is about as large as Fall Creek, but there is no perpendicular fall, except near the source, where the amount of water is insufficient for machinery. Holms' Creek rises one and a half miles north-west of Smithville, and flows north-west into Caney Fork. It has several good mill seats. Dry Creek, a tributary of Smith's Fork, is a large stream at its source. It flows out of a cave five miles west of Smithville. There is near the mouth of the cave a mill with a wheel nineteen feet in diameter. On the east side of Caney Fork there are several streams of good size, all of which have plenty of fall. Falling Water, after crossing the White county line, continues its course west to the Caney Fork, a distance of seven miles. It descends rapidly and has several good places for machinery. Mine Lick Creek rises near Cookeville, in Putnam county, and flows west into Caney Fork. It is a bold stream and has a rapid fall, particularly in the lower part of its course. There are many smaller streams, some of which have enough of water for small mills or other light machinery.

*Manufactures.* There is a small woolen factory near Liberty, run by steam. There is a large steam flouring and saw-mill at Alexandria, and another at Liberty. Good water mills are numerous in all parts of the county.

*Minerals.* On the east side of Caney Fork, near the line of White county, there are beds of very rich iron ore extending over a space of several miles. The same quality of ore exists also on the west side of the river, and was worked many years ago at a bloomery on Pine Creek, but of the extent of these deposits we have no means of obtaining accurate information; sufficient is known, however, to warrant the assertion that the county is very rich in iron. The fact that at several places in the county the needle of the compass refuses to point toward the pole, but spins round in every direction, is an evidence of the existence of magnetic iron ore. One of these places is near the Caney Fork, nine miles north-east of Smithville. There are reported to be several other such places in the county, but we have no definite information concerning them. The Black Shale underlies the silicious rocks of the Highlands, cropping out on the sides of the hills facing the Valley of Caney Fork and the Basin. It is not valuable as a

roofing slate, on account of crumbling when exposed to the weather, but several valuable minerals are found in connection with it. In caves and rock houses copperas and alum occur in efflorescences and incrustations on the rocks. The shale also yields mineral oils, in some instances, amounting to forty gallons to the ton; but whether the eliminating of these oils could be made profitable has not been determined. The Black Shale is also the source of sulphur springs, of which there are several on the Table Lands. There is a well of very strong sulphur water in Alexandria, and another of the same kind near Liberty; both of these are also impregnated with salt. A short distance east of Smithville there is a fine chalybeate spring, which is a favorite place of resort in the warm season.

*Miscellaneous.* According to the late assessment the county has an area of 192,726 acres, or a little more than 301 square miles, with a population of 11,425. This would be about thirty-eight to each square mile, but we doubt whether the entire area of the county was assessed. The total value of taxable property is \$1,960,031. The county has a scholastic population of 4,012. There are fifty-two public schools, generally well attended. Smithville, Alexandria and Liberty all have good permanent private schools. There is a county Agricultural and Mechanical Association which holds annual fairs at Alexandria. The farmers generally are contented and prosperous, and there is but little disposition to emigrate manifested. The greatest need of the county is better and more reliable facilities for transportation, which we hope will be secured ere long by the building of the Tennessee and Pacific Railroad.

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## FENTRESS COUNTY.

COUNTY SEAT—JAMESTOWN.

Fentress county was created by act of the General Assembly of the State of Tennessee in the year 1823, the territory being taken from the counties of Overton and Morgan. The first court was held at the Three Forks of Wolf River, but Jamestown was soon after selected as the county seat.

*Towns.* Jamestown, the county seat, is situated on the Cumberland

Table Land, twenty-eight miles east of Livingston, and thirty-seven miles north of Crossville. It has a population of about 100, three dry goods stores and one drug store. Travisville, on Wolf River, fourteen miles north of Jamestown, has one store and a population of about thirty. There are twelve civil districts in the county.

*Topography.* The south-eastern part of the county lies on the Table Land, and has the level or undulating surface common to that natural division of the State. As elsewhere, however, the larger streams all flow in rocky "gulfs" or gorges, varying in size and depth according to the size of the stream. The soil is generally sandy, and the timber, except pine, is of the smaller and hardier kinds. The escarpment of the Table Land, which fronts the north-west, is very much serrated by bold spurs and intervening valleys or "coves," and generally marked by a broken line of sandstone or conglomerate cliffs. From the base of these, there is a steep declivity cut in many places by deep ravines, and mostly covered with loose masses of rock. The terrace, which is a characteristic feature of the western aspect of the mountain in White and Van Buren, is not so distinctly marked in Fentress, but the spurs projecting between the valleys of the principal creeks and rivers occupy much of the county's area. These spurs have the same elevation as the terrace, which is about half the height of the Table Land. In places, however, there are bold rocky hills rising high above other parts of the range, and sometimes reaching an elevation equal to the Table Land. The tables of these spurs are, in places, several miles wide, and there are some good farming lands on them. This is especially true in the neighborhood of the limestone knobs spoken of above. The lower slopes, both of the main mountain and the spurs, are often steep and broken, but not generally so rocky as above. They are generally covered with heavy forests of valuable timber, but cleared fields are occasionally met with. It is a difficult matter to trace the line which marks the base of the mountain. Unlike the escarpment above, there is no line of bold bluffs—no natural boundary, but the smaller spurs run out into hills and gradually melt away into the general level of the Highland Rim. The valleys lie between the projecting spurs, occupying, in the aggregate, about one-fourth of the area of the county. There is considerable variety in the surface and soil. In some places are extensive bottoms, while in others an undulating surface with a red clay soil predominates. Taking the valleys altogether as one natural division, we think that about two-thirds of its area is clay upland, while the other third is divided about equally

between the coves and bottoms. Most important of these is the Valley of Wolf River. Reckoning from the place where the Three Forks unite to form Wolf River, where it has a breadth of three miles, it extends north-westwardly, spreading out ten miles wide seven miles lower down, and then grows narrower again. Its entire length, in this county, is fifteen miles. The Three Forks of Wolf is famous far and wide for the fertility of its soil. Major John C. Wright, who owns the best part of the valley, has raised corn on his farm which, after paying all expenses, netted him fifty dollars per acre in cash on a single crop. Each of the three forks has a valley of its own. That of Main Fork is about four miles long, and from a quarter to a half mile wide. Middle Fork Valley is about the same size, while that of Rottin's Fork is somewhat smaller. In all of them there are excellent lands. The Valley of East Fork is the largest in the county. The head of it, in the south-western part of the county, is very narrow, being nothing more than a "gulf," deep and rugged, and hemmed in by the almost precipitous mountain sides. But farther north, it gradually expands until it gains a width of six miles. Its length is about twenty-five miles. The river runs in a deep channel, while the surface of the valley is undulating, with a good red clay soil. The lower slopes of the ridges, on either hand, are fertile, and in some places not too rugged to be cultivated. Indian Creek, a tributary of East Fork, has a valley six miles long, by half a mile wide, similar in its general character to the larger valley of which it is an outlier. There are a number of minor valleys, lying between the various spurs and ridges, of which Dry Creek Valley is most important. It is three miles long, by an average width of five-eighths of a mile.

*Soils.* The Table Land has a loose, sandy soil, having but little humus, and greatly deficient in calcareous matter. The subsoil is generally a yellow clay, which does not possess the elements of fertility, and is too leachy to retain them when applied to it. Grain farming will never be profitable on these lands; but they are by no means valueless. The native wild grasses grow freely everywhere, and afford nutritious and abundant pasturage to large herds of cattle. The cultivated grasses have succeeded well wherever tried. Fruit trees are generally of dwarfish habit, but they bear abundantly, and the fruit is of excellent quality. The red clay lands of the valleys derive their fertility from the mountain limestone upon which they rest. Over much of the surface are scattered cherty masses gradually undergoing decom-

position, and imparting their calcareous matter to the soil. With good tillage, these lands are inexhaustible. The cove lands are a strong loam, rich in humus, and sufficiently mixed with sand to render their cultivation easy. In some places the soil is several feet in depth. Some of the most desirable farms in the county are in the coves. The bottom lands, especially those on Wolf River, are perhaps unsurpassed by any lands in the State. Their capabilities have already been spoken of in the description of Wolf River Valley.

*Prevailing Rocks.* Sandstone and conglomerate underlie the surface on all the Table Land, cropping out on the hill-sides, and forming bold cliffs, overlooking all of the valleys. There are many places where flagging stones of any desired thickness can be quarried. The conglomerate has been used to some extent for mill-stones. Below the cliffs on the mountain sides, layers of shales and stiff clay, with occasional outcrops of coal, are seen. Still lower, and just above the terrace, the mountain limestone sets in, which again gives place to sandstones, below which the limestone reappears, and extends to the base of the mountain. The bluffs along the streams, and most of the rocks in the valleys, are limestone. There are two principal varieties, the blue and the gray. The former is more or less silicified, but the latter is easily burned into lime of excellent quality. There is also a whitish limestone, called "fire rock," which resembles that of which hydraulic cement is made. The chert in the valleys is distributed without any regularity, the stones varying in size from that of a small pebble up to several hundred pounds weight. Beds of water-worn pebbles of quartz are occasionally met with.

*Farms* vary much in size; fifty acres, we suppose, is the smallest, where the proprietor depends on it for a living. There are a few farms of more than a thousand acres, but from one to three hundred is most common. The owners of the land do the work on most of the smaller farms. Hired help is employed on most of the larger places, and it is not uncommon to let fields, and sometimes entire farms, to tenants. There is plenty of farm labor in the county, such as it is. Skilled labor is greatly needed, but the wages paid is not sufficient to attract it from abroad. Eight to ten dollars per month is the amount usually paid. Better wages would command better labor. When lands are let out to be cleared, the lease generally extends for three years, the owner receiving no rents for that time. One-third of the crop is generally allowed to the owner, where the renter furnishes his tools and

teams, and finds himself. If the owner furnishes everything and the renter boards himself, the crop is divided equally between them. The best lands sometimes command higher rates, the renter not unfrequently furnishing everything and giving half the crop. Money rents are unknown. There is a wide range in the prices of farm lands. Five dollars per acre, we suppose, is about the lowest rate at which any of the valley farms could be bought. Other farms are rated at ten, fifteen and twenty dollars per acre, according to quality of land, advantages of location and other considerations. These estimates may apply to all the valleys except the Three Forks of Wolf. Some of the lands in this neighborhood could not be bought for one hundred dollars per acre. But those who desire to settle in the county may rely upon buying good lands for fair prices. Improved mountain lands are worth from fifty cents to ten dollars per acre, the price, of course, depending upon location and quality of improvements. Unimproved lands on the mountain, where there is no dispute about the title, range from twenty-five cents to one dollar and a quarter per acre, but "wild-cat claims" can be bought as low as five or ten cents.

*Crops raised, and how cultivated.* The leading crops, in the order of their importance, are as follows: corn, wheat, oats, rye, tobacco, potatoes, turnips, pumpkins, buckwheat, and all garden vegetables common to this latitude. Walker wheat is the most popular variety. It is a red wheat, which makes a good yield, and rarely fails to do well. Some varieties of white wheat are sown, and have proven satisfactory so far as tried, but have not become generally known. The soils of the Table Land are well adapted to the cultivation of potatoes, both sweet and Irish. Turnips also do well. All kinds of roots grown in sandy or mellow loam soils are more mealy and richer in saccharine matter, than the same varieties produced on a stiff clay or alluvium. But few of the farmers pay any attention to the cultivated grasses, but it is known that cloyer, red-top, timothy, and orchard-grass will grow in perfection. The latter is becoming the favorite for grazing, the others are cultivated only for mowing. It is customary to let a meadow stand for several years, and then turn it under, but this is done rather for the purpose of cultivating the land than with a desire to improve it. Land is generally broken up with two-horse turning plows. Three and four-horse plows are rare. Hillside plows have never been used to any considerable extent, but if their advantages were known they would no doubt become popular. There has probably never been a subsoil plow in the county. Single and double shovels are used in cul-

tivating the crops which require the use of the plow. Three-fourths or more of the work stock in the county are horses. Mules are preferred by some farmers, but oxen are rarely used except in breaking.

*Live Stock.* The great mass of the stock is scrub. There are half a dozen or more Short-horn and grade bulls, and perhaps a dozen well bred Berkshire hogs. Captain Millsaps has a herd of sheep composed of Cotswolds and Southdowns and their crosses. So far as tried, the improved breeds have given general satisfaction, and there are few who will contend that scrubs are more profitable. No effort has yet been made to improve the breed of horses and mules. About five per cent. of the sheep are killed by dogs, but sheep in the county are not numerous. The custom is to kill any dog that is convicted of killing sheep, but the farmers are almost unanimous in their opposition to a dog tax. The rearing of live stock is the most profitable branch of farming. With the advantage of the rich natural pastures, cattle and sheep can be reared at very small expense. We doubt not that the time will come when the mountain lands, which are now almost valueless, will be converted into extensive sheep-walks, as has been the case among the Highlands of Scotland. In this way, large tracts of land, which are now yielding nothing, amounting in all to perhaps three-fourths of the entire area of the county, might be made to contribute a large share to the wealth of the country. We hope that the spirit of improvement, which is now working among the farmers, and which has already accomplished much, will continue to be directed in this channel. As a general rule, we are sure that the condition of farms, especially as regards appliances for stock-raising, is better than before the war.

*Smaller Industries.* Dried fruit is produced in such quantities as to render it an item of considerable importance. Poultry and eggs are bought by the merchants, and carried, generally, to Nashville, down Obey's and Cumberland rivers. The county does not rank high in the production of butter. Feathers, deer-skins, furs, honey and dried venison hams are important articles of trade. But tar, turpentine and lampblack take the lead of all the less important industries, and are said to bring more cash into the county than anything else. Dairying would be a very profitable business if transportation was not subjected to such delays and risks as is now the case.

*Facilities for Transportation and Markets.* The greatest drawback to farming in the county is the want of some reliable, cheap and ex-

peditions transportation. Many articles which are almost valueless would bring good prices if they could be taken to market. Live stock is driven to market on foot, country produce is carried in wagons, either to Clinton, in Anderson county, distant sixty-six miles, or to Horse Cave, Kentucky, one hundred miles, except during the boating season, when it is shipped down the river from Burksville, Celina or Butler's Landing, or from some point on Obey's River. Steamers sometimes run up as far as the mouth of Wolf or Obey's, but the "tides" are so uncertain that they are not at all reliable. The distance to Burksville is forty miles, to Celina and Butler's, each, about fifty miles.

*Minerals.* The Table Land or mountain part of the county belongs to the Cumberland Coal Field, and many valuable banks have been opened. In Rockcastle Cove, two miles south-west of Jamestown, there is an outcrop of coal four feet in thickness, and of good quality. Overlying it is a slate of excellent quality, the layers of which are thirty feet thick in the aggregate. On Crooked Creek, seven to eight miles east of Jamestown, coal crops out at many places, but has not been worked. On Buffalo Cove Creek, near the East Fork, there is an outcrop three and a half to four feet thick. Near the head of East Fork it is reported seven feet thick, six miles south-west of Jamestown, is a fine bank near the East Fork, and on the opposite side of the valley is another four feet thick. In the head of Buffalo Cove is a bank three and a half to four feet thick. No coal has ever been carried out of the county, but at most of the places mentioned small quantities have been taken out for local use. Nine miles from Jamestown, in a direction a little west of south, there is said to be an extensive bed of iron ore of good quality; but as we have seen no specimens we cannot place an estimate upon its importance. Seven miles south of Jamestown there is a mound, similar to a potato hill, which is full of ferruginous sandstone, but although it contains a large per cent. of iron, the cost of reducing it would render the working of it unprofitable. There is another vein similar to the last, running in a north-east and south-west direction, a few miles east of Jamestown. Limonite occurs at a number of points in the valleys, and some of the beds will doubtless prove to be valuable. But the most interesting iron deposit in the county is an outcrop of the dyestone, on the western slope of the mountain, near the Livingston and Jamestown road. It appears to be about three feet thick, and is of unknown extent. For years it has been used for dyeing purposes by the housewives in the neighborhood. The limestones below the bluffs on the western slope of the mountain



afford a beautiful variegated marble, similar to that found in East Tennessee. On East Fork, ten miles west of Jamestown, is an oil spring. The oil flows out with the water, and is sometimes skimmed off. Another similar spring, three miles higher up the river, confirms the existence of petroleum in this region. A group of oil springs is reported at the mouth of Poplar Cove Creek. A dozen or more good chalybeate springs are scattered over the Table Land, but none of them have been improved. At Van Buren Academy, near Travisville, on Wolf River, there is a good sulphur spring, and several others of the same kind along East Fork are occasionally resorted to by people in the neighborhood.

*Manufactories.* Except the ordinary mills of the country, there are no manufacturing establishments, but fine streams of water abound in all parts of the county. The largest of these is East Fork, which flows in a general northward direction through the western part of the county. The length of the valley is about thirty-five miles, but with its meanders, the river is probably three times as long. It is an impetuous stream, and no ordinary dam would stand, but at several places there are large bends with narrow necks, where cut-offs might be made at small expense. Wolf River has four mills in Fentress county, besides the "Tunnel Hill Place," named from the fact that a tunnel has been cut through a bend. It is a noble water-power, but unemployed at present. One of the mills on Wolf River has a carding machine attached, and on Caney Creek there is a saw and grist-mill and wool-carding machine. Clear Fork is a large mountain stream, flowing north-east and north into the Great South Fork of Cumberland River. It has several tributaries in the county on which there are mills, but like all the mountain streams, they get low in summer. The less important streams which afford constant water-power, are Indian Creek, Crab Creek, Poplar Cove Creek and Rock-castle Creek. There are two carding machines and one cotton gin. The household goods manufactured are jeans, linsey, cotton cloth, cotton and woolen socks, counterpanes, coverlets, flax linen, blankets, buckskin gloves, rag carpets, baskets and split-bottomed chairs.

*Social Characteristics.* General contentment prevails among the farmers, and there seems to be but little inclination to go west. More than twenty families from the north have come in since the war, and only two out of the number have gone back. They are all on good terms with the older residents, and express themselves as highly pleased with the county and people. There is room for many more,

and the people are anxious to have them come. According to the late assessments, there are in the county 355,457 acres, which is nearly 556 square miles. The entire population, by the census of 1870, was 4,717, being less than nine per square mile. The entire value of property assessed is \$413,658. The scholastic population is 1,705. There are no schools except the public free schools. Of these there are about thirty, all of which are reported as doing well. There are no fair grounds.

For other statistics, see chapter xxii.

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## FRANKLIN COUNTY.

### COUNTY SEAT—WINCHESTER.

On the 3d day of December, 1807, the county of Franklin was established by act of Legislature, with the following boundaries: Beginning on the south-east corner of Warren county, thence with the south boundary line of Warren to the east boundary line of Bedford county, thence with said line to the southern boundary of the State, thence east with the State line to the south-east corner of Bledsoe, thence northwardly to the beginning.

By various acts of Legislature, Franklin has been, at different times, deprived of territory, and her present boundaries are as follows: North lie Grundy and Coffee, south the State of Alabama, Marion bounds it on the east, and Lincoln and Moore on the west. But though deprived of much of her "ancient demesne," Franklin is more than a fair average county—indeed, in view of her various resources, it ranks high in the scale.

Dr. Safford, in his "Geology of Tennessee," states that variety in natural features is a characteristic of Tennessee. This holds good in the soils, as well as in the rocks, topography and climate of the State. It holds good also in agricultural character, for this depends upon the soil, the topography and climate, and varies with them. What is said of the State may be said, in good part, of Franklin.

The original distinction of lands among the early settlers, was *mountain* and *river* lands, *coves* and *barrens*, which latter term included not only those level thinly-wooded tracts west of the Elk, in which the

soil is generally thin and greatly deficient in calcareous matter, but also the belt of country lying between the river and the coves, where the country is more rolling and the soil red and fertile, though in the early settlement greatly deficient in timber—now, however, where uncultivated, covered with young, vigorous forest growth.

The belts, or natural divisions of land, lie in parallel lines with the mountain, *i. e.*, extending from north-east to south-west, or mainly so.

*The Cumberland Table Land*, with its western escarpment, including its sides and benches, comprises about one-fifth of the present area of the county, and though thin in soil, and as yet sparsely inhabited, yet may be looked to as a rich field of promise in the future. The Cumberland Table Land is the great depository of all the stone coal in Tennessee, and abounds also in iron and other minerals. Although no coal mines are at present worked in this county, yet rich banks are known to exist, both in the upper and lower measures. The old "Porter and Logan Bank," near the Grundy line, about four miles north-west from the track of the Sewanee Railroad, as well as near Anderson's Depot, on the Nashville and Chattanooga Railroad, as also at the head of "Little Crow Creek," are points at which coal has been taken out. Sections of these mines show a fair stratum of *fire clay* to exist, and near Cowan, immediately on the Sewanee road, an inexhaustible bed of hydraulic cement, of the very best quality, lies awaiting development. The elevation of this Table Land, retarding early development of vegetation in the spring, and yet from its latitude in this county, ( $35^{\circ}$ ) having all the advantages of early summer climate, makes it the country for orchards, vineyards and gardens, nor will the astute fruit grower and horticulturist overlook the advantages afforded to this immediate locality by the Sewanee Railroad down the mountain, and the Nashville and Chattanooga Railroad, between the south and the west, giving them the benefit of both northern and southern markets—thirty-five hours placing their products either upon the shores of the lakes or on the seaboard cities of the South. The chestnut oak of this region affords the best quality of tan-bark, for the gathering. Stock-raisers, *with a little ranche*, have the privilege of illimitable pastures, and here are *sheep-walks* unvisited by the sneaking curs of the valley, or the prowling wolf of the mountains, for it is said to be a veritable fact, that no wolf has been seen in the county since the first locomotive passed through the tunnel, and produced its trembling reverberations in the mountain.

Last, but not least, its cool summer nights, its cold gushing fountains, its life-giving chalybeate springs, and its invigorating atmosphere, render it attractive during the hot months, "and it bids fair in a few years to be the favorite resort of southern men." The western escarpment of this Table Land presents a bold outline, with wild and grand topographical features, only broken by the indentations of the rich coves that lie along its base, and as there are only one or two insignificant outliers in this county, known as the Little Mountains, the north-western views are truly magnificent, affording not only a panoramic view of Franklin, with its numerous villages and winding streams, but extending as far as the eye can reach, to the haze of the Central Basin and the dim outline of the Normandy hills.

The benches of the mountain are exceedingly fertile, but being mostly in narrow strips, are only valuable for their timber, which is of excellent quality for lumber, consisting of ash, beech, poplar, cherry, walnut, and other nut-bearing trees. The coves, generally small, with, however, some exceptions, are among the best lands in the county. Some of them, however, are subject to the dreaded "milk sick"—not so much so, however, of late years as formerly. What the original cause of this malady is, no one knows. As long as the subject remains in doubt, it becomes no one to say positively the cause is or is not vegetable, mineral or aerial poison. It is certainly true that animals feeding on lands infected at certain seasons, and under certain circumstances, will be attacked with this disease and communicate it to others who drink the milk or eat the flesh or butter of animals so affected; but this does not prove it to be of vegetable origin. In the lead districts of the west, they claim that the disease prevailed most after long droughts. Cultivation serves to destroy the poison, whatever it may be. Distinct localities have been pointed out that had to be fenced in. Grazing thereon for a single day seemed to be as fatal as an approach to the deadly Upas tree, but since brought into cultivation are fed upon with impunity.

*Belt of Red Land.* Next, and running along the western base of the Cumberland Table Land, is a wide belt of characteristic red land, furnishing a fine agricultural region, where the limestone frequently crops out, forming the Lithostrotion bed, equivalent to the St. Louis limestone of the Missouri geologists. Then comes the fine river lands of the Elk, which flows through the county from north-east to south-west, and which originally nearly bisected the county. West of the

river lie the Barrens, so called, affording luxuriant range for cattle in spring and early summer, and not so sterile as many suppose. Northern men, of whom there are many in Franklin, by judicious cultivation, are succeeding in orchards and small grain, especially oats, but the soil is not adapted to the growth of Indian corn. These immigrants admit that they have been deceived in the soil of this section, expecting to find it like the gray soils of Pennsylvania and Ohio, and only needing a more thorough upturning than was the custom of native Tennesseans. Many of them have become *land-poor* by the injudicious policy of "the most territory for the least money." In the western portion of the county, and running down to the river, is found

*The Black Shale* formation, with its "rock houses," or alum and copperas caves, in which are often found native alum and copperas; and sulphur springs, so called, which is water impregnated with sulphuretted hydrogen gas, one of the substances resulting from the decomposition of the pyrite contained in the shale. At some future day this Black Shale may, perhaps, be profitably used for the manufacture of both copperas and alum; and when the petroleum wells are exhausted, it may be fallen back upon as a source of supply for oils suitable for illuminating, lubricating, and other purposes, by distillation in suitable vessels. The richest of these shales is said to yield from thirty to forty gallons to the ton, at a cost of fourteen cents per gallon, as is gathered from the Report on the Geology of Canada, giving an account of the production of oil from bituminous shales in that country. At an experimental boring for oil at a well upon Rock Creek, in this county, a few years ago, by a Nashville company, this shale was largely used as fuel in their furnace.

Franklin county, exclusive of its Table Land or mountainous portion, lies upon what is known in the Geology of Tennessee as the Highland Rim, a region bordering and surrounding what is known as the Central Basin of Middle Tennessee.

As Professor Henry, of the Smithsonian Institute, in constructing his isothermal chart of the territory of the United States, has made an allowance for decreasing temperature of one degree for every 333 feet of elevation, or three degrees for every 1,000 feet, it may be instructive to make some comparative statements of elevation, as gathered from various railroad surveys passing through this county.

Taking low water of Cumberland River at Nashville as 365 feet above the elevation of the sea, or the height above low tide of Mobile

Bay, we find Elk River at the crossing of the Nashville and Chattanooga Railroad 865 feet, Decherd 965, Cowan 973, Tunnel 1,153, junction of Sewanee and Nashville and Chattanooga railroads 1,137, University of the South (eight miles) 1,955, top of the highest ridge in that vicinity 2,076 feet.

From these data it would appear that what is known as the valley portion of Franklin, is 600 feet above Nashville, and that of the Table Land 1,490, while the highest summits reach a difference of 1,711 feet, making a difference of about two degrees for valley and four or five degrees for mountain heights.

*Rivers and Streams.* While it is not to be disguised that much of the best land lying at the western base of the Cumberland Mountain is sadly deficient in water, yet taken as a whole, Franklin is perhaps one of the best watered counties in the State, and in view of her abundant water-power, added to her railroad facilities and contiguity to coal, must become at no distant day one of the important manufacturing districts of the State. As already stated, Elk River passes through the whole extent of the county from north-east to south-west with the following rate of descent: At a point eight miles from Decherd, according to an experimental survey for a railroad from that place to McMinnville, the elevation above the sea is 950 feet. Higher up toward the mountain the elevation of course is much greater. Six miles below, at the crossing of the Nashville and Chattanooga Railroad, the elevation is 835 feet. At the crossing of the Southern Central Railroad, near which point the Elk passes the Tennessee and Alabama line, the elevation is 553 feet. It is evident in a stream of such rapid descent water-power is abundant. The Elk is one of the most beautiful rivers in Tennessee, and to the tourist and disciples of Izaak Walton is very attractive. Sweeping in its tortuous course around fertile "bends," it ever and anon enters some shady gorge, whose precipitous rocks and hanging woods contrast their deep broad shadows with its sparkling waters. Every now and then a mountain trout, with sudden splash, darts to the surface of the bounding stream in pursuit of flies and other insects swarming in myriads on the moss set adrift by cattle browsing knee-deep in the stream, or else on flowers overhanging and kissing the rippling water, or on leaves and plants drifting about like fairy barks on its pellucid bosom.

The western branches of the Elk in Franklin are Lost Creek, Big Hurricane, Little Hurricane, Rock Creek, Taylor's, Spring, Rowland's,

Bromlow and Bradley. The eastern are Mud, Gum Swamp, Blue, Muse's or Wiggins' Boiling Fork of Elk, with its branches, viz: Waggoner's and Norwood's. Below the Boiling Fork of Elk fall in Dry Creek, Town Creek or Owl Hollow, Hoeker Hollow, Spring Valley, Tartar's, Murrell's, McElroy's, Bean's, with its branches, Factory Falls, Robertson's and Indian. East of the western escarpment of the mountain, upon the Table Land of Franklin, Larkin's, Estell's and Hurricane Forks unite to form Paint Rock, which flows south-west through Alabama into the Tennessee, and Rush Creek, Big and Little Crows, uniting, flow south-east through Alabama into the Tennessee—the water-shed of the Table Land inclining wholly into Alabama. There may, however, be some small tributary branches of Battle Creek in Franklin.

*Coves.* Farmer's Cove, Lost Cove, Round Cove and Sinking Cove lie upon the Table Land, and are wholly shut in by mountains, beneath which their waters find outlet, and when, in time of floods, these inlets become obstructed, the inhabitants have to paddle about in canoes until the obstructions of leaves and drift are removed. Lying along the base of the mountain are found Buncombe cove, almost shut in by an outlier, and watered by the head branches of Bean's Creek, then after a long, bold outline toward the north are found Holder's, Williams' or Norwood's, Keith's or Caperton's, Talley's, a long cove which runs up under University Place, whose broad plateau sweeps boldly out into the valley, above and north of which is found Roark's Cove, one of the largest in the county. In this cove is to be found some of the best cotton lands in Franklin.

*Curiosities.* Many beautiful cascades and waterfalls are to be found upon the mountain, and also quite extensive caves. Of these, one above Keith's Cove, near Cowan, is frequently resorted to by tourists. This cave is said by tradition to have an outlet into the valley, though this is doubted.

About one mile below the Elk River bridge, upon the Nashville and Chattanooga Railroad, is a remarkable excavation or fissure in the solid wall of rock which forms a narrow neck of forty or fifty feet, connecting quite an extensive peninsula, which the river forms in its tortuous course with a fall of about twenty feet. Though high above the present high-water mark, there is evident appearance that water once passed through. In many places fine specimens of fossils are to be found.

Dry Creek, one of the streams already mentioned, is intermitting, and may be included among the curiosities of Franklin. It is really curious, on a hot summer day, to pass south of Winchester, and find its bed as dry as powder, and returning a few hours thereafter to find a limpid, purling stream. Many suppose that it has connection with the Tennessee River, and rises and falls with that stream. But this is impossible, because not only is the Tennessee much lower, but even the bed of the Memphis and Charleston Railroad, east of the mountain, is several hundred feet lower than the Highland Rim, upon which the stream is located. The elevation of the Memphis and Charleston Railroad at Woodville being 600 feet, while that of the Winchester and Alabama Railroad at the crossing of Dry Creek is above 900.

The true solution is, that the reservoir of supply must be an internal cave of the mountain, receiving its water from slow infiltration from above, whose drain is a syphon<sup>d</sup>-formed channel, which, when the reservoir and upper leg of the syphon is filled, carries off the water faster than it accumulates.

*Railroads.* The Nashville and Chattonooga Railroad, one of the most important connections between the south and the northwest, passes through the heart of the county, with depots at Estell Springs, Decherd, Cowan, Tantallon, Catchings and Anderson. This railroad passes over the Elk on a very high bridge, 400 feet long, lately rebuilt on the improved Howe Truss plan, at a cost of \$12,000, exclusive of masonry. The road passes through the Cumberland Mountain in this county by deep cuts, on either side, through the solid rock, and a tunnel 2,200 feet long, which may be regarded as one of the curiosities of Franklin. This mountain was long thought to be an impassable barrier, and the first experimental surveys made a long detour south to avoid it. The Sewanee Mining Company has a railroad from Tracy City, passing by University Place, and making a connection with the Nashville and Chattanooga Railroad, near Cowan, at the base of the mountain. The Winchester and Alabama Railroad connects Decherd with Fayetteville, the county seat of Lincoln. A route has been surveyed from Decherd to McMinnville, in continuation of the great Cincinnati road, whose completion is only a thing of time. A narrow gauge railroad from Winchester to the extensive marble quarries on Elk River is also in contemplation. There is no turnpike in the county, though one was sanctioned by a vote of the people before the war, connecting Winchester with University Place upon the moun-



tain. The public roads of Franklin are generally good, except in very rainy seasons.

*Factories, Mills, &c.* Before the late war there were several cotton factories that are now destroyed. At present there are but two in operation. David & Mann, near Salem, upon Bean's Creek, or one of its branches, are running about 380 spindles on cotton yarn, in dozen, for home consumption. They are also running wool cards and grist and saw-mills. Anson Butterworth has made an investment of between \$60,000 and \$80,000 in building up Town Creek Mills, an establishment that reflects great credit upon his business capacity, and reminds one of a model New England factory. He owns 500 acres of land, is running 712 spindles and 30 looms, consuming one bale of cotton per day, and producing 160 bolts, or 7,100 yards of cloth per week. He runs by water in winter and spring, in summer and autumn steam is superadded to his water power. He runs also a flour and grist-mill, with a capacity of eighty bushels per day, and also cards wool for the public convenience. He has a school-house and church on the premises, and furnishes his operatives with houses, gardens and fire-wood. The Town Creek Mills are eight miles from Winchester, near Elk River. Flouring mills are abundant. Brown & Payne, on Bean's Creek, Mosley on the same stream; besides Butterworth, Arledge has an extensive mill on Town Creek, Graham on Little Hurricane, Taft on Elk River, Estill, Syler and Ehnig have mills on Boiling Fork, Crane on Spring Creek. There is also a fine flouring mill in Sinking Cove on the Table Land. Grist-mills and saw-mills are to be found on almost every stream. There are also several steam saw-mills. There are also many blacksmith and wood shops outside of the villages. Besides the tannery in Winchester, there are three others on Bromlow, one on Bean's Creek, and another near Salem. Near Decherd there is quite a large cheese factory in operation. It is a brick building three stories high, and built over one of the finest springs in Franklin, known as Colyar's Spring.

*The University of the South.* The University of the South is an institution of which Franklin may well be proud. This Southern enterprise owes its origin to the clear and comprehensive mind of General Leonidas Polk, a native of Tennessee, but late Bishop of Louisiana. He first conceived the idea of concentrating the interests of the several southern dioceses of the Episcopal Church upon one great school of learning. He accordingly issued an address in the year 1856 to the Bishops of the Southern States, proposing to establish a University

upon a scale which should meet the highest ends of Christian education. The proposal met with general favor, and measures were at once taken to carry the design into effect. The Bishops of Tennessee, Georgia, Alabama, Texas, Mississippi, Florida, South Carolina, North Carolina and Arkansas, with delegates, assembled for the first time on Lookout Mountain, Tennessee, the 4th day of July, 1857. A committee was appointed to collect information on the subject of a location for the proposed University, and to report to the Board at an adjourned meeting to be held at Montgomery, Alabama, on the 28th of November following. In the interim a number of localities were visited and carefully examined by a commission of scientific men, which reported upon their respective advantages. Representatives from these several localities afterward appeared before the committee, and urged their claims with liberal offers of money and land. A full report was made to the board, and after a protracted discussion and repeated ballotings, Sewanee, Tennessee, the present site of the University, was unanimously agreed upon. A charter was soon afterward procured from the Legislature of Tennessee, granting the fullest powers, and a magnificent domain of nearly 10,000 acres of land was secured for the University site. A sum of nearly \$500,000 had already been obtained toward an endowment; the corner-stone of the central building had been laid with great ceremony, when amidst the throng of assembled thousands the eloquent voice of Preston had cheered the hearts of his hearers with the bright promises of the future; offices and buildings had been erected, and the most active measures were in process of execution to push the work forward, when the late civil war broke out and put an abrupt end to all operations. At the close of the war little remained except the University domain. Worse than all, a number of the most active fathers of the movement—Otey, Polk, Elliott, Cobbs, Rutledge, Freeman—had fallen asleep. The South was in poverty and distress. The prospects were gloomy, but a movement was inaugurated in 1866 to revive the work, and save whatever still remained. Funds having been generously contributed in England, the trustees were enabled to put the University in operation upon a moderate scale in September, 1868. Since that time there has been a rapid development, and the number of students has steadily increased, the present number being about 230. The University schools are now fully organized, and a bright future lies open before it.

Sewanee, the site of the University, is on the elevated plateau of that name, a spur of the Cumberland Table Land. Experience fully

confirms the wisdom of the board in its selection. The summer temperature is delightful, and the winter not sensibly colder than the valleys below. It is abundantly supplied with pure, cold, freestone water. The domain is heavily wooded, and care being taken to preserve the native forests, gives the whole the appearance of an extensive park. From the verge of the cliffs, bordering it on all hands, are presented most charming views of the valleys and neighboring mountains, combining, in endless variety, to delight the eye. Beautiful cascades and curious freaks of nature lend additional charms. The buildings, though simple, are generally elegant and attractive. Quite a village of artisan shops, and business houses of various kinds, have sprung up at the railway station just at hand, and the whole has lately been constituted one of the civil districts of Franklin. One of the business houses is a large three-story stone building that cost \$6,000, and would be an ornament to any city. Within the last three years the investment in buildings, machinery, etc., at that point has been over \$200,000, independent of the University proper, which, according to the interesting report of George R. Fairbanks, Commissioner of Buildings and Lands, at the last meeting of trustees, is set down at the value of \$165,000.

*Other Institutions.* Besides the institutions of learning in Winchester, of which mention will be made when we speak of that town, there are also flourishing academies at Decherd, Salem, and near Cowan. These are emphatically high schools, in which the languages and sciences are thoroughly taught. There are also in other parts of the county many good schools, though not dignified perhaps with the title of academies. Free schools are also taught in all the civil districts of the county.

*Price of Lands.* There are farms in Franklin that cannot be bought for \$50 per acre. Upon lands sold by order of court, and where the minimum bid is fixed by commissioners, the prices vary from fifty cents to near that amount. The discreet purchaser will not select the cheapest lands.

*Mineral Springs.* For many years before the war, in the days of hacks, private carriages and stage coaches, the "Winchester Sulphur Springs," so-called, situated in a romantic dell near Elk River, were resorted to by multitudes from the south. The property has been for many years owned and withdrawn from public use by Dr. Kittredge, a wealthy Louisiana planter, who, during his lifetime, spent his summers there, and educated his daughters in this county.

Estill Springs, immediately upon the Nashville and Chattanooga Railroad, and near Elk River, where trout-fishing abounds, were also much resorted to before the war, and its village, "Spring Hill," regularly laid out, and improved by beautiful cottages, built by both Tennesseans and southerners, contained a summer population of 800 or 1,000 persons. This place was resorted to mostly for health, though it too had its ball-room and other amusements. It has a variety of springs, chalybeate and other minerals. Here pure sulphur water is to be found. Dr. Safford, in his *Geology*, says that fine specimens of native sulphur have been obtained from the *quartz geodes* in this vicinity. This place was almost entirely destroyed during the war. Its buildings being deserted, were torn down by the troops to construct winter quarters. Southern men have not rebuilt their cottages, but Tennesseans, principally from Murfreesboro, are again beginning to resort to these life-giving waters.

Hurricane Springs, so justly celebrated for their medical waters, especially beneficial for chronic bowel affections, lie near the line of Moore county. Numerous other springs have local reputation.

*Marble.* A vast mine of wealth lies in the extensive marble quarries of Franklin, upon Elk River, seven or eight miles from Winchester. This marble was hauled and worked at Winchester before the war, but is now more extensively used. These marble beds in Franklin appertain to the Nashville series, in lithological character, which teems with fossils, and so impresses the marble. Some of them furnish a gray, others a brownish red coralline marble. Indeed, almost every variegated variety abounds, and makes it a valuable marble for ornamental or building purposes.

*Vineyards and Orchards.* Some attention has been given, especially by German and Swiss immigrants, to the cultivation of grapes, which grow finely in the valleys of this county. Extensive apple orchards of grafted fruit are also taking the place of the old seedling trees. There is an extensive nursery near Winchester, and another near Estill Springs.

*Religion, Morals, etc.* Nearly all the various denominations of Christians have representatives in Franklin, and a healthy moral tone pervades the county, though deeds of violence sometimes disturb the public composure. The Masonic fraternity have lodges in Winchester, Salem and Marble Hill. The Independent Order of Odd Fellows has a flourishing lodge in Winchester, and the Good Templars a lodge at Decherd of over one hundred members.

*Immigrants* from all portions of the United States, as well as the old world, (of whom there are many in Franklin) receive a hearty welcome. Indeed, the money brought into the county by immigration since the war may be said to have saved it from bankruptcy.

*Towns.* Winchester, the county seat of Franklin, is situated upon the Boiling Fork of Elk, and surrounded by fertile lands. The first courts of Franklin were held near where now stands the town of Cowan, but the lots in Winchester were laid out and sold in 1808 or 1809, and the court-house was built in 1838. The population is between 1,200 or 1,500, and has its full complement of lawyers, physicians, clergy, merchants and artisans. The Mary Sharp College is the boast of the town, and is liberally patronized throughout the South. The Robert Donnell Institute and the Carrick Academy have extensive buildings, and are regarded as good schools. Its shops, both of iron and wood, are first class, and besides the tanneries of Porter and Buchanan, the Sewanee Tanning and Manufacturing Company have extensive and costly brick buildings, in which leather of fine quality is largely made for export, by steam process entirely.

*The Home Journal*, ably edited, weekly sends forth its notes of warning and encouragement to numerous anxious subscribers.

The Cumberland Presbyterians, Baptists and Methodists have imposing church edifices. The Roman Catholics have lately built a neat chapel, and the Episcopalians are now erecting a neat brick gothic structure in an eligible location; their first church building having been burnt during the war. There are several beautiful villas near the town. From some of these may be seen the winding river with its clattering "town mill," and its beautiful cascade, and railroad and other bridges in the foreground; the town rising regularly upon terraces of emerald green, with its glittering spires reflecting the rays of the rising sun, flooding with its golden halo the mists of the valley, scudding away from its full-orbed splendor as it emerges "like fiery steeds" from behind the western escarpments of the mountains which form an elevated and continuous background, just at that enchanting distance which robes it with its azure hue. Altogether it forms a picture pleasant to the eye, and deeply engraven on the tablets of memory.

Salem is an old town in the lower part of Franklin, in a rich portion of the county, and near the Winchester and Alabama Railroad. It has a flourishing academy, and various shops and business houses. Hoekerville, in the upper part of the county, is also surrounded by

fine lands. Hunt's Station, on the Winchester and Alabama Railroad, and Estill Springs, Decherd, Cowan and Anderson, on the Nashville and Chattanooga Railroad, are places of considerable business. Of these, Decherd has the preeminence, indeed is destined in the future to rival Winchester. Perhaps at the present time as many goods are sold in Decherd as in Winchester.

*Statistics.* The following are the agricultural productions of Franklin for the year 1870, according to the census report:

Spring wheat.....	6,828 bushels.
Winter wheat.....	77,529 "
Rye.....	3,229 "
Indian corn.....	467,757 "
Oats.....	68,371 "
Barley.....	2,087 "
Buckwheat.....	45 "
Tobacco.....	9,983 pounds.
Cotton.....	289 bales.
Wool.....	16,294 pounds.
Peas and beans.....	1,276 bushels.
Irish Potatoes.....	8,931 "
Sweet Potatoes.....	9,915 "
Butter.....	127,880 pounds.
Cheese.....	106 "
Hay.....	370 tons.
Clover seed.....	12 bushels.
Hops.....	16 pounds.
Sorghum molasses.....	26,026 gallons.
Wax.....	1,471 "
Honey.....	14,129 pounds.
Forest products, value.....	\$19,775
Number of horses.....	2,945
Number of mules and asses.....	750
Number of milch cows.....	3,043
Number of working oxen.....	948
Number of other cattle.....	3,830
Number of sheep.....	8,820
Number of swine.....	24,074

In the State Comptroller's report of this year, the area of the county is stated to be 277,479 acres, valued at \$1,557,230. In the census report the land is given as follows:

Improved.....	91,716 acres.
Woodland.....	176,603 "
Other unimproved.....	6,024 "
Total.....	274,343 "

The population in 1870 was:

White .....	11,998
Colored.....	2,972
Total .....	14,970

The Bureau is indebted to Dr. J. W. J. Payne for valuable aid in the preparation of this county.

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## GILES COUNTY.

### COUNTY SEAT—PULASKI.

Giles county ranks among the very best counties in the State, by reason of the productive capacity and strength of the soil, the high character and intelligence of its citizens, the elegance of its society, the beauty and variety of its landscape, the abundance of its streams, the excellence of its timber and building material, and the splendor of its climate. It was originally a part of Maury and was erected into a separate county by an act of the Legislature, passed November 14, 1809. The name of the county was suggested by General Jackson, in honor of Governor William B. Giles, of Virginia, who was a Senator in Congress at the time the State was admitted, and a prominent advocate for her admission, against strong opposition, as well from Tennessee as in Congress. The boundaries of the county, as defined by the Legislature, commenced at the south-east corner of Maury county; thence south to the southern boundary of the State; thence west far enough to include a constitutional county; thence north to the Maury line; thence with the Maury line to the beginning. As thus indicated, nearly half of the county lay west of the congressional reservation line, a large portion of which was then vacant land and belonged to the United States Government, over which the State of Tennessee had no control. The act establishing the county appointed James Ross, Nathaniel Moody, Tyree Rodes, Gabriel Bumpass and Thomas Whitson, commissioner, to select a place on Richland Creek, as near the center of the county as practicable, and cause a town to be laid off, and to sell the lots, reserving two acres for a public square, on which should be erected a court-house and *stocks*—that the town should be called Pulaski, in honor of Count Pulaski, who fell in the attack on Savannah in 1779. The commissioners selected the present site of

Pulaski, although at that time it was vacant land, lying south and west of the reservation line, and was not granted until the 14th of November, 1812, but assurances of the title had been given, which authorized the commissioners to make the selection. The cane and undergrowth were removed from a small portion of the town in 1810, and in August, 1811, the first lots were sold, and in due time a court-house and stocks were erected. An act establishing the county also established a Circuit Court, to be held the second Monday in June and December, and a Court of Pleas and Quarter Session, to be held third Monday in February, May, August and November, and the house of Lewis Kirk, who lived in a log cabin on the bank of Richland Creek, about 200 yards above the Nashville and Decatur depot, was used for that purpose. The first County Court was held third Monday in February, 1810, when county officers were elected or appointed—German Lester, Clerk; James Buford, Sheriff; Nelson Patterson, Chairman; Jesse Westmoreland, Register. The first Circuit Court was held, it is believed, the second Monday in June, the records of which are lost; but the record shows that court was held December 10, 1810—Thomas Stewart, Judge. James Berry was appointed Clerk at the first court.

*Areas and Population.* This county has twenty civil districts, and embraces over 600 square miles. The number of acres of land assessed for 1873 was 370,430, valued at \$5,411,041, or nearly \$15 per acre. The population in 1870 was 32,413, of which 12,738 were colored. The voting population in 1871 was 6,458; scholastic population in 1873, 9,484. The Cornersville district has been taken from the county since 1870, and added to Marshall. This has reduced the population 2,141.

*Topography and Streams.* The topography of Giles county may be best understood by considering the entire area to have been once an unbroken table land as high as the tops of the leading ridges, and that out of this original table land the streams have since cut their deep valleys. This, and we take it to be true, has caused the county to be made up of very many winding valleys, and high, often flat-topped, dividing ridges. The depth of the valleys, or, what is the same thing, the height of leading ridges, is from 300 to 500 feet. Richland Creek, a tributary of Elk River, is the most important stream, though not the largest in the county. It divides the county longitudinally, north and south, into two nearly equal portions. The name Richland is significant and appropriate. The stream has a large, wide valley which cannot be excelled, if equalled, in the State for fine farming lands.



Richland has also many tributaries, each with its fertile valley. Elk River flows across the south-eastern corner of the county, receiving in its course many creeks and branches. Sugar Creek is in the south-western corner. All these have deeply set and rich valleys. The number of creeks, large and small, is very great, so that the table land mentioned above has been very thoroughly dissected by the waters. The ridges, the remnants of what once was, are narrow and, although numerous, make up a small part of the area of the county. The northern boundary of the county lies on Elk Ridge, an important arm of the Highlands. This conspicuous ridge runs nearly east and west, divides the waters of the Elk from those of Duck River, and cuts off the portion of the Central Basin of Middle Tennessee lying in Lincoln and Giles. We add further notices of the streams. The largest water-course in the county is Elk River, which takes its rise in Grundy county, and after passing through the counties of Franklin and Lincoln, and the south-east corner of Giles, pours itself into the Tennessee at the Muscle Shoals. It is a bold stream, and was formerly used to transport produce to New Orleans.

Richland Creek, though called a creek, is really a river, and was declared by the Legislature a navigable stream to Pulaski, soon after the county was established. It has now numerous excellent flouring mills upon it, and among others, Vale mills, a few miles above Pulaski, which make a fine article of cotton rope in addition to the manufacture of flour. There are two other mills at Pulaski, and Brown's mills, ten miles below, on this creek, all with good machinery, and they are usually amply supplied with wheat raised in the county.

Yet for all these mills, Richland Creek is not considered a good milling stream. The banks are low, and are frequently overflowed in winter, and the drouths in summer reduce the quantity of water so much that the mills have to stop grinding, or grind but a short time each day. For thirty years after the organization of the county, numerous large flat-bottomed boats were built at Pulaski, by which the produce of the adjacent country was shipped to market. Occasionally small keel boats and *pirogues* were constructed, which made the voyage to New Orleans and returned with merchandise, stopping at Elkton, near the mouth of the creek. It required from three to four months to make the voyage. Sometimes they brought salt down the Tennessee River from King's salt works, near the Virginia line. Goods were hauled in wagons from Baltimore by the merchants.

Sugar Creek, in the south-west corner of the county, probably supplies the best water-power for machinery in the county. The water falls through a succession of cascades more than thirty feet within a distance of one hundred yards, and it is easily and cheaply utilized. Big Creek, a confluent of Richland Creek, is a good stream for manufacturing purposes, and has upon it, just within the borders of Lawrence county, a fine cotton and woolen factory. On this stream, and below Campbellsville, are the Arlington and Morris mills, that manufacture a very superior article of flour. Then there are Shoal Creek, and Bethel or Little Shoal Creek, that empty into Elk River, very good streams, but have nothing about them deserving of particular mention.

*Geology.* The geological features of the county are easily understood. The strata are horizontal, and excepting the summits of the ridges, are mainly limestone. The ridges are everywhere capped with the lowest and flinty layers of the Lower Carboniferous. Below this formation, outcropping on the slopes and underlying the lowlands, are everywhere the limestones which belong to a geological division called Silurian. The latter strata may be further divided into an upper part which is called *Niagara*, a middle part called *Nashville*, and a lower known as *Lebanon*. These different sets of strata are so named because their continuations occur at the places from which the names are taken. For example, the upper limestone strata of Giles belong to the very same formation which makes the great fall at Niagara; the middle part includes the strata outcropping all around the city of Nashville. So those of the lowest set are seen about Lebanon, the county seat of Wilson. By far the most important subdivision, so far as the soils of Giles are concerned, is the Nashville. The Niagara is a comparatively thin division, seen outcropping high on the slopes in the middle and southern portions of the county; in the northern portions the formation appears to be entirely absent. The Nashville, on the other hand, includes about 300 feet of rather sandy, highly fossiliferous rich limestones, which, by weathering, form a very fertile, mellow soil. These strata outcrop mainly on the slopes and uplands. The lowest subdivision, the Lebanon, is the bottom rock of a number of local areas in the valleys of Richland, the Elk, and some of their tributaries. The Lebanon limestones, owing to their limited extent, have not the agricultural importance attaching to those of the Nashville sub-division. It ought perhaps to be stated here that there is a thin formation of black slate, called, technically, the *Black Shale*, in the county, in ad-

dition to those we have already mentioned. It lies next below the sub-carboniferous and above all the limestones. It is often taken erroneously as an indication of stone coal.

*Land and Soils.* All the soils in that part of the county which lies in the Central Basin are fertile and easily cultivated. The hill-sides and the slopes of the ridges are often remarkably fertile and productive. As might be inferred from the number of streams, the amount of alluvial soil in the county is very great. On all the streams wide bottoms extend sometimes on both sides to a considerable distance, and are not surpassed in productiveness by any lands in the State. The lands bordering on Elk River and Richland Creek are the best in the county for cotton, and its cultivation is confined almost exclusively to the lands on these streams. The whole valley of Richland Creek for miles, when we saw it, was rejoicing in luxuriant crops of cotton, corn and clover, the latter filling the air with a fragrance as delightful as the "perfumes of bright Circassia." This sea of verdure, enriching the soil while it gladdened the landscape, is the best evidence we can give of the sanguine hopes of the farmers of Giles of prosperity in the future. These lands sell for from \$40 to \$90 per acre. The farms are well improved. They have tasteful farm-houses, good stables and barns, neat fences, pretty yards, extensive orchards, and all the comforts and luxuries that can be found on the farms in any part of the South. The farmers for the most part are highly intelligent, and conduct their farms with skill and energy. The capacity of the soil for the production of grass is wonderful. On one farm we observed a little field of  $2\frac{3}{4}$  acres in timothy, of which the owner related that it was sown about the year 1840, six years before he came into possession of the place; that he had pastured it two years since, but has cut from it, twenty-two out of the twenty-four years, one and a half to two tons of hay per acre annually, and still the growth of the grass is vigorous, and the meadow is comparatively free from any noxious weeds or grasses. It has also supplied pasturage enough in spring to pay the cost of cutting and saving the hay, so that the owner has actually realized, clear of all expenses, from this small plat of land, the almost incredible sum of \$1,650, estimating hay to be worth \$15 per ton, and five tons to be produced annually. There is no other crop known in our State that can be grown with unskilled labor that affords such satisfactory results as that of hay, and the wonder is that more attention is not given to it in this excellent county.

Immediately around Campbellsville, on Big Creek, the lands are fer-

tile, and continue so on to the south and east, but on the north and west they run into the "barrens," on the Highlands, where the land is thin, and can be bought at almost a nominal price. A great many hogs are raised on Big Creek, and the tendency is to a better stock. Recently many fine Berkshires have been brought into the county, and some Chester whites. There is a native stock, however, called Sumner's stock—very large, easily fattened, thrifty, and yields a very large percentage of pork for the amount of food consumed—that is a general favorite in every part of the county. The land in this region is admirably suited to hay, and a considerable quantity is raised. The western part of the county is hilly, not suited to cotton, but is well adapted to wheat and fruit. It rarely happens that there is a failure in fruit. The fogs that rise up from the valleys settle on the elevated land and apparently protect the fruit from the destructive effects of the late frosts. The timber here is very fine, and the water, being freestone, is soft, limpid and free of all impurities. Lands here generally sell at from one to ten dollars per acre.

The lands on Elk River, and in the eastern part of the county, though originally of the finest quality, have been much worn in the cultivation of cotton. The landscape, in many places, is scarified by deep gullies, some of them are of such depth and width as almost to exceed belief. Hundreds of acres, on the Lincoln county line, are permanently ruined and are not worth the taxes paid on them. It is to be hoped that the present generation will attach more importance to the preservation of the soils, if not from principle, at least from policy. The cultivation of cotton seems to be the curse of the soil in Middle Tennessee—not necessarily so, but custom, more powerful than reason, exacts so many crops that no opportunity is afforded the land for reclaiming itself.

*Crops, Orchard and Vineyard Products.* Giles was, in 1870, the banner county in corn, leading all other counties in the quantities of this product. The following are the products for 1870, according to the census report:

Corn.....	2,054,163 bushels.
Wheat, spring.....	34,451 "
Wheat, winter.....	111,184 "
Oats.....	70,512 "
Rye.....	5,895 "
Barley.....	2,716 "
Hay.....	1,644 tons.
Grass seed.....	153 bushels.

Cotton .....	8,367 bales.
Tobacco.....	40,655 pounds.
• Potatoes, Irish .....	32,556 bushels.
Potatoes, sweet.....	28,074 “
Hops.....	26 pounds.
Sorghum.....	21,023 gallons.
Orchard products, value of.....	10,341 dollars.
Market garden products, value of.....	7,119 “
Wine .....	569 gallons.

The production of wine has increased very much since 1870. In 1872 the product was 2,500 gallons. As to the crops suited to the soil and climate of the county, enough has already been said under the head of Land and Soils.

All kinds of fruit known to the latitude find a congenial soil in Giles. The peach and apple tree flourish well on the barren lands, as also the cherry, the plum, the apricot. The grapes, as well as the peach and apple, do well on the high elevations of the Silurian. By far the largest vineyard in the State is in this county, formerly owned by Messrs. Cox and Dunlap, but recently sold. It embraces thirty acres, and a detailed description of it may be had by referring to the chapter on Grape-Growing, page 163 of this volume.

*Live Stock.* The value of all live stock for 1870 is placed at \$1,736,504. The importation of a good breed of hogs has already been mentioned. Many fine Cotswold sheep have been lately introduced into the county from Kentucky, and are giving great satisfaction by their enormous yield of wool. We saw a flock of twenty-one that yielded 195 lbs. of wool, clear of burrs and trash, and all the flock were ewes except four. Many Merino sheep are found in every part of the county. Durham cattle, from the Alexander farm, near Lexington, Ky., are often seen, and some of the finest thoroughbred horses in the State are to be found in Giles.

The following statistics are compiled from the census returns :

Horses, number of.....	7,672
Mules and asses, number of.....	3,452
Milch cows, number of.....	6,536
Sheep, number of.....	18,658
Swine.....	47,700

The value of animals slaughtered or sold for slaughter was \$482,127. There are also many fine jacks in the county, and the farmers are doing more in the raising of stock than ever before.

*Roads and Railroads.* It is a source of regret that while Giles county is going ahead in almost all other enterprises, it should linger so far behind in the matter of turnpikes, there being but two or three in the county, and they are poorly kept up, although limestone rock abounds, and is easy of access. The other roads are execrable, and to look at them it would seem impossible that any vehicle could pass over them without breaking down. The people of Giles, so exemplary in other things, will, we trust, soon direct their attention to the building of good roads, the benefit, profit and convenience of which can hardly be over-estimated. There is but one railroad in the county—the Nashville and Decatur—that passes through from north to south. It is a great convenience to the people, and before it was built the transportation of produce was a work of great risk, labor and expense. Another railroad, the Memphis and Knoxville, has been surveyed to pass through the county, which is intended to be narrow gauge. Should this be built, Giles county will be quartered by railroads, and will enjoy means of transportation enjoyed by very few counties in the State.

*Immigrants.* During the decade between 1860 and 1870 the population increased over 6,000. There are lands to be found in this county cheap and durable, but away from transportation. All that portion of the county lying west of Pulaski, and beyond the Valley Basin, might be profitably settled by fruit-growers. The soil is of the same character as that found in Lawrence and portions of Coffee county. Some of it is very leachy and poor, but spots occur of moderate fertility, and, under good management, might be made highly productive and profitable. The lands elsewhere in the county rate so high it would be difficult to get immigrants to buy them.

*Labor.* Labor is high and unreliable. In the cotton-growing areas the system of cropping prevails. The same contracts are made with laborers here as in Davidson, Marshall, and other counties in the best portions of Middle Tennessee.

*Towns.* Pulaski stands on the east bank of Richland Creek, with a circular range of irregular hills, that run from north-west to the south, hemming it in on three sides, and reminding one of sentinels keeping watch and ward over the town beneath. South-west and west from Pulaski, the country is comparatively level, and stretching away are

“Woods and cornfields, and the abodes of men,  
Scattered at intervals”—

The place selected by the commissioners for the town was know<sup>n</sup>

by the first settlers as the "shoals," and is fifteen miles above the confluence of Richland Creek with Elk River. Pulaski in 1870 had 470 dwellings, occupied by 2,070 people, of whom 910 were colored. The town, within the past few years, has suffered greatly from fires, but better buildings have been erected, and it is now one of the best built towns in the State. It has an elegant court-house, one hundred and fifty feet by sixty, with cross halls, and four entrances. It is well ventilated, having eight double windows on the sides. It was completed in 1859; the previous court-house having been destroyed by fire before it was finished, though some of the rooms were in use. Pulaski has considerable trade, there being required to meet the wants of the citizens of the county about twenty dry goods houses, sixteen groceries, two tailor shops, seven blacksmith shops, one planing-mill, two wagon shops, two tan-yards, one stove and tin shop, two livery stables and two banks. There are five churches, two of them colored. The Episcopalians worship in the basement of the Odd Fellows' Hall, which is a large building, and shows that benevolent order to be in a flourishing condition. There is also the jail, which cost the county the sum of \$25,000 to construct. It is a slightly building, and besides having spacious rooms for the accommodation of the jailer, has numerous cells, lined so as to make the possibility of the escape of the criminals, without the connivance of the jailer, very remote. There is one newspaper, the Pulaski Citizen, Democratic and progressive. The amount of cotton shipped from this place for 1872-3, was greater than that shipped from any other point in Middle Tennessee, being 8,863 bales. The whole amount shipped from the county during the same year was a little over 16,000 bales. From this point also there were shipped 10,456 bushels of wheat. Pulaski can also boast of a town hall, which for elegance, convenience, safety, beauty of finish and appropriateness for the purpose designed, cannot find its equal in the State. It is 84x42, with an arched ceiling, beautifully frescoed, and has a capacity for seating comfortably 800 persons. The galleries are large and well ventilated. Two wide flights of steps lead to the auditorium, and in case of fire the whole building can be emptied in the space of two minutes. Speakers and actors highly commend it for its acoustic properties, rendering the labor of speaking comparatively easy. There were in Pulaski, in 1870, 68 establishments of productive industry, with a capital of \$97,157 invested, that gave employment to 133 males above sixteen years of age, and thirty-five females above sixteen, besides seventeen other young persons below the ages mentioned. The wages paid to

these persons for the year ending June 1, 1870, was \$38,204, and the products were valued at \$168,262. Standing first among these manufacturing establishments are the Pulaski Manufacturing Mills, situated in the north-eastern part of the town. These mills were incorporated under the same charter as the Tennessee Manufacturing Company at Nashville, and have now a capital invested of \$65,000. They employed in 1872, 75 operatives, and made 1,500 yards of sheeting, 340 dozen yarn, 100 yards of jeans, cassimeres, &c., daily. They had in operation 1,500 spindles, the looms and spindles being driven by two steam engines. Pulaski has 405 lots, valued at \$672,654. Lynnville, Buford, Reynolds, Rhodes, Wales, Harwell, Aspen Hill, Lesters, Prospect and Veto, are all shipping points on the railroad. Lynnville has a population of 250 and 17 business establishments. The number of bales of cotton shipped from this point for the year ending June 30, 1870, was 1,452; bushels of wheat, 4,813; cattle, 19 car loads; hogs, 28 car loads. Buford has two general stores. Wales, four miles north of Pulaski, has the same number. Aspen Hill, with a population of 100, has two stores, a cabinet shop, two blacksmith shops, flour and grist-mill, saw-mill, and one grocery. Prospect has a population of 150, and six business houses. The other towns in the county, away from the railroad, are Elkton, south of Pulaski, on the Elk River, with a population of 300; Bunker Hill, Campbellsville, Bradshaw, Bethel, Bodenham, Marbutis, Minnow Ford and Pisgah. All these have from one to four stores, and are trading points for the surrounding country. Elkmont Springs is a beautiful watering place, located on the edge of the table land which lies on the south side of Elk River. The water is sulphur, and is much sought after by dyspeptics, as well as those suffering from general debility.

The citizens of Giles county, for the year 1873, showed a commendable liberality in providing good public schools. But for untoward events in our national legislation, the county would soon have become as noted for the excellence of its schools as for the richness of the soils, and hospitality of the citizens. A special tax of fifteen cents on the hundred dollars worth of property, one dollar on polls, and one-fourth of the county levy on privileges, was set apart for school purposes, which, with the State levy of ten cents, realized over \$21,000 per annum for the public schools. The private schools of the county have always been of a high order.



## GRUNDY COUNTY.

## COUNTY SEAT—TRACY CITY.

This county was organized in 1844, from fractions taken from Franklin, Coffee and Warren. It embraces 324 square miles, and has a population, according to the last census, of 3,250, of which only 137 were colored. It is one of the eastern counties of Middle Tennessee, and more than half of it rests upon the Cumberland Table Land.

*Topography and Streams.* The part of the county that lies upon the Table Land is generally flat, but deeply gashed by the valleys of streams. Sometimes, also, as near Tracy City, knobs rise several hundred feet above the general surface. There being eleven districts in the county, three lie entirely upon the Table Land, and a portion of eight run down into coves and river valleys. Elk River breaks from one of these coves, and is strong enough to make valuable water-power where it bursts out. The head waters of Collins and Sequatchie rivers are also in this county. Many of the streams on the top of the Table Land have sufficient volume for milling purposes, such as the Fiery Gizzard and Fire Scald. These mountain streams are very rapid, having perpendicular falls sometimes of thirty or more feet, especially where they begin to descend into the valleys. The waters are not so bright and sparkling as one is disposed to imagine, but have a yellowish cast. They flow over great layers of sandstone, and are fretted in their courses by detached rocks that have tumbled down in their channels. Some of the wildest gorges in the State are to be met with along these streams—perfect pictures of untamed nature embellished by numerous and varied evergreens. Several of these places of great beauty are found in the vicinity of Beersheba Springs. Laurel Creek Falls may be taken as a type of these mountain rapids. The creek which forms these falls, after flowing on the mountain plateau for several miles, plunges into a deep ravine gashed in the side of the gorge, through which the east fork of Collins River flows, and finds its way down to that stream by a succession of rapids and falls, descending about 1,000 feet in the distance of five miles. The Laurel Creek Falls forms one of several by which the water descends to the foot of the mountain. These falls pitch over a mass of conglomerate rock, some six feet in thickness, which rests upon a bed of crumbling shale. This has been disintegrated and washed out from beneath by the floods, so that the hard and conglomerate sandstone projects a considerable

distance over, which projection increases on the right and below the falls to twenty or thirty feet over the elliptical grotto, some sixty feet in length, and nearly the same in breadth. The water has a fall of thirty feet, which, after striking a broken mass of rocks below, sweeps around to the left, finding its way amidst huge bowlders, at one time resting in a quiet pool, and then dashing headlong down deep chasms darkened by the overhanging trees. The ruggedness and wildness of this gorge fill the mind with emotions of sublimity, and form a picture of mighty convulsions where huge rocks have been piled upon each other, intermingled with fallen trees, in wild confusion. The bosoms of some of these bowlders are covered with wild ferns, which make them resemble green islands in the rugged sea of rocks.

*Soils and Productions.* A considerable portion of the land in this county may be termed first rate Middle Tennessee land. All the soils in the coves and on the streams produce corn, wheat, clover, and some of them are well adapted to blue-grass. Cotton and tobacco grow well on these bottom lands. They can be bought at from ten to thirty dollars per acre. Such lands in Ohio or Pennsylvania would be worth from one hundred to one hundred and fifty dollars per acre.

All in all, this county is now one of the most interesting in the State—interesting, because a spirit of enterprise, not very common in Tennessee, is giving the top of the mountain a trial never before made in this, nor in any State in the South. The coal in this county is now at the very foundation of commerce and manufacturing, and by means of the capital and enterprise which it has developed, many other industrial interests have taken a new start.

Among the many interesting developments in this county, nothing is enlisting more valuable and scientific investigations than the effort to utilize lands hitherto regarded as of no value. In this county there are now 100,000 acres that can be bought at from fifty cents to one dollar per acre. Late practical and scientific tests have shown, as is now claimed, that these lands are indeed of considerable value, since they are found to be productive, and they are made accessible by railroad. A highly cultivated and eminently practical Scotchman five years ago settled on lands immediately on the line of railroad, and near the county line between Marion and Grundy, and by a series of actual experiments with fertilizers, has demonstrated that lands which he bought at from sixty cents to one dollar per acre, can be made, with a trifling cost, to produce excellent corn, clover and oats. He claims

that this land, for farming purposes, is equal to the valley land; but in this, while we cannot agree with him, we are glad to know that intelligence and scientific cultivation will make them productive and profitable. For the production of corn and wheat they must be well fertilized; but there are no lands in the State equal to them for the production of fruits, Irish potatoes, and some other vegetables. The soil is sandy, loose, porous and hungry, though it produces clover very well if gypsum is applied to the crop. Mr. E. O. Nathurst, an enterprising and intelligent Swede, now connected with the Tennessee Coal and Railroad Company, residing at Tracy City, by a little extra work from arduous duties as book keeper, made six years ago a vineyard of less than one acre, which in grapes and wine yielded him one year between \$700 and \$800. Experiments by E. F. Colyar at the mines, and by others, prove beyond doubt that for grape culture the top of the mountains has no superior in this country.

*Swiss Colony.* Near Altamont, in this county, is a most interesting Swiss colony, composed of about sixty families. The establishment and population of this colony is quite a feature in the history of Tennessee. Without means this experiment was made, and for a time the difficulties in the way of success seemed insurmountable; but under the protection of Consul General Hitz, and under the management of Mr. Peter Staub, of Knoxville, the active and enterprising agent for the Swiss government, this colony has been put on a firm basis. They are a most industrious people, and have now clearly demonstrated the value of the lands which they bought at a few cents per acre. The cultivation of the grape and of fruit trees, is among the many interesting vocations of this most industrious people. They are said to be quite satisfied with their new mountain home, and in a few years will be among the most thriving and wealthy of Tennessee's taxpayers. They have two stores and several saw-mills, and possess all the requisites for living within themselves.

*Timber and Lumber.* On the low lands and in the coves there is an abundance of fine yellow poplar, black walnut, sugar tree, white and black oak, and on the top of the mountain there are two kinds of timber of great value—the yellow pine in large quantities, and chestnut oak, which grows in great abundance, the bark of which is much sought after by tanners. Besides, the top of the mountain is better supplied with *tie timber* than any part of the State accessible by railroad.

*Climate and Fruit.* It is now well known, after experiments for

twenty-five years, but especially since the railroad was built in 1858, that as a fruit and vegetable country, the top of this mountain surpasses any section in the Southern States. The climate in many respects is about the same as in Pennsylvania, being about 1,500 feet higher than the basin around Nashville, and from the dryness of the atmosphere in the Springs, there is scarcely such a thing known as the fruit being killed by a frost. By a series of experiments, the summers are found to be cooler by several degrees than in the Central Basin, while the crisp, dry air renders it not uncomfortable in winter. Since the whistle of the locomotive summoned to the top of the mountain men with the woodman's axe and the miner's pick in place of the backwoodsman, with the hunter's rifle, the progress in raising and taking care of fruit, cultivating and sending to market cabbages and potatoes, which grow as they do nowhere else in the South, is one of the most cheering signs in the advancing steps of Tennessee.

Bersheeba Springs, in this county, is one of the most delightful and fashionable watering places in the South. The waters are chalybeate and freestone. The growing town at the coal mines, as well as the spring, affords a splendid market for everything raised for sale; and instead of hunters and a half civilized backwoods people, the population is coming to be an industrious and thrifty people, who are beginning to look with as much interest to the question of churches and schools as any people in the State.

*Grass and Grazing.* One of the great sources of wealth in this county is the native wild grass covering the entire face of the country. This grass, together with a weed called beggar's lice, which grows in great profusion, and is much sought after by cattle in the fall, is equal to the finest blue-grass of Kentucky, from the 15th of April to the 15th of November. During this time the cattle, with salt only, get as fat as it is possible to make them. Such a thing as cattle disease is not known, and by actual experiment often made, for a man with a small capital, buying cattle in the coves in the spring, and grazing them on this mountain for six months, is the surest mode of doubling the capital in that short space of time.

*Towns and Schools.* The towns are Tracy City, at the end of the railroad, now the county seat, and is quite a growing town, Altamont, the former county seat, and Pelham, a small village on the head of Elk River. Beersheeba Springs may also be reckoned among the number. For two years this county has levied, in addition to the State tax

for school purposes, a tax of thirty cents on the one hundred dollars. No other county in the State has done this—the result is a good system of schools. The Tennessee Coal and Railroad Company, which pays about \$4,000 of taxes, has encouraged the levy of a high tax for schools, and has done everything possible to aid in having public schools permanently established at the mines. One of these schools now requires three teachers, and preparation has been made for keeping it up nine months in the year.

*Minerals and Railroad.* The great feature of the mountain is the coal. From Tracy City east the whole country is a bed of coal, and the time is coming when these coal fields in the South will be like Newcastle in England, or Scranton in Pennsylvania. In 1854 a company, mainly made up of New York capitalists, commenced building a coal road to what is known as the Sewanee Mines, in Marion county, now, by the new constitution, detached, and attached to Grundy county, and which was completed in 1858. This road is twenty-one miles long, and is the first successful attempt in the South to build a railroad up a mountain of 1,000 feet. The cost of building and equipping this road was about \$850,000. The company, then known as the "Sewanee Mining Company," made a debt of between \$350,000 and \$400,000, the litigation about which resulted in two sales of the entire property in 1860. These two sets of purchasers, at the close of the war, compromised their litigation, and the Tennessee claimants thereupon organized under the new charter of the Tennessee Coal and Railroad Company, and commenced work. The mines and road had been used during the war for army purposes; the road was in a dangerous condition, and the rolling stock was worn out. The work of rebuilding was undertaken without capital, and for a time pecuniary embarrassments threatened the ruin of the enterprise.

The report made by the President and sole manager in 1869, shows the expenditures in rebuilding the road, building cars, miner's houses, etc., to be \$210,658. By this expenditure the work had been increased from four cars per day in 1866 to twelve cars per day in 1869, the mean difference between which was about the aggregate of each year's work. Since that time the entire earnings have been put into the property after relieving the company of the heavy debt made in rebuilding. This company is shipping from forty-five to fifty cars of coal per day, or say 12,000 bushels, which is far ahead of any work of the kind ever done south of the Ohio River.

A few facts will show what such an enterprise is worth to the industry of Tennessee. The company now, in all its departments, gives employment to about 450 persons, including 150 convicts digging coal. The aggregate coal trade, commencing with the first of the year 1866, and ending with the first of October, 1872, was 31,582 cars—8,005,954 bushels, producing \$960,714.48. The other business of the company, sales of goods, lumber, &c., amounts to \$562,860, making the entire receipts \$1,523,574.48. The amount of improvements made for the year 1873, as well as the monthly productions of coal for the same year, may be ascertained by referring to chapter on coal, pp. 190-218, where the minimum and maximum products are given. Around the mines has sprung up a town of 1,000 people, with churches and schools. A branch of the Tennessee State prison has been established there, and 150 convicts are now worked in the mines with great success. The shipments of coal daily are to Atlanta, Chattanooga, Huntsville and Nashville, besides the towns on the line of the Nashville and Chattanooga Railroad. System and close economy in the business of this company have developed a trade altogether beyond the expectations of the parties interested. Besides supplying several railroads, the company is now shipping coal daily to St. Louis. The number of men employed inside the mine is about 250; the whole amount of track under the ground is about nine miles, and the extreme points of the mine worked are 1,500 yards apart. The average thickness of the coal is four feet ten inches. The openings to the mines are three, and cars are loaded from three different chutes. The coal is not brought down an inclined plane, as most of the mines in Pennsylvania, nor is it elevated as in most of the mines in England. All the entries are horizontal, and the coal is brought to the mouth of the pit and dumped into the railroad cars. Practically the mine is inexhaustible, and as a pure coal, valuable alike for grates and manufacturing—making iron as well as making steam—there is perhaps no coal in the United States superior to it. As analyzed by Prof. Safford, it is carbon 65.50, volatile matter 29.00, ashes 5.50. Since this company commenced rebuilding and shipping coal in 1866 the increased demand for coal is one of the most interesting features in the growth of Tennessee. We are assured that shipping 50 cars per day the company is further from supplying the demand than when it was shipping four cars in 1866. A. S. Colyar has been President of the company since 1860, except when the property was abandoned during the war. In his annual report for 1869 occurs the following remarks in reference to the enterprise and coal trade of Tennessee:

Believing that coal was to be the great basis of wealth in Tennessee, as it is in Pennsylvania, and knowing that this could never be while the coal trade here was confined to a sort of huckstering business, as it has been for twenty-five years, I have struggled through difficulties which but few persons will appreciate, to make the company what it now is—capable of supplying the present demand, and as it may increase, of a great and growing manufacturing State, and of supplying the demand upon the well established basis in enterprising communities, that money in coal is to be made by selling large quantities at small profits, instead of small quantities at large profits. Coal can be supplied at Nashville for manufacturing purposes as cheap as in most towns in Pennsylvania, and cheaper than in the manufacturing towns of New England.

The success of this enterprise may be attributed in a great degree to the fact that the stockholders have been more anxious to put it on a firm basis than to declare dividends, believing that fixed and permanent dividends, though delayed, were preferable to early but uncertain dividends. The increase of the business is shown by the following facts :

1866, shipped in October .....	40,500	bushels.
1867, " " " .....	92,260	"
1868, " " " .....	65,250	"
1869, " " " .....	107,000	"
1870, " " " .....	144,856	"
1871, " " " .....	198,755	"
1872, " " " .....	267,753	"
1873, " " " .....	300,000	"

This company sold at Nashville for manufacturing purposes in 1866 not exceeding 50,000 bushels. Now the sales at Nashville for manufacturing purposes amount to between 400,000 and 500,000 annually.

The Secretary is indebted to the President of this company for many facts pertaining to this county, and especially for those pertaining to the coal interest, which is the great interest of the county, and is destined in the future to give to it great wealth.

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## HICKMAN COUNTY.

COUNTY SEAT—CENTERVILLE.

Hickman county, containing 559 square miles, lies on the western side of the great Highland Rim of Middle Tennessee. It was created by the Legislature in 1807, reducing the limits of Dickson county, and

was named in honor of Edmund Hickman, a surveyor, who came with Colonels Robertson and Weakley, in 1785, to survey entered lands on Piney River. Hickman, while on this trip, was killed by the Indians near the mouth of Defeated Creek, on Duck River, within one mile of where Centerville, the county seat, now stands. In 1819 the county was permanently established, David Love, Joel Walker, John S. Primm and Joseph Lynn being appointed commissioners to superintend the running and marking of the lines, these to include an area within the constitutional limits.

*Streams.* The drainage in every part of the county is perfect. The main artery, Duck River, a clear, swift stream, abounding in fish of delightful flavor, flows in a westerly direction entirely through the county. Its tributaries, Sugar Creek, Beaver Dam, Piney, Swan, Lick Creek and Leatherwood, flowing north-east and south-west, supply every portion of the county with living water. One other stream, Cane Creek, rises in Lewis county, passes through the south-west corner of Hickman, and empties into Buffalo, in the county of Perry. These streams are remarkably clear, and their beds are filled with immense piles of gravel, which, shifting with every rise, often destroy the fords, and roads which run on their banks. For manufacturing, these streams will not do to rely upon, for several very good reasons. Their banks are unusually low, and composed for the most part of gravelly beds. These are cut away by the action of the stream, and wide sand-bars are constantly forming on the opposite side. It is almost impossible to construct a dam that will not in the course of a few years be undermined. Another reason is, that the undulating surface of the county makes the descent of water from the surface very rapid, and after hard rains, the water with its accumulated force rushes down with Alpine fury, sweeping away trees, fences, houses and everything, and subsides with as much rapidity as it rises.

There is, however, some fine water-power in the county. McClarin's mills, sixteen miles from Centerville, are situated upon a stream that flows in a large volume from the side of a bluff, with a descent so rapid that, within forty yards of its exit from the bluff, it has capacity enough to drive an overshot wheel twenty feet in diameter. Several manufacturing establishments have been driven by this stream without requiring more than half its available force.

Another fine power is to be found about eight miles west of the county seat, and where the old Montgomery mills were situated. A mile above the mills the waters of the Piney disappear under a bluff,



and reappear, after passing under a farm of considerable extent, upon the face of a bluff 150 feet high, and fall perpendicularly about ten feet. No dam is wanted. The construction of a forebay is all that is necessary to utilize the stream. Perhaps in the State no finer uncurbed water-power can be found.

*Topography, Timber, Soils, etc.* Hickman county has usually a broken surface, composed of high, rolling ridges and deep ravines, pointing generally toward the streams. Some plateau lands lie in the northern part of the county, being a continuation of that which extends through Dickson county, and forming the water-shed between the Cumberland and Tennessee rivers. This plateau sinks as it approaches Duck River, but again appears on the south side and extends on through the county into Lewis and Lawrence counties, where it widens out into a broad prairie-like area, and is marked by open woods, scrubby timber, barren grass, thin soils and a scarcity of settlers. For a more particular description of this plateau land the reader is referred to Lewis county, in this volume. The ridges that form so large a proportion of the lands of Hickman are exceedingly sterile and unproductive. The soil is rocky and thin, but in spots sustains a rich verdure of barren grass, upon which the stock of the county subsist for nine month in the year. The timber of the ridges is white oak, chestnut oak, red oak, black oak, hickory, and chestnut. In the valley it is poplar, beech, maple, ash, boxelder, black walnut, butternut, red bud and elm. Sometimes, however, these ridges flatten out into a broad surface, and wherever such places are found, in which the subsoil is a deep red cherty clay, the land is very fertile. Such a spot is found on the road from Dickson to Centerville, about Pinewood. Around this village are found lands of the same character as the rich, chocolate lands north of Clarksville, in Montgomery county, well adapted to the growth of corn, wheat, cotton and tobacco. These low plateaus differ widely in productive capacity from the more elevated ones to which we have referred. In many respects the soil is superior to the bottom lands, especially for the growing of wheat and clover. The price of these lands are, for improved farms, \$30 to \$40 per acre; bottom lands, about the same; barren lands and rolling ridges, from fifty cents to five dollars.

*Crops.* The crops grown in the county are wheat, oats, rye, barley, cotton and peanuts. The average yield of wheat for the county is eight bushels per acre; cotton, 600 pounds; corn, thirty bushels; peanuts, forty bushels. On the most fertile lands the yield would be fully

doubled. The culture of peanuts bid fair, at one time, to be the great industry of the county, but the fall in price, occasioned by the enormous crop of 1872, cut down the quantity for 1873 fully four-fifths. Since the war, this crop has been very profitable, and has constituted the principal source whence farmers obtained means to buy their supplies and meet their general wants. Nashville is the principal market for the farmers, and the place for selling and buying such things as they need, from a paper of pins to a barrel of salt. It was no uncommon thing in 1872 to meet, in one day, fifty wagons loaded with peanuts on their way to Nashville.

They are hauled fifty-four miles over a common dirt road at great expense, and with much loss of time, the expenses averaging twenty-three cents on the bushel. The first peanuts raised in Tennessee and carried to Nashville for sale were from Hickman county. Jesse George, who died but recently, was the first to introduce them. He obtained a few from some emigrants, moving from North Carolina to the west, and planted them. This was the beginning of the culture of peanuts, which has become such an important agricultural feature in this and adjoining counties. The crop averages from forty to fifty bushels per acre, and sometimes reaches 125 bushels per acre. The yield of this crop for the county was in 1871, 150,000 bushels; 1872, 225,000; 1873, 35,000.

Hickman, like all of those counties in which the farms are cultivated by white labor, is as prosperous as it was before the war. The farms are worked as well and look as well. They are mostly small, and but few old fields have been turned out to grow up into thorns and briars. Since the fall in the price of peanuts, and the consequent abandonment of their growth as a crop, it has been a very serious question with the farmers what crop to introduce in their place. Near Pinewood, where there is a most excellent cotton factory, the raising of cotton has proved highly satisfactory, but in other portions of the county the raising of mules and horses is thought to be more profitable. The highway pasturage being ample for their sustenance, the usual practice is to bell the mares and turn them out with their colts to shift for themselves.

*Wool Growing.* But for the dogs, sheep would be extensively raised, as they can live the entire year in the woods without attention; but the lowest estimate of the loss from dogs is forty per cent. Sheep are driven up twice during the year, May and September, and sheared, and the owners, after marking the lambs, pay no more attention to them. They live on the wild grasses in summer and on the farm in

winter. They may be bought in the woods for one dollar each. Nature is favorable to a prolific yield of wool, yet there is not more raised than will supply the home demand. It cannot be doubted, from all the evidence collected, that this Highland plateau is one of the finest sheep-growing regions of America. The comparative mildness of the winters, the sheltering rocks and perennial grasses make the cost of keeping through winter almost nothing, while the quality of the wool can be made in fineness to rival that produced by the flocks that cover and browse over the fertile plains and rolling heights and mountain fastnesses of the Spanish Peninsula. In this matter the Legislature should act decidedly, and throw the shield of its protection around this branch of our husbandry, so remunerative and pleasant. Two millions of sheep, with proper attention, could be raised in the counties of Hickman, Lewis and Lawrence without any diminution in the quantity of other products.

Those farmers who have introduced the improved breeds of hogs and cattle are succeeding well.

*Labor.* Labor is scarce. Farm hands are worth \$1 per day when they board themselves. Factory hands, female, get from \$13 to \$26 per month and board themselves.

*Orchards* are not abundant, though the farmers are planting more fruit trees now than at any previous time. Apples, pears, peaches, plums and cherries grow with remarkable vigor, and upon the rolling lands yield bountifully. Grapes have not been tested, but it is believed from the character of the soil and the perfect drainage of the county, that they would grow and bear well upon the many sunny slopes that rise up from the margins of the streams.

*Iron Ore and other Minerals.* Of all the counties of the Western Iron Region none can surpass Hickman in the quantity and richness of its iron ore. Almost everywhere this iron ore crops out. The tops of the ridges are filled with it. It lies in beds or banks more or less associated with cherty masses, and will yield from the furnace about forty-four per cent. The old *Ætna* mines, that were worked many years ago, are the best yet found in the State. Competent judges assert that there is more iron ore in this county than in the Iron Mountain of Missouri. Before the war there was one furnace in operation in the county that made 1,500 tons annually. But for the heavy expense of hauling to the railroad, there would be now many in operation. Timber is abundant, the ore is rich, inexhaustible, and easy of access. It is believed that twenty furnaces could be run indefinitely, and be made

to yield a revenue of \$1,500,000 annually. Could a railroad be built from Clarksville to Florence, Alabama, it would pass through the center of one of the finest iron belts in America. Ten miles back on each side of such a road would furnish timber and ore enough to run a furnace for every ten miles of road. This statement may appear incredible to one who has never thoroughly inspected this region, but will not be questioned by those at all familiar with the immense deposits of this useful metal on that line. This line would pass directly through the center of Hickman county, and would add millions to its wealth and to the wealth of the State.

Surface lead has been picked up in various parts of the county, but no extensive bed of this metal has been discovered.

There are several mineral springs, some of them in high repute as remedial agents. One of these watering places, Bon Aqua Springs, is in the north-eastern part of the county, seven miles south of Burns' Station, on the Nashville and Northwestern Railroad. It is a favorite resort for persons in a feeble and debilitated condition. Beaver Dam Springs, in the southern part of the county, are also well known for the health-giving properties of the waters. Primm's Springs, in the eastern part of the county, is also a place of considerable resort. These springs are located near the summit of the Highlands, and are in a high, dry and healthy region. The water is white sulphur and free-stone, and is thought to be equal in every particular to the far-famed white sulphur of Virginia.

*Manufactories.* At Pinewood, on Piney River, is a cotton mill run by steam, with wood for fuel, (the water being too inconstant,) that employs sixty operatives, fifteen males and forty-five females. The products are 4-4 sheetings 1,800 yards daily, besides cotton yarns and cotton rope in quantities to suit the demand. The number of spindles is 1,886, looms 40, cards 20, cost of mill \$60,000. Quite a flourishing village has sprung up around this factory, all owned by Mr. S. L. Graham, one of the most enterprising, energetic and public spirited citizens in the State. The order, neatness, industry and sobriety which prevail in this place make it a model manufacturing town. No loafers are seen lounging about the streets; no drunken men reeking with the fumes of whisky pollute its atmosphere, or make night hideous with their senseless yells. Neat cottages, with gardens attached, make the place one of smiling beauty. These cottages are rented to the operatives, or to the farm hands. The proprietor finds it more profitable to pay liberal wages and rent the cottages to the heads of families. There

is a store, grist-mill, blacksmith shop, church, school-house, etc., in the village all built by the proprietor. The effect of manufactories upon an agricultural community is well illustrated by this cotton-mill. The proprietor pays Nashville prices for cotton raised in the neighborhood, the farmers thereby saving freight, commissions, etc. Articles of diet, vegetables, fresh meats, bacon, etc., all find here a good home market. Twenty such establishments in Hickman would make its farmers independent of railroads, or other facilities of transportation.

Homespun goods are made in considerable quantities by the housewives. Fully nine-tenths of the citizens, before the war, wore domestic manufacture, but since the introduction of the culture of the peanut, many of the farmer's wives and daughters have abandoned the making of cloth, and assist in the culture and harvesting of this crop. As long as the price for peanuts kept up, it was found more profitable to make a hundred bushels of peanuts than a hundred yards of cloth, as it could be done in one-half the time. Since the fall in the price of this staple crop the women have resumed their labors of the wheel and the loom, though not to the same extent as before the war. The smaller industries, such as drying fruit, making honey and butter are much neglected, though fowls, eggs and feathers are sometimes sent to Nashville for sale.

*Immigrants and Emigrants.* Good citizens are greatly needed, especially such as could aid in developing the great iron interests of the county. The county is but sparsely settled, not sufficiently so to have good schools, good roads, or to create an enterprising public spirit. The accession to the population is very small, while those leaving and seeking fields of more activity are quite numerous. The principal cause of this emigration is the want of railroads. Energetic, industrious men are loathe to have their powers crippled for want of the means of communicating with the world. Her citizens justly complain, that though they have been taxed to give such facilities to other portions of the State, none have ever been given to them, and just as they were in a condition to avail themselves of the benefits of the law for internal improvements, a change was made requiring a two-thirds vote to get a county tax. Most of the farming population are discontented, and manifest a desire to change their homes, especially since their principal crop has fallen below remunerative prices.

*Public Improvements, Schools, etc.* There are no railroads nor turn-

pikes in the county. Dirt roads are poorly kept up. The rugged features of the county make transportation for heavy articles very difficult, and this, in addition to persistent effort, is the greatest drawback to farming.

There is a poor-house which supports, on an average, about six inmates. There are but few private schools. The public schools are well attended. Sixty-one were in operation during the autumn of 1873, with an average attendance of 1,500 pupils. There are two academies in Centerville, male and female, with good teachers and a respectable attendance. The county is poorly supplied with mills, for notwithstanding the number of water courses, they are in the main unfit, as has been said, for milling purposes. The county is out of debt, with a surplus in the treasury.

There is an Agricultural and Mechanical Association, which is in a flourishing condition, and well attended.

*State of Society.* Industrious and economical in their habits, the people of Hickman are rarely tempted beyond their ability to pay. They are contented to live on what they make and not to draw upon imaginary or prospective crops in order to shine in borrowed apparel. No county in the State has a more law abiding community. For two years there has been no inmate in jail, and the criminal docket is the smallest in the judicial circuit. The civil dockets are so small that lawyers are compelled to resort to other avocations to supplement the meagerness of their fees, and there are but two at the county seat. Education for their children is greatly desired by the citizens and the public sentiment in favor of free schools has been of rapid growth. Usually, the people are poor; they handle but little money, but honesty and honor are highly cherished by them. They have a deep and abiding patriotism; no county, in proportion to its population, has furnished more men to fight the enemies of the country than Hickman. When Jackson was wont to gather up his legions to fight the Indians, or drive the British from our soil, Hickman county always responded in a manner that pleased the heart of the old soldier. And when Mexico, torn by civil convulsions, thought to allay them by throwing the strength of her armies against the United States on the plea of defending her territory, Hickman county sent her young men and her old men to the battle field, and helped to win the treaty of Gandaloupe Hidalgo, by which the boundaries of the United States were extended eight degrees on the Pacific, including all the golden wealth of the

Californias. Brave in war, law abiding in peace, independent, fearless in defense of right, simple in their habits, the citizens of Hickman may be excused for the lack of the less loftier virtues of taste and public enterprise. Their houses are not elegant, but an air of calm, rural comfort surrounds them. Usually built near one of the many bright flowing streams that glide in silvery courses through the county, with a lofty ridge for a back-ground, the farm houses are more suggestive of convenience than of architectural elegance. The narrow winding bottoms produce year after year an abundant supply of food, and the sheep that browse upon the hills, furnish ample material for clothing. Arcadian ease and simplicity characterize the farming community. Unambitious of wealth, plenty smiles in the sunburnt face. The social instinct shows itself in the manly chase after the deer and fox, and in the primitive contests of shooting for beef. The fairer portion combine the useful with the agreeable by inviting each other to social "quiltings" or "apple cuttings." The economy of the household is rigid in the extreme, and many a family, whose table is spread with delicious food, and whose home is comfortable, spends less than fifty dollars a year for all supplies. A barrel of salt, a small keg of sugar, a bale or two of spun cotton, and a little coffee is the extent of their purchases. The wives and daughters do their own weaving, and, until quite recently, made up the clothes with the needle. Sewing machines are now used to a considerable extent in the county. All farmers try to raise a sufficiency of wheat for their own flour, but none for export. At a farmer's table, one would find a greater variety of dishes than at many of the hotels. Chickens, ducks, deer, fish, wild turkeys, are common dishes. The cooking and other housework is done, with few exceptions, by the family.

*A Railroad in Prospect.* Already a company is organized and chartered, and a road projected to connect the ore of Hickman with the coal of the Cumberland Table Land. The road is known as the Duck River Valley Narrow Gauge Railroad, and is designed, ultimately, to become a link in a through road from St. Louis to Atlanta, Georgia. It will connect with the St. Louis and Cairo road at Johnsonville. In a south-easterly direction it will extend toward Fayetteville by way of Columbia. Hickman has not a foot of railroad or turnpike, nor a toll-bridge within its limits. Efforts were made several years ago to lock and dam Duck River as high up as Columbia, but the undertaking failed, which has seriously damaged all individual enterprises in the way of improvement since that time.

*Statistics.* Population in 1870, 9,856, of which 1,471 were colored; in 1860, 9,312, of which 1,753 were slaves, and 27 free colored. From this, it would appear that the colored population is leaving the county, while the white is rapidly increasing. Number of voters 1,951; number of polls 1,320; scholastic population 3,418; total number of acres assessed for taxation is 359,551, valued at \$1,465,638; total valuation of taxable property \$1,794,307.

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## HOUSTON COUNTY.

COUNTY SEAT—ARLINGTON.

This county was created by an act of the Legislature, passed January 23, 1871. On the 17th day of March following, an election was held by fractions of the counties of Dickson, Humphreys, Stewart and Montgomery, to ascertain the wishes of the people as to the formation of a new county. All the fractions of the counties, with the exception of that of Montgomery, voted for a new county. The county as now established comprises about 340 square miles, and is named in honor of General Sam Houston, of Texas fame, but a native of Tennessee. Of the fractions, 75 square miles were taken from Humphreys county, 28 from Dickson, and the remainder from Stewart. About 30 miles were proposed to be taken from Montgomery, but the people, by their votes, refused to be incorporated in the new county.

*Organization, Population, &c.* After the survey and the report of the commissioners, the people met at Erin on the first Monday in April, of the same year, and completed the organization by the election of a Chairman of the County Court. Twenty Magistrates, representing the ten civil districts in the county, were qualified, as well as the County and Circuit Court Clerks. The county contains about 6,000 people, and has a voting population of 910. The assessed number of acres of land for 1873 was 179,872, while the entire surface of the county, by survey, measures 217,600 acres, showing a discrepancy of 37,728 acres. A portion of this is occupied by beds of streams and town lots. This difference is observable in nearly every county in the State, which usually amounts to one-sixth of the actual quantity. The land for taxation is valued at \$449,279, or \$2.50 per acre, which must be considered a low average, while in the adjoining county of Montgomery it is valued at over \$10 per acre; in Stewart nearly \$5; in Dickson \$4, and



in Humphreys about the same as in Dickson. The low valuation can only be accounted for from the fact that much of the land is high and broken, valuable only for timber, and much of this has been consumed by the furnaces which were formerly in operation in the county.

*Topography and Streams.* This county is traversed by a high, bold ridge running north and south, known as Tennessee Ridge. It is the water-shed between the Tennessee and Cumberland rivers, and rises 250 to 400 feet above the general level of the county. Erin, on the one side, is 425 feet above the sea level, and Stewart's Station, on the other, is 484 feet, while the low gap through which the railroad passes, is 753 feet. From the western edge of this prominent ridge numerous affluents of the Tennessee River take their rise. Beginning on the south the principal ones are in regular order, White Oak Creek, Cane Creek, and Hurricane Creek. The first has two considerable feeders coming in from the north, known as Long Branch and Lewis' Branch. East of the Tennessee Ridge, and tributary to the Cumberland, are Wells' Creek and Guices Creek. The former has numerous branches or forks, called the North West, Middle West, West and East Forks. Yellow Creek, rising in Dickson county, passes through the north-eastern corner of Houston, and empties into the Cumberland within the limits of Montgomery county. Yellow Creek and White Oak furnish good water privileges. Hurricane Creek, though not having the same volume of water as the two mentioned, is a good milling stream. There are situated on White Oak three good mills, and on Yellow Creek two. Milling facilities are not so good as they might be, and many of the farmers have to go a long distance to have their grinding done.

*Geology.* A great portion of the country is included in the river basin, whilst a still larger portion belongs to the silicious group of the lower carboniferous. A very interesting geological phenomenon occurs in this county, in the Wells' Creek basin. This is an area, nearly circular, containing six or seven square miles, and touching the Cumberland River. Wells' Creek runs through it, the rocks in the basin dip at a very great angle, and in some places are nearly vertical. There are evidences of a terrible subterranean convulsion at one time. To explain to the unscientific reader, we will premise that the crust of the earth consists of layers which were originally deposited or formed in regular order, one above the other. Sometimes there are lapses or failures of certain formations, but a lower formation is never seen superimposed on a higher one without showing signs of great disturbance. Now, to illustrate the peculiarity of the Wells' Creek basin, we will suppose

that layers of flour dough, of different colors, are placed one above another, and that from beneath, the mass is forced up in the center, so as to form a cone. Now, suppose this cone to be cut off horizontally, and on a level with the surface of the undisturbed portion, the various colors of dough would be seen in concentric rings, the lowest layer on a level with the highest. This is precisely the case with Wells' Creek basin. The center of the basin has been elevated by subterranean forces, and the elevation or cone swept away by abrasion. The surrounding rocks belong to the silicious group of the lower carboniferous formation; the other formations—the Black Shale of the Devonian, the lower Helderberg, and the limestone of the upper Silurian; the Nashville and Trenton limestones, and lastly, the Knoxville limestones of the lower Silurian, all appear in regular succession until the center of the basin is reached. Walking across the valley, all the formations are passed over twice, except the lowest—the Knoxville. The locality, geologically and agriculturally, is interesting. Here may be tested, within a few miles, the relative capacity of the several formations for the growth of any crop, without the complicating elements of different elevations, and varying seasons. Valuable agricultural knowledge might be acquired by trying the various crops in this valley, and noting the difference in yield on the several formations. The valley is exceedingly fertile, and grows corn and wheat well. Fruit yields but sparsely in the valley, and the general surface slopes from the center of the basin, or top of the dome or cone, in every direction, until it reaches the surrounding hills. The rocks dip away from the center of the basin at very great angles. The only spot in Middle Tennessee where formations so low in the series as those of Knoxville, East Tennessee, are seen, is in this Wells' Creek basin. Some of the best building stone in the State occurs within a few hundred yards of the county seat. It is a compact limestone, heavily bedded, with vertical fissures, and is quite soft when first taken from the quarry, but hardens by exposure to the air. When dressed it is a subdued white color, with sparkling crystalline particles which give it, in the sun, a brilliant appearance. It is in great demand, and the proprietor can readily obtain in Memphis seventy-five cents per cubic foot. A branch railroad runs from the main stem, so that the means of transportation are ample.

*Lime.* At this quarry is manufactured a large quantity of lime. Four hundred and fifty barrels are made and shipped every three weeks. The lime is burnt in a kiln with the above capacity. It sells, delivered on the cars, at \$1.25 per barrel. The barrels are made in a

factory on the spot. The price of staves ready dressed and delivered is \$10 per thousand, one thousand making sixty barrels. Hoop-poles sell for \$6 per thousand, that number serving for fifty barrels. Heading same price as staves, though a thousand pieces are sufficient for two hundred and fifty barrels. The cost of cooperage is fourteen cents per barrel. At Stewart's Station lime is also made and sold in large quantities. Indeed, lime furnishes one of the chief articles for export from this county.

*Lands, Soils, Timber, Crops and Labor.* The lands of the county are rolling, except in the river and creek basins. The soils, though very thin on the broad, flat ridges, are generally of sufficient fertility to repay the labors of the husbandman. Though subject to be injured by the washings of the rain, they have a surprising versatility in their productive capacity, and will grow with reasonable certainty most of the products of the climate. The general topography resembles that of Dickson and Humphreys counties. The lands have, for the most part, subsoils of tenacious clay, with a gravelly, cherty mass underlying. Wheat, corn, tobacco, potatoes, oats, etc., grow well; but the land is better adapted to the growing of grasses than any other crop. Herds-grass and clover grow admirably on the rolling lands, while timothy is becoming a favorite crop with those who own bottom lands. These bottom lands are of marvellous fertility. The largest crops of corn that we have ever witnessed were grown on the bottom lands in Houston county, and we are assured that the yield of hay is even better than the yield of corn. On bottom farms the average yield of corn is, one year with another, forty bushels, wheat twelve, peanuts thirty-five. The uplands are better for tobacco than the lowlands. The yield per acre is not so great, but its money value is greater. Land may be bought at almost any price up to fifty dollars per acre. Much land, however, of moderate fertility, convenient to railroad and river, may be had at ten to fifteen dollars per acre, cleared, but otherwise unimproved, or with indifferent buildings. Six to eight miles from public conveyance, it is much cheaper, and the coaling lands are barely saleable at two dollars per acre, though susceptible of improvement. Oaks and hickories on the uplands; poplar, sugar tree, ash, white oak, in the bottoms, are the prevailing timber. The want of population is the greatest drawback to Houston county, and colonies of industrious farmers of good habits would be heartily welcomed by the citizens. Musele, well directed by intelligence, would soon make the new-born county grow in strength,

wealth, power and greatness. Labor is scarce. Farmers rely upon their own strong arms and live within their means, consequently there are but few grumblers. Very little land is rented, and but little good land is for sale. The best farms are held by persons entirely satisfied with their condition, and do not want to sell. A great deal of ridge land is for sale, which will doubtless come into market as its suitability for growing fruit becomes known and appreciated.

*Fruits* of almost all kinds grow well. Peaches are becoming a favorite crop. Seldom is this fruit destroyed by late frosts. The peculiar meteorological conditions of the atmosphere, induced probably by the prevalence of numerous streams and the rolling surface of the county, are effectual preventives against the injurious effects of late frosts. One of the finest peach orchards in the State is two miles from Arlington, the county seat. It is situated on the Tennessee Ridge. The soil is clayey and gravelly. The original growth was hickory, white oak and red oak. 5,000 trees were set out in the fall of 1867, and the first crop was gathered in 1872. Two-thirds of the fruit was killed on the night of the — April, 1873. The frost line was distinctly traceable. Sometimes the peaches on one side of a tree were killed and not on the other, while not a peach escaped in the valley. The trees on the crest of the ridge were loaded. The first peaches from this orchard reached the Chicago market July 6, 1872, and on the 8th of the same month in the year following. It is the intention of the proprietor to increase the orchard by setting out 10,000 additional trees. He is experimenting with grapes, which thus far have done well. Dwarf pears also yield abundantly. In the same vicinity there is a peach orchard that has not failed to bear fruit for thirty years. The early peaches sell very high. Throughout the season of 1873, peaches netted 67 cents per basket after paying all expenses. Among other articles of export are ginseng, dried peaches and apples, chickens, turkeys, eggs, butter, etc. 900 pounds of ginseng were gathered for the year 1873. All small fruits flourish. The cherry grows and matures well; so also do the strawberry, raspberry and currant. The wild strawberry grows abundantly in the old coalings, where the bushes are not too thick, and it has a richness and delicacy of flavor that partly atones for its small size. The woodland in parts of the county is spotted with this luscious fruit in May. Huckleberries are abundant during the summer. Wild grapes hang in countless clusters upon the dwarfish shrubs that grow in the old coaling grounds. The Muscadine flourishes with vigor and fecundity upon

the lands lying on the Tennessee River. Peanuts thrive in the same locality, and are relied upon for money with more certainty than cotton, tobacco, or wheat. The blackberry grows co-extensively with the county. Many of them are made up into wine, and to some extent the wine is becoming an article of export. We here suggest that the profitableness of this crop has never been properly tested or appreciated by the people of Middle Tennessee. A fruit that grows spontaneously, yields bountifully, is easily gathered, and that can be made up with little labor into a marketable product which is in constant and growing demand—one that grows upon a shrub that is a powerful fertilizer, and will reclaim and flourish upon lands that are fit for no other crop—such a fruit, if imported from Europe, would be held in high repute, and be sought after by the millions.

*Minerals.* On the North-west Fork of Mill's Creek is the seat of the old Ashland Furnace, which manufactured iron before the war with great success. Eclipse Furnace was located on Hurricane Creek. Union Furnace was on Thomas' Branch of Well's Creek. These furnaces procured the ores used immediately around their sites. There are good prospects for ore in many portions of the county. Indeed, there is scarcely a hill that does not show good indications, and doubtless a thorough investigation would discover many rich deposits of brown hematite. Near the Tennessee River is a bank from which ore has been dug and shipped, and on White Oak Creek are some good banks. With the facilities for shipping heavy products, this interest deserves more attention than it is receiving. Fire-clay is found in abundance near the old Byron Forge, two and a half miles from the railroad, in the north-eastern part of the county.

*Immigrants.* Several families from Pennsylvania have come to the county since the war, and still remain in perfect accord and sympathy with the people, and are highly respected.

*Schools.* Among the first acts of the County Court of Houston after its organization, was to levy a liberal tax for the support of common schools, and there is scarcely a county in the State where a more liberal feeling prevails on the subject. There is a common school in nearly every district, and excellent private schools at Erin and Arlington.

*Towns.* Arlington, the county seat, has but one business house. Erin, one mile east on the railroad, and twenty-seven miles west of Clarksville, is quite a thrifty village that has been built up since 1870.

It has a population of 500, four stores, one grocery, one drug store, one shoemaker shop, one saddler's shop, two hotels, several boarding houses, one church and two schools. It has also a machine shop, and the foundation has been laid for building a round house. This place competed with Arlington for the county seat. The latter place was selected as a compromise between Cumberland City on the Cumberland River, Danville on the Tennessee, and Erin. Cumberland City and Danville are shipping points, conveniently situated on railroad and river, and have considerable trade. The first has a population of 300; Danville about half that number. They have four or five business houses each. Stewart's Station, nine miles west of Erin, has two or three business houses.

*Transportation.* But few counties have better facilities for transportation. The Cumberland Rim bounds the north-eastern border, the Tennessee the western, while the Louisville, Nashville and Great Southern Railroad passes from the one river to the other through the center of the county. The county is free of debt, and the citizens are apparently contented and happy.

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## HUMPHREYS COUNTY.

COUNTY SEAT—WAVERLY.

This county rests mainly upon the western edge of the Highland Rim. A portion is also in the Western Valley of the Tennessee. The law creating the county of Humphreys was passed October, 1809. It was organized in the year 1810, out of a portion of what was then Stewart county, and was named in honor of Perry W. Humphreys, a judge of the Superior Court. At the time organized, Humphreys county comprised all the territory east and west of Tennessee River, now embraced in the counties of Humphreys and Benton. In 1816, the county seat was located at Reynoldsburg, so named in honor of J. B. Reynolds, then a member of Congress from Tennessee. Here the county seat remained until the county was divided, which occurred in the year 1836, Tennessee River being the dividing line. After the division, the county seat was removed to Waverly, where it has since continued. The population of the county in 1810, at the time organized, numbered 1,511 souls; in 1820, 4,067; in 1830, 6,187; in 1840,

5,095. This falling off was occasioned by the division of the county in 1836. In 1850, the population had increased to 6,422; in 1860, 9,096; and in 1870, it numbered 9,326. The area is 375 square miles.

*Towns.* The principal towns of Humphreys county are McEwen, Johnsonville, Waverly, Hurricane Mills and Bakerville. McEwen, Waverly and Johnsonville are situated on the St. Louis division of the Nashville, Chattanooga and St. Louis Railway. Johnsonville is on the Tennessee River, at the crossing of the railroad. McEwen and Waverly are the principal shipping points for the produce raised on Tumbling, Hurricane, Blue, Trace, Big and Little Richland creeks and the upper part of White Oak from which points the farmers draw their annual supplies. Johnsonville has also a considerable local trade, and is a place of importance as a shipping point for the Tennessee River trade. An elevator is being erected by the railroad company at this point for the more rapid transfer of freight. The population of Waverly at present is about 275. It has one church, Masonic and Odd Fellows' lodges, court-house and jail, nine stores and two hotels. The Waverly Journal, the only newspaper published between Nashville and the Tennessee River, west, is issued weekly, and is being well sustained by the citizens. Cuba and Fowler's Landing, on Tennessee River, are considerable shipping points.

*Topography, Soils and Crops.* The surface of the county is moderately uneven and the soil generous. Tennessee River flows in a northerly direction on the western border, Duck and Buffalo, in the same direction, through the western portion of the county. The bottom lands on these streams are rich, alluvial soils. Most all the cereals are grown with profit, corn in particular, the average yield being about fifty bushels per acre. The Buffalo bottom is also well adapted to the growth of cotton. Tumbling, Hurricane, Blue, Trace, Big and Little Richland and White Oak creeks flow in a westerly direction through the county, emptying into the Tennessee River and its tributaries. The bottom lands on these creeks are broad, and of a rich, loamy soil, and well adapted to the growth of corn, wheat, rye, barley, oats and peanuts. Peanuts are the principal product of the county, the amount produced in 1872 being 250,000 bushels, and the average price \$1 per bushel. Cotton is also grown to some extent. The county is also well supplied with water-power. Big Bottom, one of the most noted bottoms in Middle Tennessee, lies on lower Duck River. It extends for fifteen or twenty miles above its mouth. It contains 17,508 acres, and is known as the third civil district. Only a very few years ago it was

the most uninviting portion of the county, being covered with dense forests, cane-brake, and at places an almost impenetrable underbrush. It is now cleared and in a high state of cultivation, yielding from 50 to 75 bushels of corn per acre, and grasses and hay in almost limitless profusion. The farmers of Big Bottom shipped to market of the corn crop of 1873 30,000 barrels, or 150,000 bushels, to say nothing of the immense quantities of hay and hogs. On the main road leading from Paint Rock, on Duck River, to Trotter's and Hubb's Ferries, on the Tennessee River, for fifteen miles one is in view of tasteful cottages and the most beautiful residences, besides a number of elegant churches, masonic halls and school-houses, all of which have been erected within a very few years. A few of the farms are worth \$50, \$60 and \$75 per acre. The Buffalo Valley is a desirable section of the county. It is from three-fourths to one and a half miles in width, with a clayey subsoil, very fertile, producing in immense quantities corn, wheat, rye, tobacco, cotton, peanuts, clover and the grasses. These lands are very level, and beautiful beyond description, and their beauty is heightened by the Buffalo River, whose waters are as limpid as a diamond, abounding with fish of the best quality. Its banks are fringed with maple, walnut, elm, hackberry, boxelder, etc., making the most lovely scenery. The farmers in that valley have also displayed a good deal of architectural taste in erecting their cottages, residences, barns, graneries, etc. The price of improved lands on Tennessee, Duck and Buffalo rivers is from \$40 to \$50 per acre; the creek lands from \$25 to \$50 per acre; unimproved lands, from \$1 to \$10 per acre. The farms as a general thing are not in as good condition as before the war, owing to the uncertainty of labor and impoverished condition of the owners. The average yield of crops grown is, wheat, eight bushels; corn, thirty bushels; oats, thirty bushels; peanuts, fifty bushels. Cotton will average 500 pounds over the county. Tobacco is not much grown, but yields, if properly cultivated, 1,000 pounds per acre. Fully twenty per cent. of the open lands of the county are in a waste condition, on account of bad management, the soil being sterilized for want of rotation in crops. Thirty per cent. of the land is not under cultivation, for the want of laborers. The average size of farms, cleared land, is about seventy-five acres. The growing of stock is thought to be the most profitable mode of farming. Some improved breeds are being introduced. All kinds of grasses grow finely. Clover, orchard and timothy are the principal grazing and hay crops. Blue-grass will also grow, but is not looked upon as favorably as orchard-grass. Clover is being



generally introduced as a renovator of the soil with marked results. In breaking up the lands, the cast turning plow is most frequently used, though a large number of cast steel plows are being introduced. In cultivating, the bull-tongue, double shovel, harrow and expanding cultivator are brought into requisition. Reapers and mowers are being introduced to some extent. Horses and mules are the principal stock used in cultivating the crops.

*Labor and Rents.* Cropping on the shares is generally adopted in preference to hiring. When paid in money, farm laborers get from \$8 to \$10 per month. When the renter furnishes stock, cultivating under the share system, he gets two-thirds of the crop raised; and when the owner of the land furnishes stock and feeds the same, seed and implements, he gets one-half. House servants hire at from \$4 to \$6 per month; skilled labor, women, from \$4 to \$5 per week; men, \$10 to \$15. Improved bottom lands rent from \$3 to \$5 per acre a year. Leases are given from four to six years. They are governed by the amount of improvements to be placed on the lands and the labor required to clear them up. Large quantities of land are for lease in the county.

*Markets.* All the produce raised east of Duck River is marketed in Nashville, and is transported to that place either by railroad or by wagon. All the produce raised west of Duck River is shipped by the Tennessee River to Louisville, Evansville and Cincinnati.

*Stock.* There are but few improved kinds of stock in the county, though some enterprising farmers are introducing the better breeds of hogs and cattle with good results. Dogs are a great curse to sheep raisers, fully fifty per cent. of the annual increase being destroyed by them. Under existing laws, the breeding of this animal is likely to be discontinued, much to the injury of the county. The range for sheep is excellent, and they are usually healthy, and would under proper protection be profitable.

*Rocks and Minerals.* The prevailing rock of the county is freestone, being susceptible of high polish, easily quarried and worked, and generally used for building chimneys. The county abounds with pipe, pot and honey-comb iron ores, the various forms of limonite.

*Manufactories.* There is a hub and spoke factory on Big Richland Creek, driven by water-power. This factory turns out a superior class of work. This superiority is due to the excellence of the timber. The Hurricane Woolen and Flour Mills, situated on Hurricane Creek, ten miles south of Waverley, is a flourishing manufacturing village. Here

is one of the best water-powers in the State. The machinery in the woolen factory consists of eight narrow and one broad loom, one set of manufacturing cards, two sets of custom cards, spindle jack, and all the necessary machinery for making jeans, blankets, flannels, stocking yarn and linsey. The goods manufactured at this place have a wide reputation, and stand at the top of the market. The flour mill consists of three run of burrs, one for corn and two for wheat. There is also a saw-mill, driven by water-power, a blacksmith and carpenter's shop, and a store doing a large and profitable business. A large church has been built, also a Masonic lodge. About thirty operatives are employed at this place. The power to drive the factory and mills is given from three American turbine water wheels. There is also a large number of tanneries in the county, turning out a superior article of leather. The one located at Johnsonville is driven by steam power. It employs about twenty operatives, and turns out \$30,000 worth of leather annually. The county is well supplied with steam saw-mills, water, flour and grist mills. The women of the county are said to be as industrious as any in the world, and of course domestic manufactures are carried on extensively. Fully fifty per cent. of the people are clothed in homespun.

The farm pays quite as well as manufacturing. Both, properly managed, will earn a good per cent. on the capital invested. If farmers would read more, and learn the use of fertilizers, they would be much better paid for their outlay of labor.

Very little attention is paid to the smaller industries, such as drying of fruit, making of butter, and raising of honey. The people are paying more attention to orchards now, and in a few years the county will be a large exporter of fruit.

*Fruit.* The hill lands are adapted to the vines, in fact, all kinds of fruits, apples, peaches, pears, plums, and cherries grow well and yield abundantly. There are many varieties of grapes native to the soil, and flourish with astonishing vigor and fecundity. Within 300 yards of Hurricane Mills there is a vine of the summer grape that measures eleven inches in diameter. There are two kinds of native winter grape, one summer, and one fox grape, and an excellent grape nearly as large as the Catawba, and looking like a cross between that grape and the Isabella which, with a little care and culture, would make a large and valuable wine grape. There are also two kinds of muscadines, rich in juice, and highly flavored. Even the most unpromising cherty

hills are sufficiently impregnated with iron to give body and high coloring to wines, and the time is not far distant when the European immigrant, skilled in the culture of the vines, will find his most profitable employment in the hills of Humphreys. There is one nursery in the county.

*Timber.* This county abounds in the greatest variety of timber. All kinds of oak—white, red, black and chestnut—are in almost inexhaustible quantities, also large quantities of hickory, ash, poplar, walnut, cherry, chestnut, black locust, hackberry, beech and sycamore. Large quantities of staves are shipped down the Tennessee River to the cities of the South.

The people are well disposed toward immigrants, and cordially welcome any honest, industrious ones who come to live among them. Between 1865 and 1873 sixty-two families moved to the county, and about 200 moved from it. An Americanized German colony has recently settled in the county. Those who move away usually return after a year or two, expressing themselves glad to get back to such a healthy county. Some of the farmers were very restless in the spring of 1873, under the depressing prices for their staple crop, the peanut. There are many inducements for an industrious man in this county. Much of the land is cheap, and the soil will produce a great variety of crops. Springs are numerous, and stock water is abundant, besides the county is accessible, and the means of transportation are ample. Game is plentiful. Sectional animosities have died out. The habits of the people are simple and frugal, and a high degree of economy is practiced. All classes labor. Property is pretty evenly distributed, the difference being mainly in the difference of the farms.

There is one Agricultural and Mechanical Association located at Waverly. The last fair held was well attended, and quite a success. There is no county debt, taxes being levied sufficient to meet current expenses. Schools are scarce in the county. One that is located in Big Bottom of Tennessee River, is now, and has been in a flourishing condition for several years. The balance of the schools are of a low grade. The citizens hope to be able this year to maintain the public schools five months. The Assessor's books show that there are in this county 322,133 acres of land, valued at \$1,225,508.23, and 121 town lots, valued at 37,795.50, making the total assessed value of realty \$1,263,307.73. The assessed value of personal property of every description is put down at \$186,499.53, making the total assessed value of all kinds of property in the county, for the year 1873, \$1,-

394,935.26. On this property there was assessed last year for State purposes \$5,597.73, and for county purposes \$5,597.73, and for maintainance of public schools \$6,964.80, for jail purposes \$1,394.93, making the total tax on assessed property \$19,519.21. The county is now divided into fifteen civil districts—the third and eighth paying the most taxes.

There are no mineral springs in the county, but the purest freestone water, which gushes from every hill, and some alum wells. The county is certainly one of the best watered in the State.

There is, as yet, no poor house. There are only about twelve paupers on the county. No macadamized roads have been built, and the dirt roads are badly kept up. Nature has done too much for the county in the way of roads.

#### STATISTICS OF HUMPHREYS COUNTY.

##### PRICE OF LANDS.

Best improved bottoms.....	\$40.00 to 75.00 per acre.
Best improved uplands.....	10.00 to 25.00 "
Medium improved bottoms.....	15.00 to 20.00 "
Medium improved uplands.....	5.00 to 10.00 "
Medium unimproved inferior bottoms.....	8.00 to 10.00 "
Improved inferior uplands.....	5.00 to 6.00 "
Unimproved uplands, inferior.....	1.00 to 2.00 "

The swampy lands in the county do not exceed 500 acres. Rents vary from \$1.50 for inferior uplands to \$5 for good bottom land, when paid in money. The proportion of crop given is one-third to the owner, when the renter furnishes everything, and when the owners find teams and tools, and feed the latter, one-half is given.

##### CROPS FOR 1872.

	No. Acres.	Average yield per Acre.		No. Acres.	Average yield per Acre.
Peanuts.....	8,000	30 bushels.	Plums.....	108	40 bushels.
Corn.....	9,956	43 "	Strawberries....	.....	... "
Wheat.....	876	15 "	Raspberries....	.....	... "
Oats.....	5,168	12 "	Meadow.....	239	... Tons.
Rye.....	120	10 "	Pasture.....	1,300	... "
Barley.....	.....	not cultivated.	Clover.....	1,600	... "
Buckwheat....	.....	not cultivated.	Blue-grass.....	none	... "
Irish Potatoes.	144	50 bushels.	Timothy.....	500	... "
Sweet Potatoes	180	70 "	Orchard-grass	600	... "
Apples.....	279	100 "	Herds-grass...	.....	... "
Peaches.....	216	100 "	Hops.....	.....	... "
Pears.....	84	175 "	Sorghum.....	180	40 gallons.
Cherries.....	127	25 "	Maple Sugar...	90	25 pounds.

## FARM BUILDINGS.

<i>Dwellings</i> —Brick.....	90
Frame.....	460
Log.....	1380
<hr/>	
Whole number.....	1830
<i>Barns</i> —Log.....	1050
Frame.....	45
<hr/>	
Whole number.....	1095
<i>Stables</i> —Log.....	1955
Frame.....	180
<hr/>	
Whole number.....	2135
<i>Gin Houses</i> .....	1
<i>Meat Houses</i> .....	1620
<i>Ice Houses</i> .....	15
<i>Corn Cribs</i> —separate.....	1520

Fences, zigzag, rail, average length  $4\frac{1}{2}$  feet; price of splitting rails per 100, 70 cents; hauling and putting up, per 100, \$2; average cost of worm fence, per rod, 80 cents; timber used for rails, chestnut, walnut, white oak and red oak; average duration, chestnut rails, 30 years, walnut 20 years, white oak 18 years, red oak 10 years.

## MECHANICAL INDUSTRIES.

	<i>Number.</i>	<i>Wages.</i>
Carpenter shops.....	75	\$3.00 per day.
Wagon shops.....	5	\$2.50 “
Plows made.....	900	\$7.50 each.
Saw-mills, water power.....	2	....
“    steam.....	6	....
Blacksmith shops.....	45	....
Hands employed.....	90	\$3.00 per day.
Average price shoeing horses.....	...	\$1.50 each.
Grist-mills, corn.....	4	....
“    wheat.....	4	....
Shoe shops.....	15	....
Spinning-wheels.....	400	....
		<i>Value and Product.</i>
Woolen Factories.....	1	\$10,000
Wool-carding machines.....	1	500
Tanneries.....	4	10,000
Harness and Saddle shops.....	1	3,000
Hand-looms.....	150	15,000

## SMALLER ECONOMIES.

	<i>Bushels.</i>	<i>Value.</i>
Dried Apples.....	1810	\$1,365
“ Peaches .....	1200	2,115
Chestnuts .....	375	1,200
		<i>Pounds.</i>
Beeswax .....		3,000
Feathers .....		4,465

## RELIGIOUS AND EDUCATIONAL.

Church Buildings.	Membership.	Sunday-schools.	Weekly Attendance.
55	2,113	30	525

The Secretary is indebted to D. H. Goodrich and H. C. Lockhart, Esq., for many of the facts embraced in the description of this county.

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 JACKSON COUNTY.

## COUNTY SEAT—GAINSBORO.

It would probably be the most unnatural thing in the world for Tennessee not to have a Jackson county, for Andrew Jackson, almost from the first settling of the State down to a period within the memory of persons not yet old, exercised an influence over the commonwealth beyond that of any other man living or dead. Accordingly, we find that as early as 1801, the first year of the nineteenth century, the General Assembly sitting in Knoxville, established the county of Jackson, and named it in honor of the man who resigned his position in the Senate of the United States in 1798, after holding it only one year, to fill the position of Judge of the Supreme Court. Nothing, perhaps, indicates more clearly the manner in which the memory of the two great rivals in the political world forty years ago is cherished by the people of Tennessee, than the fact that there are lying side by side the counties of Jackson and Clay. Though differing in life, the names of these two patriots are perpetuated in death—equal in the honor and esteem of their countrymen. Jackson was originally a large county, embracing the territory of the present county of White, and the largest proportion of Clay. It now has an area of nearly 300 square miles. The number of acres of land assessed for taxation is 175,162, valued at \$768,399, or about \$4.40 per acre. It is bounded on the north by

Clay, on the east by Overton, on the south by Putnam, and on the west by Smith and Macon.

*Topography, Streams and Geology.* The topography of this county is in the main so much like Clay that the description of the surface features of the one will almost answer for that of the other. To obtain a correct idea of its physical configuration, let the reader imagine an elevated champaign country, and meandering through this, from north-east to south-west, a wide, fertile valley. This valley would represent the river basin of the Cumberland. From this river valley others run out more or less at right angles, with high, flat-topped ridges between. These form the valley lands lying on the tributaries of the Cumberland. Near the river the country is much dissected after this fashion, but getting back a number of miles, the flat-topped ridges spread out; still further back we find ourselves in a country mainly high and comparatively level. This high country on both sides of the Cumberland River belongs to the Highland Rim. Jackson county may be said to belong to this Rim, with deep, wide gashes cut down to the formation of the Central Basin. On the ridges and high lands we have flinty rocks with more or less limestone (the siliceous beds of the Lower Carboniferous); in the valleys blue fossiliferous limestones abound (Nashville formation), which yield an excellent soil, far better than that of the Highlands. High in the hills, near the river, and at the heads of the tributary valleys, and holding a position between the blue limestones and the upper flinty limestones, is a bed of Black Slate (Devonian). This is of no importance, however, in an agricultural point of view. The country is generally well watered. Cumberland river, as has been said, flows through the county, emerging from Clay, about eleven miles above Gainsboro, and passing into Smith about twenty miles below, perhaps thirty by water. Roaring River, heading in Overton county, away up among the spurs of the Cumberland Table Land, empties into the Cumberland a half mile above Gainsboro Landing. This beautiful and romantic stream, in whose bosom is found many fine specimens of the finny tribe, is fed by many fine creeks and branches, among which may be mentioned Morrison's Creek, Blackburn's Fork, Spring Creek, and last, but not least, Hopper's Creek. Among the other water courses of Jackson county may be mentioned Jennings' Creek, running into Cumberland River from the north, two miles below Gainsboro. This creek runs, from its source in Clay county, about eighteen miles through an excellent farming country. Other creeks are Indian, Cole, Wartrace and Salt

Lick, emptying into the Cumberland from the same side, after flowing through a rich but not so extensive a country as that of Jennings' Creek. Crossing back on to the south side of the river we have Flynn's Creek, along which, to its very source, is fine farming land, some in a good state of cultivation, and Martin's Creek, about which the same can be said. At the mouth of the creek, in the lower edge of the county, is situated the village of Granville. Good springs of cold water abound throughout the county, though the water is generally strongly impregnated with lime.

*Water and Steam Mills.* Considering the vast natural resources, consisting of water-power, timber, and almost everything else needful, this county is sadly behind in the way of manufactures. There are two good flouring mills at Granville, a wool-carding machine on the headwaters of Blackburn's Fork, in the southern portion of the county, and another down on the same creek, near its mouth. There is also a good mill on Roaring River, near the Overton county line. All of these run by water-power. On Flynn's Creek there is a steam mill, another two miles west of Gainsboro, and six miles east of that place, is a third mill driven by steam. There is a very good water-power mill on Jennings' Creek. Excepting the foregoing there are no mills in the county, or other factories, except some little grist-mills on some smaller water courses.

*Soils, Timber and Crops.* The river valley land is of deep soil and of great fertility; the knobs and narrow valleys between them are equally as fertile, and are precisely like the knobby lands of Cannon, Maury and Bedford, and it is a curious fact that where the ridges run continuously to the Highlands, they are not so fertile as when they are serrated. It is something remarkable that these dissected ridges, forming knobs, some of them hundreds of feet above the valleys, are almost to their very summits of inexhaustible richness of soil. The whole county is heavily timbered. Poplar, hickory, beech, oak, elm, buckeye, lynn, ash and walnut predominate. Most of the poplar and walnut near the river has been cut and floated down in rafts to Nashville. Six or eight miles back from the river there is yet a large supply. The county in general is highly productive of all the cereals, and is, no doubt, admirably adapted to a variety of grasses, such as clover, blue-grass, herds-grass, orchard-grass and timothy. Much of the knob land, too steep to cultivate with the plow, might be made exceedingly profitable by putting it down in grass, and stocking it with



mules, sheep and cattle. But in this respect the people are a long way behind the times. The most of their land lies as a dead capital. It yields them no profit. The leading crops are corn, wheat, oats, rye, clover and the grasses. Tobacco has become a staple crop, and the amount grown each year is gradually increasing. Hemp was formerly grown for market, but has been abandoned. The finer qualities of tobacco, though not so heavy as that grown in the bottoms, are produced in that portion of the county resting upon the Highlands. Usually the rolling lands are preferred for the growth of this crop. Irish and sweet potatoes grow well. A recent writer, in speaking of the manner of farming in this county, bewails the slovenly method practiced, and the want of forethought on the part of the farmers in the direction of their farms. He says:

If they must raise tobacco—and the soil is truly well adapted to its growth—why not curtail their corn land to one-half its present amount, subsoil, pulverize and cultivate scientifically. That half, with less labor, would yield them more corn than the whole they now scratch over. Meanwhile they can be sowing down the other half of their farms for pastures and meadows, raising hay and some stock, needing not half the corn which they now consume. Then if the price of tobacco should go down—which, with an experience of more than sixty years, I have never known it fail to do—the farmer will have his grass and his stock to fall back upon. Those persons even in the sections of country adapted to the culture of tobacco, who own farms suitable for grass and stock-raising, should avail themselves of that advantage at once. The price of cotton and tobacco, as a general thing, rules the price of other products. Hence, if these two staples command high prices, so will stock and other things in about the same ratio, for two reasons. First, money becomes more plentiful. Secondly, the higher the price of cotton and tobacco, the greater the number of farmers who will engage in their production, to the consequent neglect of other branches of husbandry, and thus the stock-raiser would be certain to realize remunerative prices. The majority of farmers own but small tracts of land, and therefore cannot raise stock to much advantage, but they can raise some tobacco, corn and pork. And thus the industry of the country might be divided to the mutual benefit of all. While they keep up the old monotonous routine of corn and some hogs, and plowing from one to four inches deep, raising tolerably good crops of corn and fine crops of—weeds, impoverishing their farms, and reaping no benefit from their rich hills and knobs, which ought to be carpeted with blue-grass, clover and timothy, and dotted over with fat mules, sheep and cattle of the best bloods of the country, we cannot indulge high hopes of advancement.

Fruits grow well upon the hill lands, especially peaches.

*Price of Lands and Labor.* The richest bottom farms on the Cumberland are worth from twenty to fifty dollars per acre, according to improvements. On the uplands improved lands may be bought for

five and ten dollars per acre. Unimproved farms vary in price from one to thirty dollars. Farm improvements are not so well kept up as formerly. Labor is scarce and dear. The superior temptations of city life have enticed many of the farm laborers from the county. Men are worth from \$10 to \$20 per month, according to season. As in Montgomery, Robertson and other tobacco-growing counties, labor is very high during the suckering, worming and housing of that crop.

*Towns.* Gainsboro, the county seat, was established in 1817, and incorporated in 1820. It was named in honor of Edwin Pendleton Gains. It is situated on Doe Creek, one mile from the Cumberland River. It has a population of 600, and does a large amount of shipping. During the navigable seasons it is a place of enterprising activity. It has ten or twelve business houses, besides artisan shops, law offices, &c. The Jackson county News is printed at this place. Flynn's Lick, on the Cumberland, has a population of about 100, and is the shipping point for a very fertile section of country. It has two general stores, several liquor establishments and a blacksmith shop. Highland and Granville are other shipping points. They have two stores each. Gum Spring, twelve miles from Gainsboro, on Jennings' Creek, on the road leading from the latter place to LaFayette, the county seat of Macon, has three general stores.

*Transportation.* Jackson county is noted for the fertility of the soil, but the want of facility for getting the surplus produce to market is a great drawback upon its prosperity. Cumberland River is navigable for steamboats, on an average, about five months in the year, but excepting this, there is no other public outlet, and the citizens have to rely, for the balance of the year, on wagoning over very rough roads. The county is noted for the bad condition of its roads. In fact, since the war, there is scarcely anything that can properly be dignified with the name of road.

*Schools.* The county is greatly in need of good schools. The educational interests have been much neglected latterly, and though a few schools may be found scattered here and there, like isolated feeble points of light, the education of the children, especially the poorer classes, is sadly overlooked.

*Characteristics.* There are no better people in the State than those to be found in Jackson county. Frugal and provident, they are not ashamed to work. Independent in thought, honest in action, plain in manners, temperate in habits, social by instinct, and patriotic from

principle, they have a durable basis upon which to erect the highest order of manhood, and were proper educational facilities added to the moral surroundings of the county, her sons would shine with a more brilliant lustre in the future history of the State.

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## LAWRENCE COUNTY.

### COUNTY SEAT—LAWRENCEBURG.

Lawrence county was established in the year 1817. There is no mention made in the act establishing the county as to why it was called Lawrence, but the evidences are that it was so named in honor of Commodore Lawrence, of the American navy, who uttered the historic sentence, "Don't give up the ship." The act is not specific in regard to the territory which is to compose the county, reading "to be constituted out of the territory south of the county of Maury and west of the county of Giles." Lawrence is one of the counties on the Highland Rim, and may be considered a type of that division. One, in entering and traveling through the county, is not impressed with its fertility, for the reason that the main east and west, north and south dirt roads follow the barren ridges in order to have the benefit of the sand and gravel, which make good roads, and to avoid the low marshes near the valleys and creeks. Coming into Lawrence from Maury, we have to rise the "Big Hill," south of Mt. Pleasant, and then follow the ridge either to Lawrenceburg on the dirt road, or to Waynesboro on the Central pike. So in coming into Lawrence from Giles, twelve miles east of Pulaski and seven miles west of Lawrenceburg the "Powdermill Hill" is to be ascended, and then the road to Lawrenceburg follows the ridge as before stated. The lands lying on Little and Big Buffalo rivers, west of the Lawrenceburg dirt road and the Central turnpike from Columbia, are exceedingly fertile, corresponding in some measure to the lands in the Duck River Valley of Maury and Hickman counties. The lands lying in the valley of Shoal Creek and its tributaries, Factory's Fork, Chisholm and Knob creeks, are also very fertile. What are known as uplands are not good, but improvable, having for a subsoil clay and chert.

*Location and Streams.* In the grand natural divisions into which

Tennessee has been divided, the county of Lawrence has, very properly, been assigned to the Highland Rim, and it preserves its continuity of upland from the north-east to its south-west boundaries. Here, it has been estimated, the Highland Rim, lying west and south of the Basin, rises to its loftiest height, and we are certain that from its sides rush and from its caverns gush streams that flow in every direction down into the Basin on the north and east, or rush down the slopes to the Valley of the Tennessee. The streams of Lawrence, renowned for their pure, clear waters, flowing over pebbles, shale or limestone bottoms, are but the limpid spurtings of the great watery heart that lies embosomed in her hills. While the formation of the county seems to have originated in a desire by other counties to lop off the barren from the more fertile, yet its topography very early suggested its great water-powers and privileges. As early as 1829, we find Judge John Catron, who assisted in giving lustre to the judicial ermine of the State, entering large quantities of land in the north-western portion of the county (now within the territory of Lewis county) for the establishment of what was then, as well as now, known as the Buffalo Iron Works. Just as early the Legislature encouraged the building of mills by authorizing persons to have land set apart for their erection. These statutes seemed to have had a special application, in some instances applying exclusively to counties belonging to the Highland Rim. Shoal Creek needs only to be described that an approximate idea may be had of the water-power of the county. Three of the tributaries which make up Shoal Creek proper rise within the northern portion of a circle that might be described about Lawrenceburg, with a radius of six miles, and bring their sparkling forces within a mile of the town. One branch (Buler's Fork) rises about four miles east of town, and at an elevation of at least 1,000 feet above the level of the sea, as determined by the line surveyed from Nashville across the Highlands to Hamburg, on the Tennessee River. The hills are quite small around its source, but it soon breaks through the Lithostrotion Bed, upon which Lawrenceburg is situated, winding about from bluff to bluff in a most serpentine way until its course has measured fully forty miles before it crosses into Alabama. On one side or the other there are always large bluffs rising in solid limestone sometimes as high as 300 feet, in whose cliffs the eagles still build their nests and propagate their young. The valley is usually narrow, in no instance spreading out beyond half a mile. The fall from its head to the point where it leaves the State cannot be less than 300 feet, and its bottom is generally

of limestone, worn smooth by the rush of its waters, making it exceedingly difficult at places for the angler to maintain his equilibrium when he wades after the fine trout that lave their silvery fins in the pure, bright waters. The miller can always place his dam on an immovable foundation, and its narrow channel peculiarly adapts it to the building of cheap dams. These several tributaries have hardly emerged from the bosom of the earth before their waters are appropriated to the running of mills and cotton factories. Within five miles of Lawrenceburg five cotton factories are in successful operation, and, in the year 1860, run more spindles than all the rest of the State besides. There are several mills within the same distance, and there are as many locations at intermediate points equally if not more desirable than those already appropriated. Knob, Chisholm, Factory's Fork, Blue Water, Sugar Creek, Buffalo, and innumerable other smaller streams, rush down the slopes, sparkling in cascades and foaming in torrents, and laughingly inviting the mechanic, the machinist and the artizan to occupations that will give wealth and prosperity.

*Towns and Villages.* Lawrenceburg was established as the county seat of Lawrence county by an act of the General Assembly of the State, passed at Murfreesboro, on the 23rd day of November, 1819. The commissioners of the town, Enoch Tucker, Josephus Irvine, Henry Phenix and Maximillian H. Buchanan, by virtue of duplicate land warrants issued at Hillsboro, North Carolina, on the 14th day of April, 1792, assigned by F. Glasgow originally, and assigned at Nashville by J. Winchester, on the 10th day of April, 1807, and attested by R. McGavock, Clerk of Commissioners for West Tennessee, which warrant was issued to John Thompson, and lastly assigned to said commissioners, located 400 acres of land, the survey of which constituted the boundaries of the town, and to which it has been limited ever since. The German Catholic Homestead Association in the year 1870 purchased what was called the Bentley Farm, north of and adjoining the corporation, and have laid off 350 lots that will make a beautiful addition when improved. Shoal Creek runs through the southern portion of the corporation from east to west, and numerous springs rush out from the bluffs or bubble out from the banks, where cool, refreshing water can be had in abundance, which with very little expense can be driven into every family room and kitchen in town. The scenery skirting the banks of the creek or spreading out into gently undulating plains, is captivating to the transient visitor.

NOTE.—The only monument in the State erected to the memory of those who gave their lives to their country's call in the war with Mexico, stands on the public square, north of the court-house. It is made of limestone. The base is about ten feet square and six feet high, then pyramidal about three feet, when a shaft shoots up about thirty feet, making it in all about forty feet high. Upon the upright shaft on the north side is the following dedication:

"Erected to the memory of  
CAPTAIN WILLIAM B. ALLEN,

J. B. Burkett,	F. Glover,
G. W. Wilson,	A. J. Pratt,
A. J. Eaton,	Lieutenant L. M. Putnam,
J. A. Hill,	W. H. Robinson,
E. W. Thomas,	R. D. Willis,
B. H. Dalton,	P. H. Martin,
B. Soaper,	W. M. Alford,
W. Rhodes,	J. M. L. Campbell,
A. J. Gibson,	J. H. Saunders,
G. B. Porter,	J. F. Coffee,
J. B. Turner,	J. H. Johnson,
J. H. Elliot,	E. Prior,
H. Collins,	J. H. Allison,

Of the First Regiment Tennessee Volunteers, who fell on the 21st of September, 1846, at the capture of Monterey by the American Army, under the command of Major-General Z. Taylor, and of all Tennesseans, who died of wounds or disease, received or contracted during their service in the war with Mexico."

On the west side:

"This column is erected by the grateful countrymen of the citizen-soldiers, who gave their lives a willing sacrifice at their country's call. May it be held sacred by posterity, and inspire future generations with love of patriotism and valor."

On the south side:

"Let posterity remember that the valor of the citizen-soldier scaled the Rocky Mountains, and planted our eagles on the banks of the Pacific, doubled our country's area, and opened a new path to the commerce of Asia."

Erected by  
L. W. KIRBY,  
A. D. 1849."

And on the east:

"Died of disease:

S. H. Allen,	A. Boswell,
J. Billingsly,	J. Farris,
L. Garrett,	J. Goodman,
J. M. Gray,	S. G. Kiltner,
W. W. Lindsey,	A. J. Lindsey,
E. Tucker,	J. W. Walker."

"How sleep the brave, who sink to rest,  
By all their country's wishes blest,"

An appropriation was made by the State of \$1,500, and \$1,000 raised by private subscription, principally in Lawrence, for the building of the monument. This evidence

of appreciation of that noble patriotism that inspires the citizen-soldier to respond to the country's call when the slightest insult or injury is done to her honor or rights, certainly speaks well of the grateful countrymen. This most naturally suggests Texas, and her history cannot be mentioned without the name of Crockett, who was a citizen of this town and county at its organization, and for several years after. About this time the Hon. William R. Harris commenced the study of law in the office of Isaac Cook, Esq., and afterwards was appointed and elected to a place on the Supreme Bench.

Lawrenceburg has at this time seven dry goods stores, one drug store, three groceries, one tin shop, two furniture stores, two harness and saddle shops, one beer saloon, one jewelry store, three blacksmith shops, one millinery shop, three hotels, a printing office, four churches, Southern Methodist, a colored Methodist, one Presbyterian and one Catholic. The Catholics also have a large convent. The Protestants have two school-houses, the Jackson, male and female. The court-house is large and well arranged, with commodious offices for every county officer. The population of the town is reported, in the census of 1870, as being 351, though now it is estimated to be not less than 500. Henryville is a small village, 11 miles north-west of Lawrenceburg, on the Central Turnpike where it crosses Buffalo Creek, and has about 75 inhabitants, one dry goods store, a church and school-house, and a Catholic Church, at least in the course of construction. Every one who has traveled down the pike will remember the mill close by. West point is another little village, 15 miles to the south-west, with a population of 50; it has a dry goods store, a good flouring mill, and a church; and six miles south-east of West Point, almost cooped up by the hills, Wayland's Springs, with a population of forty, does a lively business, with two stores. Shoal Creek runs close by, and her fertile bottoms and rich hill-sides furnish the principal cotton raised in the county. Before the war, Wayland's Springs was visited by crowds of invalids and pleasure-seekers. The hotel and neatly hewn log cabins furnished room for hundreds at a time, and they were sometimes filled to their utmost capacity. The pleasure-seeker passed away the fleeting hours at angling, hunting, and in the "giddy mazes of the dance." The invalid frequently found relief from the use of the waters. The water underwent a chemical analysis at Nashville, and was pronounced inferior to none in point of medicinal virtues. It is reported to have cured chronic cases of scrofula, sore eyes, and dropsical affections. Their curative and health-promotive virtues are equal to Bailey's celebrated springs, near Florence, Alabama. The improvements were destroyed by fire during the war. Pretended soldiers did it.

*Lands and Timber, Crops and Methods of Farming.* The greater

part of the creek bottom lands has been cleared up, but the up or flat lands are a comparative wilderness, in some instances for miles square not a stick has ever been removed, where the wild deer sleeps as quietly as in the swamps of Arkansas, unless, as is occasionally the case, they are aroused by the horn or the dog of the huntsman. These flat lands are densely covered with white oak, post oak, chestnut, chestnut oak, black oak, red oak, and black jack timber. The creek bottoms and the hills that fringe them are quite productive. It is evident that the flat barren lands are well adapted to the cultivation of the grape, as they grow wild and in the greatest profusion on seemingly the poorest spots. The apple, cherry, pear and peach are equally as thrifty.

In Lawrence there are thousands of acres of waste lands, "old fields," and worn out hill-sides. In riding through portions of the county, one is very frequently confronted with the gloomy prospect of vast fields, whose corrugated surfaces show the wanton carelessness of the old-time farmer. These fields are monuments, so to speak, of the criminal prodigality of a time when it was decidedly cheaper to the then living generation to clear new fields than to pay any attention to the fertilizing, careful cultivation and preservation of those already cleared. These lands are not past redemption, but they have been exhausted years ago by bad tillage and a too constant drain upon the soil by reason of yearly corn crops. Reclamation is possible, but years of industry and scientific, intelligent farming are necessary to right the wrongs of those who have preceded us. As stated in the outset, the soil is of a decidedly retentive character, owing to the waxy clay subsoil, and as a matter of course, under the judicious management of the careful farmer, and the generous application of manures, the land in a reasonable time regains its vitality and productiveness. Although there are some large, well managed and highly cultivated farms in Lawrence, yet there is a "taint of the olden time" lingering still. The average farm in the county generally comprises 160 acres. However, it is difficult to lay down anything like an average, or to make a relative statement as to the size of farms, from the fact that the entries of vacant lands have always conformed to the will and wish of the locator, and as a consequence, the lands are ragged, and without symmetry.

How sadly do we stand in need sometimes of that accurate system of surveys which, in some of the Northern and all the Western States, so admirably divides and sub-divides the lands in townships, sections and fractions of sections. The benefit of the government surveys on



the public domain will only be appreciated fully when the country shall have become thickly populated. It is as opposed to this systematic division or survey of lands, or rather in contrast therewith, that the ragged entry-taking and locating system of Lawrence—in fact, of Tennessee—is mentioned.

Owing to an exceedingly diversified topography, the county can turn its attention both to the raising of stock and to the cultivation of money crops. While the uplands, of which there is an immense area, offer rich pasturage for sheep and all kinds of cattle, the creek bottoms and low lying lands, of which there is also an abundance, seeded to any of the grasses, make an inexhaustible meadow, and render them eminently fitted for the raising of horses and mules. Besides this the lands, both upland and bottom, seem highly adapted to the raising of wheat, oats, barley, millet and buckwheat. The main crops, however, are corn and cotton. But little attention has heretofore been paid to grasses, but some new ideas are creeping into the heads of the farmers, and we are safe in saying that the average acreage sown to the grasses, for the past three years, has exceeded that for the previous twenty-five. All the grasses grow well, the yield in pounds being nearly up to that in the richer counties of Giles and Maury, while the character and quality are far superior, not being rendered so harsh, tough and rank by a limestone soil. If any preference should be given, we think the orchard grass is more peculiarly adapted to our soil, though Hungarian, herds-grass, timothy, and blue-grass do exceedingly well, the latter being a natural growth to some extent. Since the war a great many farmers have put clover upon their lands, and with obvious benefit. One instance is given which will serve as an illustration of the benefit of clover upon the soils, and also of the adaptability of clover thereto. Upon a farm of 160 acres, lying about one and a quarter miles east of the town of Lawrenceburg, a gentleman moved soon after the war; but little of the land was good, and one field, of about forty acres, level almost as a floor, was covered with persimmon and sassafras sprouts. This forty acres, with the best of cultivation, averaged, for two years, with a limited quantity of manure broad-cast, but six barrels of inferior corn to the acre. In the fall of 1865 it was broken up with a No. 2 Kuhn and Turpin plow, and moderately treated with fresh stable manure; in the spring it was broken up with "bull tongues" and sown in clover. Besides a barn full of clover hay, it supplied rich pasturage for twenty head of cattle the same year sown. It remained in clover until 1871, when it was turned over in the fall and planted in corn the follow-

ing spring. Without manure, there were gathered and cribbed from this forty acres, 360 barrels of prime corn. It may be added that the results of this cultivation becoming known, the same plan of action was adopted by a number of farmers, with pleasing and beneficial results. Heretofore, the old fashioned "bull tongue" plow has been the universal tool in the cultivation of all crops; the land was broken up with it, the crops planted, cultivated and "laid by" with the same "bull tongue." The irons made in the old blacksmith shop and "stocked" by the farmer himself under the shed on rainy days, and with no tools but a drawing knife and chopping axe. A departure from first principles, however, is being made, and a great many of the farmers are proceeding to adopt a better system of tillage. The bull tongue, however, is regarded as a splendid implement in its place, and could scarcely be dispensed with. The generality of farmers use mules in the cultivation of their crops, being hardier than the horse. Labor is not very abundant. There is about an equal amount of paid and share labor in the county. Those who pay in money usually give eighteen dollars per month, and this is about the average money wages paid all over the county. The terms, for part of the crops, are usually one-half the corn and one-third the cotton—this, when the landlord furnishes nothing. As a matter of course, this is varied by terms between individuals. In the renting of land, putting it at a fair average, for good cotton and corn lands, \$3.00 and \$4.00 per acre; for upland, \$1.50 to \$2.50 per acre.

There is not a great quantity of land for sale in the county, as the prospect of the early building of a railroad, of which more anon, has tightened the grip of those disposed heretofore to sell. However, there is a great deal of uncleared lands, moderately fair, that can be advantageously cultivated, which is held at reasonable figures. Two causes have operated to lessen the amount of good land for sale, and also to advance the price of all, viz., the influx of German immigrants under the auspices of the Cincinnati German Catholic Homestead Association, and the vigorous movement looking to the early building of the Memphis and Knoxville Narrow Gauge Railroad. The association above referred to was organized in Cincinnati, Ohio, in the year 1869, and sent its agent into this county for the purchase of lands. From 1870 up to the present time they have purchased and now hold 23,280 acres of land, 5,000 acres of which is in one body, lying on Buffalo River, near the Laurel Hill cotton factory. Besides this, numerous farms have been sold by individuals to immigrants who did not buy or take lands

from the association. The number of families of immigrants who have come into the county under this association will probably reach 350. They are industrious, intelligent and thrifty, and are making the barren fields blossom as the rose. All that is lacking to make the people prosperous is a railroad, and from intimations previously given, this will probably soon be built. There is now no transportation outside of wagons. All the products and manufactured articles are transported at great cost over eighteen miles of as bad road as can be found anywhere in the State. Weekly, and sometimes semi-weekly, six of the factories send out their teams and wagons laden with cotton yarns, batting, rope and sheeting, and these are hardly sufficient for transportation. The cost of these teams and drivers, feed, wear and tear of wagons, is truly a startling item to our manufacturers. Wales Station, Giles county, is the nearest point on the Nashville and Decatur Division of the Louisville and Nashville Railroad. To this point the greater portion of the shipping is done, though some trade goes to Pulaski.

The character of stock raised in this county is of that nondescript kind commonly called "scrub." No attention scarcely has been paid to the better breeds of cattle and sheep. This is shameful, when the county affords ample facilities to the stock-raiser to make it a successful and highly profitable business. There seems, however, to be some inquiry in regard to better stock, and the day will soon come when *blood* will be at a premium, even in Lawrence. Sheep, as has been previously remarked, can be reared in the county cheaply and safely. The ravages from dogs are great, but they do not destroy so great a per cent. as in some other counties.

The smaller industries receive a good share of attention, and there has been exported a quantity of dried fruit for several years. The raising of honey, making of butter, poultry raising, etc., each is receiving consideration, and promise ere long to become of some marketable importance. There are a great many fine orchards in the county, and others are being planted yearly. More apple and peach trees were shipped into the county last winter than has ever come into it since its formation. One nursery alone in Nashville took orders, for delivery in November last, for fruit trees amounting to over \$300. All of this fruit was of the best varieties grown, so there is hope in this quarter. Grapes do well, exceedingly well. Several vineyards, one or two somewhat extensive, have been planted by the German citizens, and give promise of succeeding finely.

The most valuable variety of timber is poplar, of which there is an exceeding abundance; next in importance are the oak and ash. The county is a mine of wealth in timber, which is pronounced sufficient for centuries. The county needs population, immigration, and the citizens are decidedly in favor of all immigration schemes, and will lend a helping hand to all new citizens, or those seeking homes among them. The minerals, the never failing streams, the vast plateaus of densely timbered country, the salubrious climate, all tend to the ultimate wealth and prosperity of the county, if they were only developed.

*Minerals.* Of the extent and variety of iron ore in the county, no proper estimate can be made. Draw a straight line from Clarksville, on the Cumberland River, to Florence, at the foot of Muscle Shoals, and it will pass over or near the rich iron deposits of Lawrence. These deposits are along the line indicated from the point it would strike Lawrence until it leaves it. In more than a half dozen places where it has been examined with a view of testing the extent of the deposits, it is said by competent judges to be great, and would run a number of furnaces of the largest capacity for many years. Many years ago there were several forges in operation in the county, and the iron always commanded a better price than any other with blacksmiths. The ore is limonite, and it exists in all its forms in different banks. In the McKey and Powell banks, on Shoal Creek, (now owned by Chancellor Nixon) it exists in masses of all sizes and in layers of great thickness. The Wright bank is of great richness, and of a similar character, but the Wisdom bank, some two miles from the Wright bank, is composed of layers from an inch to several inches in thickness, and was called in the iron-making days of Lawrence, plate ore. It is of a dove color, and was so called in contradistinction to the lump ore. The excavations have not reached any great depth, but the workings have been near the surface. The deeper the excavations the thicker the stratum becomes. The Kelley, the Warren and Flipp's bank, as well as many others, are of the same variety and extent. These banks are so situated that any amount of timber can be obtained for coaling purposes at reasonable figures. On this line, too, there are vast forests of chestnut oak that are exceedingly valuable for tanning purposes, and little streams are numerous for the establishment of tanneries. A railroad on the line indicated from Clarksville to Florence would develop the great Western Iron Belt, traversing the counties of Dickson, Hickman, Lewis and Lawrence, and if capitalists could be induced to put into operation all the furnaces that could be successfully run on it, no

better paying road could be built if the iron freight alone was depended on. This line would be the most direct route from the great Northwest to the States south. Besides the iron ore, on this same line there are vast bluffs of variegated marble on Shoal Creek, near the McKey bank, that is susceptible of the very highest polish, also inexhaustible stores of hydraulic limestone. The contemplated Memphis and Knoxville Railroad will pass in a short distance of some of the iron deposits, and even the furthest bank mentioned will be nearer than the distance the Wayne furnace now hauls its pig metal.

*Shale.* Under the bluffs of limestone alluded to is a thick layer of shale laminated, the laminae from the eighth of an inch to three or four inches in thickness, and so impregnated with oil, that when hot it burns very freely, much like stone coal. Blacksmiths have made a good heat with it.

*Manufactories.* We have stated that five cotton mills are in operation within as many miles of Lawrenceburg. The Crowson Mills, on Crowson's Fork of Shoal Creek, owned and operated by W. H. Sykes & Bro., run 576 spindles, 288 used in making cotton carpet warp, and the balance in manufacturing thread. The machinery is run by an American turbine of 35 horse power. This mill uses about 300 bales of cotton annually, keeps employed about 30 operatives, men, women and children. This factory was built in 1856, of brick. Crescent mills, on Simonton's Fork of Shoal Creek, one and a half miles from Lawrenceburg, operated and owned by Bate & Simonton, were erected in 1852; have 1,152 spindles and 32 looms for the making of yarns and sheetings. They have also an American turbine of 40 horse power; consume about 400 bales of cotton yearly; keep employed about 70 hands. The building is a two and one-half story brick. The Hope Mills, a frame building two and a half stories, on Shoal Creek, one mile from town, run 768 spindles in the making of cotton yarns alone; use 300 bales during the year; have a breast wheel of 35 horse power, and employ 30 hands. The Shoal Mills, owned and operated by J. and W. Parkes, two and a half miles from Lawrenceburg, have 1,068 spindles employed in making sheetings, drills, &c.; 60 hands are employed; have a turbine wheel of 35 horse power. A 25 horse power engine is also used. This factory has 30 looms, and uses 400 bales of cotton annually. Eagle Mills, brick, four and a half miles from Lawrenceburg, on Shoal Creek, owned and operated by Hugh McCrea & Co., have 1,176 spindles in making cotton yarns, carpet-chain

and cotton rope; turbine wheel 45 horse power; use 500 bales of cotton yearly, and have about 40 hands. Laurel Hill, situated on Little Buffalo, 16 miles west of Lawrenceburg, has 1,570 spindles, and about 600 bales of cotton are used in making sheetings and yarns; has 56 looms, and employs 80 hands. Marcella Falls, one and a half miles north of Lawrenceburg, manufactures woolen fabrics exclusively. It makes an excellent article of jeans, blankets, checks, &c.

The population of Lawrence in 1870 was 7,036; in 1860, 8,136; in 1850, 8,094; a decrease in the last decade of 1,100. The colored population, in 1860, was 1,184; in 1870, 625. This decrease of the colored population occurs by emigration to towns and cities. To live in town, or near it, is a mania with the colored race. Many of the white race caught the cotton-raising mania at the close of the war, and moved to Giles, Maury, and into Alabama, for this purpose. The war, of course, had something to do with the decrease. It is believed now, though, that the immigration has swelled the population to at least what it was in 1860. The County Judge reports the debt of the county to be \$3,500, and that the arrearages are sufficient to discharge it. The schools are not numerous, nor are they well attended. The value of the property is \$1,265,580. There are no literary societies or public libraries, except those belonging to the Sunday-schools. The county is well supplied with flouring mills. It has no poor-house. The few paupers that are the subjects of its care, are let out by contract to benevolent and clever individuals. The old Columbia and Clifton Central Turnpike passes through the county, but is used and kept up by the county, as are all other roads. The dirt roads are kept in reasonable repair.

The Secretary is under special obligations to Captain Davenport and W. T. Nixon, Esq., for valuable assistance in the preparation of this account of Lawrence county—a county to which the immigrant is being directed in a way to greatly benefit the State, and which takes the lead in manufactories.

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## LEWIS COUNTY.

COUNTY SEAT—NEWBURG.

Lewis county, situated on the western side of the great Highland Rim of Middle Tennessee, was organized into a separate county from

fractions of Maury, Lawrence, Wayne and Hickman, in the year 1844. It was named in honor of \*Merriwether Lewis, the companion of Clarke in the famous overland expedition to Oregon Territory in the year 1803-6.

*Extent, Topography and Lands.* The county of Lewis contains about 353 square miles, and is bounded on the north by Hickman, east by Maury, south by Lawrence and Wayne, and west by Perry. It is perhaps the poorest county for agricultural purposes in Middle Tennessee. Remote from market, without river or rail communication, its surface composed of thin soils and high rolling ridges, it is not to be wondered at that there are only 9,168 acres of improved lands reported out of an area of 225,920 acres, or about one acre in twenty-five. This county is one of extreme wildness. One may ride for hours through open woods, or over rugged hills, without meeting with a human being, or seeing any signs of civilization. The timber for miles is untouched, the wild grasses upon the broad areas of flat lands grow with spontaneous luxuriance, and deer, foxes, and other wild animals and fowls roam the forest almost as fearlessly as when the red man claimed the country as his own.

Topographically, Lewis county is a high, level plateau, higher than the counties surrounding, and gashed by frequent streams that take their rise in the county, and flow from it to nearly every point of the compass. Near the streams, and beyond the immediate bottoms, the land is ridgy, sterile in character and covered with a dense growth of red oak, chestnut, and a tough variety of poplar, called, in the language of the county, "blue poplar." The soil on these ridges is flinty, oftentimes underlaid with slate, and is almost totally deficient in fertilizing matter. Upon these rolling lands from three to four barrels of corn, five to six bushels of wheat, and ten to fifteen bushels of pea-

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\* In the very center of the present county, on the line of the old Natchez Trace, while on a journey from the Territory of Louisiana, of which he was Governor, Merriwether Lewis, on the 11th day of October, 1809, committed suicide, being at the time a little over 35 years of age. On this very spot he was buried, and the Legislature of Tennessee, in 1818, had a suitable monument erected to his memory. This monument, with a pedestal composed of the hard, siliceous rocks of this region, and a shaft of limestone in imitation of a giant of the forest, untimely broken, is typical of the hard, rough life, and premature death of a man of whom Jefferson said: "His courage was undaunted, his firmness and perseverance yielded to nothing but impossibilities; a rigid disciplinarian, yet tender as a father, to those committed to his charge; honest, disinterested, liberal, with a sound understanding and a scrupulous fidelity to truth." In the midst of dense woods, several miles from any human habitation, on the crest of a bold, broad ridge, with deep gorges running toward the north-east and west, and near the commencement of the flat lands, this monument stands, seldom visited, and almost forgotten by the present generation of men. Its entire height is about 25 feet, and it is surrounded by an iron fence in a state of great dilapidation, many of the rods having been taken away.

nuts, are considered a good crop. This quality of land is in no demand, and thousands of acres may be bought at prices varying from fifty cents to two dollars per acre—the latter for mineral lands, of which more hereafter. A mile or two out from the streams the lands become flat and open. There is a belt of such land, three miles wide, running diagonally through the county from south-east to north-west. This strip is unbroken, and is covered, for the most part, with scraggy blackjacks and barren grass, which last furnishes good grazing from April to November. The soil upon these flat lands is thin, and to some degree porous and leachy. Much of it could never be enriched, especially that portion of the flat lands that has a bluish subsoil with yellowish gravel. Where the color of the subsoil is red and the clay tenacious, experience has demonstrated that it may be converted into soils of more than average fertility by keeping the fires from the woods, thereby allowing the undergrowth to shoot up and shade the lands, and permitting the leaves and decayed timber to be transformed into vegetable mold. In spite of the damage done to the timber and the destruction to the mast, many persons living in the county, having inherited the pernicious practice from their fathers, still persist in firing the woods every fall. These fires sweep with resistless fury, destroying or damaging timber, burning up enclosures and spreading terror in their course. It is believed by many that the excellent highway pasturage can only be preserved by these annual burnings, but it is a question whether the pasturage would pay for the damage done in other particulars. These "barren" or pasture lands are worth from one to two dollars per acre, according to location. There are but three varieties of soil in the county—the alluvial, the cherty on rolling lands, and the yellow in the "barrens." The best are found in the alluvial bottoms—almost the only lands in the county that are cultivated, and indeed all that will repay the labors of the husbandman. The bottom lands are as productive as the bottom lands in any part of the State. Dark in color, they are warmed by the summer's heat into a marvellous fruitfulness. Corn crops averaging sixty to eighty bushels per acre are not uncommon. Wheat yields less abundantly, owing to the excessive growth of straw, which causes it to bed while immature. The usual average of hay is two tons; peanuts from fifty to seventy-five bushels; oats from twenty-five to thirty bushels. The latter is not usually threshed, but fed in the sheaf. Some cotton is planted in these bottom lands, but they are not adapted to the growth of that great staple. The stalk grows too late in the season—grows



too rank for the climate, and many of the bolls are caught by the frost in an immature state.

These bottom lands command a ready sale at high prices. The usual price is forty dollars per acre for the best improved lowland farms, but it must be remembered that in all sales of such farms, timber land enough on the hills is gratuitously given to support the farm and keep it fenced. It may seem curious that there should be a ready sale for these bottom lands in a county where land is so abundant. But it must be remembered that nearly all the farms lie upon water courses. These farms, for the most part, are worked by an industrious, frugal population who own them, and are always anxious to extend their boundaries by investing their earnings in valuable lands that adjoin them. Incredible as it may seem, good bottom lands are in better demand in Lewis county, and at better prices, remote as it is from all facilities for transportation, than in many of the richer counties lying convenient to river and railroad communication. Though destitute of these facilities, the farmers have a good market for their surplus corn at Napier Furnace, and at some of the cotton factories in the adjoining county of Lawrence. A good farmer on a good bottom farm in Lewis county, has some peculiar advantages afforded him. Untempted by the demands of fashionable life, his wife and daughters usually manufacture all the goods consumed by the household, the wool for which he raises without expense; for the hardy breed of sheep grown in the county will subsist the entire year upon the wild grasses that grow upon the rolling hills and level plains, and upon the mosses and ferns that fringe the streams and cover the marshy spots. His hogs eat but little corn. The acorns and chestnuts that cover the surface of the earth like a shower of hailstones, afford ample sustenance; the sweet-tasted ones being eaten throughout the winter, and the bitter ones after they have been sweetened by the process of germination. The extensive highland pasturage enables him to rear his stock of cattle at a nominal expense, so that almost his entire crop of corn, hay and oats, as well as his peanuts, cotton and tobacco can be converted into money.

Compared with Lewis, the poorest county in Middle Tennessee, Maury, the most fertile, has twenty times as many acres of improved lands, yet it does not raise twenty times the quantity of corn, oats, wool or cattle; and of the quantity raised, Maury requires at least one-third more for home consumption. So that it appears that al-

though the farmers of Lewis labor under many disadvantages, they are really more prosperous in proportion to the amount invested than the farmers in the richest county of Middle Tennessee. And this prosperity shows itself in the better condition of their farms, in their ability to pay for what they buy, and in the general contentment of the farmers, and above all, in the fact that good farming lands are one-third higher than before the war. There is no emigration from the county, and but little immigration to it, though hard working, industrious men would find it a field tempting in many respects. They would be heartily welcomed, and in fruit-growing, for which the uplands are well adapted, would probably find a new industry that would be remunerative, pleasant and healthful.

*Fruit.* The high elevation of the county almost assures a bountiful fruit crop, and it is a rare thing for a peach orchard to fail that is planted upon the ridge lands. These lands, as before mentioned, are sterile, but all kinds of fruit suited to the latitude, from the apple to the blackberry, grow well on them. Unsuitable for corn, wheat, oats, peanuts or cotton, they may be made profitable in orchards, and they also grow a fine, silky quality of tobacco, that is sought after for manufacturing purposes. Yet it would be unwise for any one to settle on either the ridge lands, or barren or flat lands, for the purpose of general farming. Many have tried it, and the deserted old fields, fenceless and houseless, show how cruelly they have been deceived. Yet, in all these deserted places, apple and peach trees, vigorous in spite of desertion, fully attest the value of the land for the growing of fruits.

*Stock and Labor.* Relying, as the farmers do, upon the highway pasturage, and being subject to frequent losses of stock by straying, they have never thought it profitable to introduce improved breeds of hogs, sheep or cattle. Of mules and horses, not more are raised than will meet the demands of the county, but many beef cattle are fattened and driven to Nashville and to other points. Dogs are very destructive of sheep, and the number in the county has been lessened one-third since the war, from this cause alone. There is about one sheep for each person in the county, which is about three times the average of the State. Under the charge of a shepherd, thousands of sheep could be subsisted upon the wild grasses at an almost nominal sum, and a profit could be realized from the sale of wool and mutton that would satisfy the most unreasonable. As an evidence that sheep can be raised without expense to their owners, it is enough to say that hundreds may

be bought at \$1.50 and \$2 per head. They are never seen, except at shearing time, when they are driven up, sheared, and the lambs marked. As the farms are cultivated mainly by their owners and families, and as there are but few colored persons in the county, (the census for 1870 giving only 188 out of a population of nearly 2,000,) there is little help hired for farm work. Good farm laborers are worth from \$12 to \$15 per month and board, but as the furnace in the county can pay from \$26 to \$40 for good hands, it is a difficult matter to get labor upon the farm, however much it might be desired.

*Streams.* Lewis county is well watered, and has an abundance of good water-power for milling purposes, though there is scarcely a good mill in the county. Swan Creek, one of the tributaries of Duck River, rises in the county, flows near the eastern boundary, and empties into Duck River four miles above Centerville. This stream is totally unfit to be used as a water-power, on account of its banks. These are low and gravelly, and are constantly changing. Large beds of loosened gravel and sand, covering a space from one to two hundred yards wide, are found on one side or the other of the running stream, and during a freshet these beds of gravel are washed from place to place, destroying fords, changing the channel of the stream and sometimes covering acres of rich bottom lands. Little Swan rises near the center of the county, and enters Swan one mile above Palestine, a village that is almost as deserted as some of the villages in the country from which it is named. This creek has all the characteristics of Big Swan, and is almost useless for milling purposes. Indian Creek, also a tributary of Swan Creek, rises six miles west of Palestine, flows west, and enters into the Swan one-half mile north of Palestine. This stream has one mill built upon it. Cane Creek rises within the limits of the county, runs north-west and empties into Buffalo, in Perry county, passing through a portion of Hickman. This stream has some fine mill sites upon it. Trace Creek has its source in the western part of the county, runs in a southerly direction, and empties into Buffalo Creek three miles above Ashland, in Wayne county. It furnishes valuable water privileges. Rock House Creek rises in the western part of the county, runs south, and enters Buffalo Creek near the mouth of Trace Creek. It has some good mill sites. Grinder's Creek, noted for its wide, fertile bottoms, is a tributary of Buffalo Creek, and rises near the center of the county. Big Buffalo Creek, taking its rise in Lewis and Lawrence, runs first west, then makes a right angle, passes through a portion of Lewis, and empties into Duck River, in

Humphreys county. It is an excellent water-power, the banks being composed of limestone, siliceous shale and slate. Little Buffalo Creek, a tributary of the latter, resembles it in the character of its banks, and is remarkable as having no bottom lands lying on it, the ridges of the adjacent country running down and terminating on the stream in bluffs. It is one of the best water-powers in the State. Brush Creek heads in Lawrence county, and runs through the southern part of Lewis county, in a direction nearly north, and enters into Little Buffalo Creek about one mile above the confluence of the latter and Big Buffalo creeks. On this stream a new furnace is in process of erection, and when completed will have a capacity of making twelve tons of pig iron per day. Chief's Creek, a tributary of Little Buffalo Creek, rises in Lawrence, and runs west through the southern borders of the county. This stream has a constant supply of water, rapid fall, good banks, affording fine sites for factories. It is one of the best water-powers in the State, admirably suited for driving the machinery of cotton and woolen mills, as well as for furnaces. Upon this stream are built Napier's Furnace, a flouring and saw-mill, and, before the war, there was in operation, upon its banks, a forge. From the bluffs that border it, the flux is obtained for the furnace, and much good building rock, in layers of suitable width, is found. Pond, a tributary of Big Buffalo Creek, takes its rise near Newburg, the county seat of Lewis, runs in a south-westerly direction, and has two mills erected on it. It is a good water-power, rapid in its fall, and has good, substantial banks. West Fork of Bigby rises in the county, near the eastern limit, and flows north, emptying into Big Bigby. It is also a good water-power. Cathey's Creek rises in the north-eastern portion of the county, runs north-east, and empties into Duck River. This stream is subject to great overflows, which sweep everything in its course, but for this it would be a most excellent water-power. Little Grinder's, a tributary of Big Swan, rises near Newburg, and runs north. It is also one of the best water-powers in the county, and has fine banks and good sites for mills and factories. It is thus seen that Lewis county has fifteen streams, either rising in the county or passing through it, upon all of which, except three, may be found good factory and mill sites. It cannot be doubted that in the future much of this water-power will be utilized, and that the present quietness of their banks will be broken by the whirl of the spindle, the clanking of the loom and the roar of the furnace.

*Iron Interests.* As yet there is but one furnace in the county, al-

ough there is ore enough and timber enough, according to the statement of a gentleman familiar with the mineral resources of the county, to run a hundred furnaces a hundred years." Indeed, in the southern part of the county the top of nearly every ridge is a rich bed of limonite iron ore, which will yield from the furnace from forty-five to fifty-five per cent. of pure iron. At least two-thirds of the lands in the county is charged with iron ore. This ore is found in banks more or less extensive, and is confined to the rolling lands. The rocks underlying this whole region, at a greater or less depth, are limestone, charged with flinty masses and fine siliceous and clayey impurities. This bed of siliceous debris is of varying thickness, from a few feet to several hundred, and forms the matrix of the iron ore. The banks differ in extent, sometimes covering but a small space of an acre or two, again covering square miles. The depth to which the ore extends is also variable. Around Napier's Furnace, (cold blast) which is situated on Chief's Creek, nine miles south of the county seat, ore has been dug at a depth of twenty-five feet, without any diminution in the quality or quantity. From the best banks about one-fourth of the material removed is iron ore. Between Allen's Creek and Brush Creek the richest ores are found, and these lands may be bought at \$2 per acre. Napier's Furnace, the only one now in operation in Lewis county, was first erected in 1834. It was leased in 1873 by Ward, Rains & Co., and put into operation on the 15th of September. During the remainder of the year it made about nine tons of pig metal per day, at a cost of about \$24 per ton, but this cost, the superintendent thinks, may be reduced to \$18 by having a sufficient amount of stock on hand to run for ten months. Wood choppers are paid from sixty to seventy-five cents per cord, and day laborers \$1.50 per day, they feeding themselves. About 200 bushels of charcoal is consumed in making a ton of iron.

The country in the iron region abounds in fine timber, water-power, and though hilly, is sufficiently level for transportation. It is estimated that a furnace with a capacity of ten tons per day can run on the timber within a radius of three miles for thirty years. The greatest drawback to the iron interests of Lewis county is the want of transportation. It now costs \$7 per ton to deliver it on the railroad at Columbia, the nearest point, a distance of thirty-three miles. When the contemplated railroad from Columbia through Mt. Pleasant, on through Lewis and Wayne to Clifton, is completed, it will open up one of the finest iron regions in the State. The quality of iron manufac-

tured from these ores with charcoal is of a character remarkable for its toughness, and is sought after by manufacturers of boiler plate and car wheels.

*Towns.* Newburg, the county seat of Lewis county, is twenty-eight miles west of Columbia, and is the only post-office in the county. It is almost a deserted village, no business of consequence having been done there since the war. At one time the village contained three stores, but only one establishment is now carried on, which retails whisky and a few domestic goods. Palestine is another deserted village, situated five miles north of Newburg. It was once a place of some business, but the houses are now deserted. A church and a graveyard are the most prominent features of the spot.

*General Observations.* The numerous streams in Lewis county furnish fine sport for the fisherman. The most common varieties are "the black perch, trout, salmon and red horse." Many fish dams are built upon the streams, and hundreds of fish are taken after a hard rain. The woods are stocked with deer, turkeys, foxes, opossums, ground hogs, wolves, wild cats, squirrels and rabbits. Partridges are plentiful, and are rarely disturbed by hunters. Deer are protected by law from the 1st of March to the 1st of September. Lewis county, as might be expected, has but few schools, and even a system of common schools can do but little good in a population so sparse. Twelve free schools were in operation for a portion of the year 1873, but as the amount of funds coming to the county is small they were only kept up two or three months. In conclusion, it may be said of this county, that despite its remoteness from market, its future is bright with splendid possibilities. The very sterility of the soil may lead its citizens to direct their attention to their immense iron deposits, and to the utilizing of the great water-power that is found in every part of the county. Its only hope for wealth is in manufacturing. Lying contiguous to the cotton region, abundantly supplied with timber, with a high, dry and healthful climate, and where cheap homes may be had for operatives, every condition, except facilities for transportation, exists for making it a successful manufacturing region.

## LINCOLN COUNTY.

## COUNTY SEAT—FAYETTEVILLE.

This county was established by an act of the Legislature in 1809, and organized the following year. It is bounded on the north by Marshall, Bedford and Moore, on the east by Moore and Franklin, on the south by the State of Alabama, and on the west by Giles and Marshall counties. It lies almost wholly within the great Central Basin of Middle Tennessee, and contains about 520 square miles, or 332,800 acres. It is divided into twenty-five civil districts. The county is cut into nearly two equal parts by Elk River, which flows from east to west. The streams which enter this river from the north, beginning in the west, are Bradshaw Creek, Swan Creek, Cane Creek, Norris Creek, Mulberry Creek, Roundtree's Creek, Tucker's Creek and Farris' Creek. These tributaries of the Elk River all flow approximately south. The tributaries of the Elk River from the south side, beginning on the east, are Shelton's Creek, Duke's Creek, Stewart's Creek, Wells' Creek, Cold Water Creek and Kelley's Creek. Between Elk River and the Alabama line is a belt of high, level land, which is the water-shed between Elk River and the Tennessee. Flint River, with its numerous feeders, rises on this high land and flows south into the Tennessee River, as also does Piney. The surface of the county is greatly diversified. On the north runs Elk Ridge, which divides the waters of Elk and Duck rivers. This ridge sends out numerous spurs, which form the elevated lands between the streams on the north side of Elk River. On the south side, high, flat-topped, rolling hills are met with until the flat lands begin, which latter extend to the Alabama line.

*Climate and Geology.* The climate of Lincoln county is mild and salubrious. An ice season seldom occurs, and the summer heat rarely reaches 100° Fahrenheit. Epidemics are almost unknown in the county. The average elevation being about 500 feet above the level of the sea, the air is comparatively free from miasmatic influences. The average temperature for winter is about 42°; spring, 61°; summer, 78°; autumn, 61°. The average for the year is 60°. The greatest range for any one month does not exceed 40°. The geological situation of the county is about equally divided between the Siliceous Group of the Lower Carboniferous formation and the Nashville Group of the Lower Silurian. On the line of railroad may be seen large quantities of Black

Shale, which is so impregnated with petroleum or bitumen that it will sustain for months a fire when kindled on it. This Black Shale is also rich in sulphuret of iron, by the decomposition of which copperas and alum are formed. It easily disintegrates upon exposure, and is valueless except for the manufacture of the salts mentioned. Many of the limestone rocks are but aggregations of fossil remains.

*Marble.* There is in the county a very fair article of marble. A few miles east of Fayetteville is a quarry of reddish, variegated marble, such as is used in making the railing to the main stairway in the Capitol, and for making the columns in the Senate chamber, and usually denominated East Tennessee marble. Some specimens are superior to that used in the Capitol in fineness and colors. It is sometimes injured by particles of iron pyrites.

*Lands, Timber and Crops.* The lands, with the exception of a strip lying on the Alabama line, about eight miles wide, and containing about one-third of the county, are very fertile. This is a strip of high plateau, and is exceedingly level, so much so that it is not well drained. The subsoil is a pale, yellowish clay, porous and leachy, except in swamps, where the clay is bluish, and therefore scarcely susceptible of improvement. A few spots, with good red clay subsoil, are found, and where these occur the lands are rated higher, and are much more productive. This portion of Lincoln county is of the same character as the flat lands in Lewis county, to which the reader is referred. No limestone rock is seen on this plateau and the wild growth indicates poverty. Much of it is, however, well timbered—oak, hickory, chestnut, blackjack, sour wood. Chestnut oak and poplar constitute the principal timber trees. The undergrowth is huckleberry bushes, green briars, and occasional patches of alder bushes.

Of the timber on these Highlands, chestnut is considered the most valuable, and great quantities of it are made into rails and sent to the other portions of the county. A good chestnut fence will, it is said, last forty years with little repair. The rails, delivered in Fayetteville, sell for three dollars per hundred, and there is a growing demand for them from the more fertile sections of the county. This land can be bought for a small price, ranging from three to ten dollars per acre. It is sparsely settled, and is regarded as of but little value, except for fruit trees and the timber.

The remainder of the county is of the most fertile character. Spacious valleys, alternating with hills and ridges, are the leading features



of this portion of the county. Many knolls, near Elk river, are upraised alluvium, as is shown by the pebbles and other alluvial indications. Upon some of the hills, the loose limestone lies in such abundance as to preclude the possibility of culture. Upon these, however, blue-grass grows with great luxuriance, and the sunny slopes will furnish ample grazing during the entire winter for sheep and cows. The timber consists of linn, buckeye, hickory, poplar, box elder, black walnut, wild cherry, black locust, chestnut, beech, gum, dogwood, iron wood, hornbeam, sugar tree, hackberry, cedar in limited quantities, and elm. Chestnut oaks grow very large on Elk Ridge. An enterprising citizen, a few years since, planted a glady spot on his farm in black locust, which at present forms a splendid grove of that valuable timber. He thinks it is more valuable to him even than his rich bottom lands; for, in addition to the value of the wood, he has a good stand of blue-grass upon it, upon which subsists a large flock of goats during the entire year.

The valleys of Elk River and Cane Creek will average, probably, a mile in width, and the latter is probably fifteen miles in length. All the land north of Elk River was once covered with cane thirty feet high, and even now farmers in plowing to a great depth turn up masses of cane roots. The soil is as rich as any in the State, and it is not unusual to gather 1,000 pounds of seed cotton to the acre; 2,000 pounds have been raised. On East and West Mulberry, the lands are worth from ten to fifty dollars per acre, the former for ridge lands, and this may be considered a fair average price for the limestone soils of the county. The flat lands heretofore spoken of are much cheaper. The very best of them may be bought for ten dollars per acre, while large quantities of it will not bring in the market three dollars per acre.

The corn crops of Lincoln are generally very fine. It is questionable whether any other county in the State can make a better average in this great staple than Lincoln. Wheat, also, when properly put in, makes very satisfactory returns. Timothy grows with great luxuriance upon the moist bottoms, but the sun sometime kills it out very badly after the mowing season. But for this it would probably be a staple crop. Millet of every variety yields abundantly. The heaviest millet crops we have seen harvested in the State, grew in Lincoln. Cotton, however, is the great crop, and almost every thing in the better parts of the county is sacrificed to this. But for this Lincoln county would, undoubtedly, become famous for

*Stock-raising.* Every thing marks this county as well adapted to the rearing of stock. The blue-grass that clothes the slopes of the hills, the well watered valleys, and the ease with which forage can be grown, as well as the abundant yield of the corn crop, show how easily and how cheaply stock of the best quality could be grown. There is an inclination among some of the best farmers to abandon the growing of cotton and substitute therefor, the raising of stock. The financial embarrassments under which the farmers labored immediately subsequent to the war, compelled many of them to continue the cultivation of cotton, although their judgments pointed to stock-raising as the most pleasant, and in time, the most remunerative. A great deal of fine soil has been sterilized by the cultivation of cotton, but it is pleasing to note that a manifest improvement is now going on. The farmers are sowing more clover, stopping washes, putting up stone fences, and increasing the quality and quantity of their stock. Some very fine short-horns have been imported, and some of the finest sheep to be found in the State are in Lincoln. The native breeds of cattle are hardy, and are usually good milkers. These are being crossed on the Short-horns and Alderney, and a high order of graded cattle will soon be found upon nearly every farm.

*The Farmers and Farms.* The farmers, as a class, are usually well-informed and industrious. There is, probably, a greater number of renters in Lincoln county than in any county in the Central Basin. The farms will probably average from twenty to fifty acres of arable land. The census returns show 3,393 farms, of which 1,154, or over one-third, were between twenty and fifty acres. Since 1870 a considerable portion of the county has been cut off, and is now embraced in the new county of Moore. The farm houses and improvements are greatly inferior to those of Maury, Davidson, Williamson, Rutherford, or Bedford, but the percentage of profits is probably greater. Land rents usually higher, and there is generally an active demand for lands to be rented. But little is sold however. As has been before remarked, the lands are usually fertile, but the exhaustive process through which some of them have passed, has impaired their fertility to such an extent that no crop can be grown profitably upon them. We observe many hill-sides so washed as to be permanently ruined. The limestone lies very near the surface in Lincoln county, and when by injudicious tillage the soil is washed down to the underlying rock, the land cannot be reclaimed, except at a cost of three or four times its value. Deep plowing and subsoiling are lessons that the farmers of

Lincoln will have to learn. Shallow plowing is the direct road to poverty and exhaustion. Hill-side plows should be used, and team enough employed to plow to the depth of eight or ten inches, and behind them, at least once in three or four years, should be run a subsoiler. The large quantity of limestone rocks that are lying upon the surface should be broken into small pieces, and spread upon the surface. It will be found highly beneficial to the land. This has been tried in Bedford with marked effect upon worn soils. Let the farmers of that rich old county—rich in all the elements of wealth—rich in climate, in soil, in society, in history—see to it that their lands are preserved by deep plowing, subsoiling and clovering. Plowing with one horse upon rolling land is a suicidal policy. The very greatness of the county is involved in it. Their very hill-sides will grow power, wealth and greatness for them if they are preserved. Let them sow clover and enrich their lands. Let intelligence, and not custom, govern. And then, with a proper diversification of crops and a judicious and far-sighted policy in the cultivation of their lands, new industries will spring up. Their streams, which are flowing with all their power to the gulf, will, in time, be harnessed and made to work up their products, so as to quadruple their value. Not a single pound of cotton should ever be exported from Lincoln. Just enough should be raised to supply the manufacturing establishments of the county, and no more. Just that much will be profitable. The greatest drawback to manufacturing in the county is the indisposition of large landholders to sell their lands. A dense population, perhaps, is not desirable, but a population sufficient to carry on every branch of human industry, for which there are natural facilities, should certainly be encouraged. Every foot of land that should be cultivated, and is not, for want of laborers, is so much loss to the owners, to the county and to the State. Every stream that can turn a manufacturing establishment profitably, and is wasting its power for want of labor, is so much loss. One reason why so many farms are found with whole fields washed into gullies, and irredeemably sterilized, is that the cultivators of them have generally no permanent interest in the soil. The remedy lies alone with the landholders—either long leases or sales.

*Fruit-growing.* While the low bottoms are not well adapted to the growth of fruit on account of its liability to be killed by late frosts in spring, the flat lands and hilly regions grow almost every variety of fruit to be found in the State, to great perfection. The farmers are planting out many new orchards, and special attention has, within the

past few years, been directed to the culture of the grape. The admirable drainage and broken surface of the country around Fayetteville, together with the abundance of wild grape-vines, show a peculiar fitness in the soil for the growth of this fruit. A gentleman living in Fayetteville, of foreign descent, planted, a few years since, one hundred and ten vines. They were of the Concord, Catawba, Delaware and Herbemont's Madeira—the last a native of Georgia. Nine out of ten bore well, and the third year after planting them he made one hundred and ten gallons of wine, and this from a quarter of an acre. He thinks it can be made the most profitable crop in the country, and recently he has purchased land upon one of the many slopes around Fayetteville, and intends going largely into the cultivation of the vine. The Concord is his preference for a wine grape. It is hardy, a generous bearer, and suited to the climate.

*The Water-power*, while not the best in the State, is fully equal to all the present, and probable future, demands of the county. Elk River is not an ungovernable stream, and has rarely, if ever, been destructive to mills or dams, and for every distance of five miles good sites for manufactories may be found. The banks are limestone, generally, and material is abundant for the construction of durable dams, at a small cost. The fall of the river is good, the supply of water constant, and many necks of peninsulas may be tunneled so as to secure a very rapid flow of water. Several good flouring mills are on the river; one near Fayetteville that manufactures a superior article of flour.

*History of Organization, Towns and Public Improvements.* In the organization of the county, in 1810, Oliver Williams, of Williamson county, qualified the Justices of the Peace, and Thomas H. Benton, then a young man of twenty-eight, who had removed, with his mother, to Tennessee from North Carolina, acted as Clerk, *pro tem*. At this meeting, Brice M. Garner was elected County Court Clerk, and entered upon the duties of his office. Steps were immediately taken to build a temple of justice, and Micajah and William McElroy, father and son, became the contractors. Prior to 1809 District Courts were held, but during that year a law was enacted by the Legislature establishing our present system of Circuit Courts. Thomas Stewart was elected Judge of the Circuit Court of the circuit including Lincoln, upon the organization of the county, and James Bright appointed Clerk. The first courts were held in a house two miles west of the present county seat, then owned by a man named Greer. Ezekiel Norris, who removed

from Montgomery county about the year 1805, bought two sections of land, containing 1,280 acres, lying at the junction of Norris' Creek with Elk River, that had been taken up in the year 1787, under an old North Carolina warrant. He having heard that Greer had agreed to donate a small quantity of land for the county seat, met the commissioner and proposed to give one hundred acres where the present town of Fayetteville stands, if the commissioner would build the court-house upon it. This he readily agreed to do, and accepted Norris' proposal, but Norris, having learned in the meanwhile that he had been misinformed as to Greer, afterwards demanded compensation for the hundred acres, and was allowed by the commissioner \$700. This was then divided into lots and sold, and the money appropriated to county buildings. And thus began the pleasant town of

*Fayetteville*, which stands on a considerable elevation, and commands a fine view of the surrounding country. The scenery is decidedly picturesque; the spurs of Elk Ridge and Pea Ridge rise in solemn grandeur like the parapets of the Titans. The intervenient valleys, through which flow Elk River and Norris' Creek, present a lovely country. The luxuriant fields of wheat and grass, the stately residences peeping out from a mass of dense foliage, the snug cottages embowered in evergreens, and winding roads, skirted with white-washed fences, present such a variety to the eye that it never wearies. The town has a population of 1,800, and is a place of considerable trade. Among other things, it has seven dry goods stores, six wholesale grocery stores, three drug stores, one boot, shoe and hat store, six retail liquor establishments, two saddler shops, three tailor shops, five blacksmith shops, two cabinet shops, one tin shop, two hardware stores, four carpenter shops, one carriage and wagon shop, one seed and implement store, two printing offices, at which are printed the Fayetteville Press, and the Fayetteville Observer, two livery stables, two silversmith shops, one gallery of art, one hotel, four boarding houses, two barber shops, three church buildings for white, and two for colored, one tan-yard, four shoe shops, one butcher, five doctors, two dentists, one gunsmith, four schools and twenty-six lawyers. Besides Fayetteville, there are several other flourishing towns in the county: Molino, on McCullough's Creek, Mulberry, seven and a half miles north-east of Fayetteville, Oak Hill, on Norris' Creek, Petersburg, on Cane Creek, and Oregon, are all thriving villages. The last mentioned has near it a cotton factory, which manufactures heavy domestics. It runs about 400 spindles, employs 30 hands, and has 16

looms in operation. Besides these villages, another has recently been built in the southern part of the county, on the flat lands, by immigrants from Ohio, Indiana and Illinois. It is called Lincoln, and is a place of considerable activity. Nothing, probably, shows more public spirit among the people of Lincoln than the attention they have paid to

*Public Improvements.* There are four turnpike roads centering in Fayetteville, and another is in process of construction. One of these roads crosses the Elk River, near town, by one of the most substantial stone bridges in the State. This bridge was built in 1861, by Patrick Flannery and John Markham, of limestone rock obtained from a quarry near by. It is composed of six elliptical arches, four of them sixty feet from center to center, one forty-five feet, and one thirty feet, making the total length of the bridge 315 feet. The piers are in Ashler masonry. The roadway is fifteen feet wide, flanked by stone walls three feet in height and two in width. The two arches on the east end of the bridge are not built in the water, but on the bottom land, and are lower than the others, so there is a gradual declination from the end of the fourth arch of about  $12^{\circ}$  to the southern terminus of the bridge. This is considered the only defect in the bridge, as the approach of a wagon cannot be seen from either end, and the roadway is scarcely wide enough for wagons to pass. Its cost was about \$40,000.

*Railroads.* There is but one railroad in the county, and that runs from Decherd, in Franklin county, where it branches off from the Nashville and Chattanooga Railroad, passing by Winchester, the county seat of Franklin, in a southerly direction, until it reaches a point near the Alabama line, where it turns in a north-westerly direction to Fayetteville. This road is a great convenience to the people of Lincoln. Before its construction the farmers were compelled to ship their cotton and other produce down the Elk River in flatboats to the Tennessee River, or carry it in wagons to the Chattanooga road.

*Schools.* In regard to the sentiment of the county as to public schools, it is believed to be more favorable now than it was a few years back. There is, however, a class of influential citizens who have always opposed their establishment, and have regarded all efforts in that direction with disfavor.

*The Antiquities* of the county are numerous and interesting. Between the Stone Bridge and Fayetteville, a little to the right of the turnpike leading into town, are to be seen the remains of an ancient

fortification extending in a semi-elliptical form, some 500 yards along the banks of Elk River. The line of fortifications is frequently broken by bastions. No tradition has come down to this age as to the work—the Indians themselves had no tradition respecting it. There is but one possible conjecture in regard to it. Bastions were probably unknown among the nations of Europe previous to 1527. After that date they came into frequent use. Now Hernando de Soto, a Spanish officer, who studied at one of the universities, and kept himself informed in all military inventions, was, doubtless, acquainted with the bastion as a means of defense. It is recorded, that in the winter of 1540, he encamped in the northern part of the State of Mississippi, through the winter, in one of the Indian villages. Northern Alabama was called Mississippi less than a century ago. Now it is altogether probable that the place of his encampment was in the southern part of Tennessee. This conjecture is strengthened by the fact that remains of a large Indian village are found near Fayetteville. It is further strengthened by the discovery of an antique coin, a few years ago, near this spot, bearing the image and superscription of the Cæsars. Putting all these circumstances together, it is highly probable that Hernando de Soto passed the winter of 1540-41 on the site of the present town of Fayetteville.

*Statistics.* Lincoln county contained in 1870, a population of 28,050 persons. In 1860 the population was 22,828. Number of dwellings in 1870, 5,080; number of families, 5,069; white population, 22,097; free colored, 5,953. In 1860 the white population was 15,926; colored 6,902. This shows that during the decade ending June 1, 1870, the white population increased 6,171, while the colored decreased 949. The number reported in 1870, that could not read, was 6,526, that could not write, 9,064, or nearly one-third of the whole population. The assessed value of lands in 1873, was \$4,087,394; 317,079 acres were reported, which is about \$12.90 per acre. The total amount of taxable property is valued at \$5,178,933; number polls, 3,134; number voters in 1871, 4,983, of whom 778 were colored.

Lincoln was, in 1870, a "banner county" in more respects than one. For that year it produced a greater number of pounds of wool, and of honey, had a larger number of sheep, and had more capital in live stock than any other county in the State. It was, moreover, second only in quantity of rye produced, pounds of butter, and in number of horses. It was third in corn and fourth in wheat.

## MACON COUNTY.

COUNTY SEAT—LAFAYETTE.

The county of Macon was created by act of the Tennessee Legislature, in the year 1842, from fractions of Smith and Sumner. It was at first rectangular in form, the sides bounding the county on the north and south being twenty-eight miles long, while those on the east and west were about fourteen miles in length. In 1870, a small part of the county, at the south-western corner, was cut off to form a part of the new county of Trousdale, so that the county is not now completely symmetrical. It is bounded on the north by Kentucky, on the east by Clay and Jackson counties, on the south by Smith and Trousdale, and on the west by Sumner. LaFayette, the seat of justice, is the only town in the county. It has a central position on an elevated plain, between the tributaries of Cumberland River and the waters which flow north into Barren River, in Kentucky. The town is well laid off, and the buildings, though not large or fine, are generally neat and substantially built. There are several retail stores and shops, and two churches. The population is about 300.

*Topography.* Except small parts of the valleys of Goose Creek and Dixon's Creek, near the southern boundary, the whole of the county lies on the Highland Rim. The escarpment of the Rim, erroneously called "the ridge," is near the southern boundry, the county line cutting off the upper end of some of the valleys which expand southward into the Central Basin. The summit of the "ridge" is the most elevated part of the county. Toward the north there is a broad stretch of level and gently undulating country, reaching beyond the northern boundary into Kentucky. The inclination of this plain toward the north is scarcely perceptible, yet sufficient to give a good fall to the streams, all of which flow in that direction. In the northern part the surface is more rolling, and the valleys of the streams larger and more depressed below the general surface. South of the "ridge" the Highlands break off in steep declivities, which run down into deep valleys, where the rocks, soil, timber and productions indicate a different geological formation. The general elevation of the Highlands above these valleys is about 600 feet, though near the western boundary there is a place called the "gap," where the elevation is considerably less. The head springs of creeks flowing in opposite directions are here within a very short distance of each other.



*Rocks and Soils.* A siliceous rock underlies the surface throughout the most elevated parts of the county, cropping out on the hill-sides and forming the escarpment of the Highland Rim. The soil resting upon this formation is not of the best quality, but is generally susceptible of improvement. Wherever the clay subsoil is of a reddish or chocolate color it will retain fertilizers, and may be brought to a very high state of productiveness. If, however, it is yellowish, bluish or whitish in color, no amount of manure will fill its insatiate maw, and it is only valuable for timber, grass and orchards. Below the siliceous rock, and immediately under the soil, in less elevated portions of the Highlands, the formation is a flinty rock, containing more or less limestone. The surface in many places abounds in flinty fragments, which have been derived from the underlying formation. There is considerable lime in the soil, derived from the disintegration of these cherty fragments, consequently it is more fertile than that on the siliceous ridges. On the hill-sides facing the north, and in the little valleys of the Highland creeks and branches there are excellent farming lands. Large quantities of this chert have been washed down from the hills, and the beds of the creeks are lined with immense beds of it. In some of the creek bottoms it is so abundant as to seriously obstruct the tillage of lands that would otherwise be valuable. The blue limestones in the deep valleys, south of the ridge, belong to the Nashville group of the Lower Silurian. They are highly fossiliferous, and yield, by disintegration, soils of inexhaustible richness. The largest portion of this limestone land lies in the south-western part of the county, embracing the head valleys of Goose Creek and its tributaries. Further east, the southern boundary includes small parts of the rich valleys of Dixon's, Peyton's, Defeated, and Wartrace creeks.

*Timber.* The most elevated parts of the "ridge" or plateau bear forests of chestnut, poplar, hickory, and several kinds of oaks. Post oak and small white oaks, valuable for railroad ties, abound. The chestnut trees are very large; one near the western boundary was recently measured and found to be more than ten feet in diameter, and apparently sound, with good healthy top. Poplar trees from five to eight feet in diameter are common. There are also extensive forests of chestnut oak, the bark of which is highly prized for tanning. The cherty lands, on the hill-sides and in the valleys, produce sugar maple, beech, black walnut, poplar, hickory, sweet gum and large oaks. In the limestone valleys there are, in addition to the above species, linn,

buckeye and shell-bark hickory. The beech groves are among the most extensive in the State.

*Farms.* Farms vary much in size. There are none perhaps smaller than fifty acres, and but few less than one hundred, while the larger often embrace five or six hundred, and sometimes more than one thousand. The average is about one hundred and fifty or two hundred acres. We believe that farmers are generally as prosperous as at any previous period in the history of the county. Slave labor was never employed to a very large extent, consequently the county has not suffered seriously by the change in the labor system. Farm buildings and fences are generally in good repair. The work on most of the farms is done by owners. It is not uncommon for the farmers to engage hands to assist in cultivating the crop, giving in payment a share of the proceeds. Hired laborers are also employed on some of the larger farms, the wages being from eight to twenty dollars per month. Renters supplying their own implements and stock, pay one-third of the crop to the land owner, but where these are furnished by the latter, he receives one-half. Unimproved lands rarely sell for more than five dollars per acre, and some of the least valuable are offered at two and a half to three dollars. Improved farms on the Highlands range in price from five to twenty dollars per acre, according to location, improvements and quality of land. In the valleys the lands are considered more valuable, the highest price being about forty dollars per acre. Improved implements and agricultural machinery are found on a few of the farms, but their use is by no means so common as it should be. Two-horse turning plows are not uncommon, and there are a few of larger size, but the old-fashioned narrow shovel is still extensively used by many, both for breaking up and cultivating. Threshers are employed extensively, the owner of the machine receiving as toll usually one-tenth of the crop. Reapers, mowers and grain drills are almost unknown. Horses are more commonly used in the work of the farm than any other stock, but mules are preferred by some on account of their hardiness and economical habits. Oxen are considered the best stock for heavy draft and deep plowing.

*Crops.* The leading crops, in the order of their value, are corn, tobacco, wheat, oats and potatoes. There were produced in 1870, 256,483 bushels of corn, 950,768 pounds of tobacco, 30,525 bushels of wheat, 60,756 bushels of oats, 9,441 bushels of Irish, and 9,340 bushels of sweet potatoes. The average yield of corn per acre is about

twenty bushels, but with better cultivation it might be largely increased. Little or none of it is shipped, but large numbers of hogs and other animals are fattened for market every year. Tobacco is the money crop. Estimating the price paid the producer at an average of eight cents per pound, the crop of 1870 was worth \$76,061.44. Wheat succeeds well on all the lands except the sandy ridges. The average yield per acre is about ten bushels. This is very far below what it should be. The range of the woods affords native grasses which are nutritious and valuable for pasturage. The cultivated grasses have received but little attention, not more than ten per cent. of the cultivated lands being sown. The bottoms on the Highland creeks and branches make beautiful meadows, yielding two tons per acre of excellent hay. Red top is the common variety. Timothy and orchard-grass, so far as tried have succeeded well. Millet is cultivated to a limited extent, but many of the farmers think that it is a very exhausting crop, consequently its cultivation is confined almost entirely to the rich valleys. Blue-grass grows spontaneously on the limestone hill-sides in the southern part of the county, and affords rich and abundant pastures. Clover is a valuable crop, much of the hay produced being of this kind. It is also sometimes sown for pasture. It is rare that either clover or grass is sown for the purpose of improving the land.

*Live Stock.* Few counties have better natural advantages for the economical rearing of live stock. The range or forest pasture furnishes abundant sustenance to all kinds of domestic animals for about half the year, and the meadows and grain-fields, with but little labor or expense, can be made to yield sufficient provender for winter. It is not uncommon that hogs can live through the entire winter with no food except the mast which abounds in the forests. Sheep, likewise, require little attention, except to guard them from dogs. The live stock of Macon is generally on the "scrub" order, though improved breeds, latterly, are receiving some attention. There are several fine jacks, and good mules are frequently met with. A few of the farmers have Short-horn cattle, but these are confined almost entirely to the valleys in the southern part. Sheep are not numerous, but those kept are generally good. They are not so much annoyed by dogs as in some of the more densely populated counties, but lambs are often destroyed by foxes and wild cats, which are a great pest in some localities. The stock of horses and sheep are, as a rule, better than those of cattle and hogs, because the latter are allowed to range at will and breed promiscuously, and, of course, cannot preserve good blood. It is claimed by

some of the farmers that the scrub cattle are superior as milkers to the Short-horns, and some of the valley farmers have been jestingly accused of procuring scrub cows to help raise their thoroughbred calves, the milk of the mothers being too poor to sustain them. There is some justice in this observation, but if Devons were bred on the Highlands they would be found superior in this particular to the scrubs, and possessing many of the valuable qualities of the Short-horns.

*Fruits.* Orchards succeed well in all parts of the county, and many acres of the siliceous ridge lands and gravelly hill-sides that are now lying waste, might be utilized for this purpose. But this branch of farming has heretofore received but little attention. There are favorable indications, however, that promise improvement. A citizen informs us that during the last two years more than \$5,000 worth of apple and other fruit trees have been purchased in the county from Nashville, Murfreesboro and Glasgow nurseries. The wild grape-vine grows everywhere, and yields several varieties of grapes of good quality, some of which ripen in summer, while others do not mature until after frost. Some of these native grapes have a good flavor, and would no doubt make excellent wine. The soil and climate indicate that grape culture would succeed as well as anywhere in the State, but it is as yet scarcely commenced.

*Smaller Industries.* Butter is extensively made for home use and the market. There were produced in 1870, 82,724 pounds. Honey is an important article, some of the farmers making it a specialty. The amount produced in 1870 was 8,994 pounds. Sorghum molasses is manufactured for home use, the annual production amounting to more than 1,300 gallons. Extensive forests of the sugar maple are utilized for making sugar, the annual yield being nearly 2,000 pounds. Poultry is reared on all the farms, and large numbers of chickens, turkeys, and other fowls are carried to market every year. Eggs and feathers are also valuable articles of trade. Almost every family purchases its supplies of groceries with the income from the poultry yard.

*Household Manufactures.* The loom and the spinning-wheel are found in almost every household, and most of the every-day clothing for the family is manufactured and made at home. The goods manufactured are jeans, linsey, cotton cloth, flax linen, blankets, coverlets, counterpanes, carpets, mats and rugs, and cotton and wool socks.

*Transportation and Markets.* Live stock is driven to market, usually to Nashville, or to some point in Kentucky. Mules and horses

are sometimes taken to the cotton States. Produce is generally carried to Nashville in wagons. There are many peddlars that deal in poultry, butter, eggs, wool and other products of the smaller industries of the farm. Tobacco is sometimes shipped from some point on the Cumberland River. The line of the Cumberland and Ohio Railroad passes near the western boundary of the county, and when completed, it will supply a want that has been the greatest drawback to the prosperity of the county.

*Streams and Water-power.* The only streams that afford any considerable water-power are those which flow north into Barren River, but of these there is a considerable number. The most considerable are Trummel, Long, Punccheon Camp, White Oak, Long Fork, Salt Lick and Line creeks, all of which are available to a greater or less degree for manufacturing or milling purposes.

*Mills.* Macon is well supplied with mills of almost all kinds, among which may be mentioned Oglesbey's steam flouring and saw-mills, and A. J. Johnson's water-mills of the same kind, on Goose Creek; Gibbs', Foust & Jones' merchant-mills and wool-carding machine at Gibbs' Cross Roads; William Reeves' fine water-mill on Salt Lick; Lawrence & Kidwell's saw-mill, LaFayette, besides numerous other good saw and grist-mills in different portions of the county.

*Minerals.* Iron ore is found locally at many places in the county, but no extensive beds are known to exist. The ore is brown hematite, similar to that used in the western iron region.

Near the Kentucky line, and along all the creeks, a few miles north of the ridge, a kind of limestone formation is found, some of which makes excellent fire-rock for lining chimneys and furnaces. But little of it will burn easily into lime, though brick-masons state that the lime, when burned, makes a better mortar than the blue limestone. It has been said that it will make hydraulic cement, but no satisfactory experiments have been made in this county. A rock, however, of similar character has been tried in Sumner county with success. But the most valuable minerals in the county are those pertaining to the Black Shale. This formation occupies a position between the silicious rocks of the Highlands and the Silurian limestones of the valleys. It crops out on the face of the Highland Rim or Ridge about half way between its base and escarpment, and farther north it is exposed in the valleys of many of the creeks. Wherever protected from the weather,

as in "rock houses" on the sides of the hills, incrustations of copperas and alum may be found, and it is probable that these articles might be profitably manufactured from it. The Black Shale is also valuable as a source of mineral oils. Petroleum oozes from it, and in some places flows out in small quantities at the Sulphur Springs. By distilling in close vessels, the bituminous matter in the shale is liberated and converted into oils for illuminating, lubricating and other purposes.

*Mineral Springs.* The Black Shale is also the source of the Sulphur Springs, which have contributed more than anything else to direct attention to Macon county from abroad. These waters appear at various localities in almost every portion of the county, and are very popular with certain classes of invalids, among which may be mentioned those afflicted with gravel, stone and any weakness of the kidneys and bladder, dropsy and certain female complaints. Two of these springs have been improved and opened to visitors for many years, Epperson Springs, in the western part of the county, and Red Boiling Springs, in the eastern portion. The former claims five different kinds of health-giving waters in a compass of a few acres. The latter has two distinct sulphur springs within 150 feet of each other, the one precipitating a black sediment and the other a red, besides gushing freestone springs and chalybeate waters. These springs are situated about seventy miles north-east from the city of Nashville, and usually have a good number of visitors. The Red Boiling Springs derive their name from the red precipitate of the water, and the fact that soon after their discovery there was, as was said, a boiling commotion in the spring every morning at a certain hour—nine or ten o'clock. At this time, however, that phenomenon is never observed. The water has produced some remarkable cures in gravel and diseases of the bladder and kidneys, as well as in dropsical disease; and, indeed, there is scarcely an instance reported where persons afflicted with calculus have failed to find relief after using it for a sufficient length of time.

According to the assessment of 1873 there were in Macon county 176,223 acres, valued at \$829,647. The population, when the census was taken in 1870, was 6,633, but since then a part of the county has been given to the new county of Trousdale, so that it is impossible to give the precise number of inhabitants, or the number to the square mile.

## MARSHALL COUNTY.

COUNTY SEAT—LEWISBURG.

In point of natural agricultural advantages, but few counties in the State are superior to Marshall county. Situated wholly within the Central Basin, the fairest agricultural region in the State, it has much of the finest soils and timber to be found in that famous locality. As a home for thrifty farmers it is desirable, both on account of the abounding fertility of the soil and the salubrity of the climate, and these advantages were quickly recognized by the early settlers. The original inhabitants were from North Carolina. From 1782 to 1794 most of the lands now embraced in the county were located and surveyed by commissioners from North Carolina, appointed by the Legislature to locate and survey grants made to the officers and soldiers of the revolutionary army living in that State. Private citizens of the same State who held grants, also came out and located them here. These locations and surveys were the parents of the tide of emigration that poured into this region from the old North State, from the year 1800 to 1820. The location and surveys were made in accordance with the laws of North Carolina, and before the government of the United States, under the advice of Col. Mansfield, Surveyor General in 1800, adopted the wise system of surveying the public lands into sections, quarter sections, townships, etc., based on meridian lines. These surveyors and locators were the first white men who explored this country, then a wilderness of forest and cane and wild animals. They gave names to the streams and ridges. Some of them never removed from North Carolina; others came and settled on their lands in this lovely region. Other emigrants from Virginia, South Carolina and Georgia swelled the tide of population flowing into this part of Middle Tennessee. The first settlements were made at Fishing Fork, on Duck River, about the year 1810. The village of Farmington is said to be the oldest town in the State south of Duck River.

*Organization, Area, Boundaries, etc.* During the session of the Legislature of 1835-6, Marshall county was established out of fractions of Bedford, Maury and Lincoln counties, and contains an area of about 400 square miles. In the year 1870, by act of the Legislature, the Cornersville district of Giles county—about 32 square miles, and the best part of Giles county—was attached to Marshall county. The pop-

ulation of the county in 1870 was 16,270, of which 4,385 were colored. Add to this the population of the Cornersville district, which has been since added, 2,141, and we have the whole population in 1870, 18,348. The number of acres reported by the assessors for 1873, is 227,765, valued at \$3,771,873, or \$16.55 per acre. About two-thirds of the county is improved, the remainder being woodland. The county is bounded on the north by Williamson, on the east by Bedford and Lincoln, on the south by Giles and Lincoln, and on the west by Maury county. No railroads run through the county, but one has been surveyed, known as the Duck River Valley Railroad, that is projected to run from Johnsonville on the Tennessee River to Fayetteville in Lincoln county, passing through Centerville in Hickman county, Columbia in Maury county, and Lewisburg in Marshall county. It is intended to be a narrow-gauge road, and the country through which it is designed to pass, by reason of its productiveness, will be a sufficient guarantee of its financial success. It is understood that nearly \$250,000 have been already subscribed for its construction. On the east is the Nashville and Chattanooga Railroad, and on the west the Nashville and Decatur, a branch of the Louisville and Nashville and Great Southern Railroad. This latter road runs within two miles of the west boundary of the county. Duck River, which flows through the county from east to west, supplies during winter and early spring a sufficiency of water to float out rafts of cedar timber.

*Topography, Streams, Soils and Crops.* The county of Marshall is abundantly supplied with streams. The tributaries of the Duck River flowing into it from the north, beginning on the west, are, in order of their occurrence, Flat Creek, Caney Spring, and several inferior streams too small for milling purposes. South of Duck River, and running north, are, beginning on the east, East Rock Creek and West Rock Creek, these two latter uniting a mile before emptying into Duck River. These last mentioned streams all take their rise at the foot of Elk Ridge, a bold, high, well defined and prominent backbone that runs from east to west, and rises to the height of 300 feet above the plain. It cuts off a portion of the great Central Basin in Lincoln, Marshall and Giles counties. South of Elk Ridge, Cane Creek, Richland Creek, Bradshaw Creek, Swan and Robinson Fork all rise in Marshall county and flow south through Lincoln and Giles into Elk River. Richland Creek runs for a time nearly parallel with Elk Ridge, and affords fine water-power. Duck River, by reason of its larger supply of water, is probably the best stream for milling purposes



in the county. There are eight grist and saw-mills in operation and one wool-carding factory, all propelled by water. The two main branches of Rock Creek also afford fine water-power. Five grist and saw-mills are in operation on the two branches. The other streams have not been utilized, though some of them afford manufacturing facilities. Duck River and Richland Creek are beautiful streams, and their broad, rich valleys are exceedingly attractive and fertile. The waters of these streams have a greenish tinge, pleasant to the eye, and are filled with fish of the daintiest flavor. The bottoms and banks are usually of limestone, the currents moderately swift, and the flow and volume of water sufficiently abundant and constant to make them valuable as water-powers. From Elk Ridge there shoot out numerous spurs or highlands, which give the surface of the county immediately north of it and south of Duck River a high, rolling character. There are, however, in this portion of the county, many fine bottoms, between which oftentimes are glady places in which the rocks cover the surface like a shield. The lands usually lie better north of Elk Ridge than south of it, though not so well adapted to the growth of cotton, but corn, all the grasses, including blue-grass, small grain, potatoes, and other crops grow luxuriantly. On some of the projecting spurs, however, there are soils well adapted to the growing of cotton. It may be said generally with reference to this great staple, that it grows well on all high and broken lands, especially if there is an outcropping of sandstone and a native growth of poplar. The soils on such lands are light, porous, warm and generous in the yield of cotton. The lands on the north side of Duck River are very fine, almost equal in every particular to those on Richland Creek, yet to be described. They are level, the soil is of a more reddish hue than that found elsewhere, and is very strong, lively and productive. In this part of the county nearly every farm is fenced with cedar rails. Cotton is grown extensively, especially near Chapel Hill. The yield is equal to that grown in the Cornersville district, which is looked upon as the garden spot of the county. It is doubtful whether there could be found in the State a more desirable farming region than this if it were supplied with railroad facilities. The soil is rich and productive, the cedar forests which here abound supply durable material for fencing, and the surface of the country is almost perfectly level. There are but few stony places, and the underlying rocks rarely crop out at the surface. That part of the county which lies south of Elk Ridge, comprising the first, second, third and seventeenth districts, and lying mostly upon the waters of

Richland Creek, is regarded as altogether the finest farming lands in the county, if not in the State, and this is especially applicable to the Cornersville or seventeenth district. Here lie the finest blue-grass lands in the county. The farms are kept in a high state of improvement, and everything about them denotes the thrift of the proprietors. The surface in the western part of this section is a gently rolling plain, though it becomes more broken towards the head of Richland Creek. Between the head of this stream and Swan Creek, with which it runs almost at right angles, and between the latter stream and Caney Creek, the lands are higher and more broken, but very productive, except in glady spots. The knobby, serrated ridges that run out from Elk Ridge on both sides are covered with large poplars, grape vines and pawpaw, which to the intelligent farmer are sure indications of good soils. The slopes of Elk Ridge and of the subordinate ridges are not steep, but are mostly susceptible of cultivation, and are fertile to their very tops. The crests are covered with a flinty, siliceous, cherty gravel, that furnishes a friable, easily worked soil, not liable to bake, and that drains itself quickly and easily.

*Timber, Farms, etc.* The timber of Marshall county is by no means the least important of its elements of wealth. The large cedar forests that cover eighty square miles of its territory are unexcelled on the continent. South of Duck River, and lying between East and West Rock creeks, is an elevated tongue of land upon which there are splendid groves of cedar timber. Also west of Farmington, and lying between the line of Duck River Valley Railroad and Duck River, and extending to the neighborhood of Berlin, are extensive forests of this valuable timber, but the best are found in the north-west quarter of the county. The groves in this section are of inestimable value. Not only are the farms fenced with cedar, but all log houses are built of it, and nearly all the roofing is done with cedar shingles. The farmers prefer cedar fences to stone. They are much more easily moved, and are not so liable to fall down. There are cedar fences in this county that were built in 1812, and are yet in a sound condition. If the ground rails were placed upon stone, cedar fences would require no additional rails for thirty years or more. The soundest and best cedar timber is the product of a good soil which will grow oats, wheat, millet, etc. That which grows upon rocky, glady places is usually hollow and "shelly." The largest trees do not supply the best timber. Those above eighteen inches in diameter are apt to be filled with decayed spots or streaks. The price of good cedar lands with the timber varies

from \$60 to \$100 per acre, and is cheap at that. A farmer would save in the cost of fencing alone enough in twenty years to pay for such lands. Where cedar timber does not abound the surface of the country is covered with oaks of different species, poplar, ash, elm, linden, beech, sugar tree, walnut, cherry, locust, hackberry, buckeye, and, on the south slopes of Elk Ridge, chestnut. The eastern side of the county, though destitute of cedar, has an abundance of white oak, sugar-tree, hickory and walnut, the latter sometimes attaining a diameter of five feet. The timber cannot be surpassed in size or quality by that of any county in Tennessee. The price of lumber varies from \$1.25 to \$3.00 per hundred feet, according to kind and quality. Cedar rails are worth from \$2 to \$4 per hundred, and rails of oak, ash, poplar, or walnut are worth \$1.50 per hundred. The fencing south of Elk Ridge is mostly of oak, ash, poplar and walnut. Plank fencing with locust or cedar posts is quite common. North of Lewisburg, from east to west through the county, the old Virginia zigzag fences, made of cedar, are most common. These are built about five feet high, and some of them staked and ridged.

*Building Stone.* Should all the timber of the county be consumed, there would still remain an abundance of material for enclosing the farms. Limestone rock of a good quality is everywhere accessible, and in the south-west portion of the county a sandstone rock crops out in strata from the slopes of the ridges of a desirable thickness for building purposes. This sand rock in places furnishes good grit, and a good deal of it is wrought into grindstones and shipped to other points. Some of the limestones furnish a good fire rock, owing to their argillaceous character. Lime of excellent quality is obtained from the Nashville and Lebanon formations, which are the prevailing limestones of this county.

In the general condition of the farms, this county will compare favorably with any in the State. The farm buildings are not so good nor so elegant as in Maury, Sumner, Davidson or Bedford, but with the exception of the last named county, there is less waste land, fewer bad fences, and a greater degree of neatness about the farms is everywhere observable.

*Crops and Mode of Farming.* The soil produces corn, cotton, wheat, oats, rye, and the different grasses in abundance. Potatoes and other garden vegetables are grown for home consumption mostly. Blue-grass, clover, timothy and herds-grass grew luxuriantly. Much millet is

raised for hay. But little tobacco is produced, although there are some parts of the county well adapted to its growth. Enough hay and oats are grown for home consumption. Apples, peaches, cherries and other fruits are plentiful. A good deal of attention of late has been, and is now being, given to planting orchards of fine fruit, apples, peaches and pears. The hilly lands of the county make an excellent fruit region. Peaches hardly ever fail on the sandstone hills. Apples and peaches are largely made into brandy. Both are also dried and sent to market. Cherries and plums are abundant. There are but few improved grapes in the county. The forest abounds with wild grapes. Corn yields from twenty-five to fifty bushels per acre; cotton 600 to 1,200 pounds per acre, according to soil, cultivation and season. The amount per acre of corn, wheat, cotton, etc., could be greatly increased by a more thorough system of farming. Very little manure is used, and the result is that many of the rich lands get poorer. The hillsides especially wash into gullies on account of the improvident custom of farming without manure and deep plowing. The rich, virgin soil has been greatly abused by surface plowing and a lack of proper rotation of crops.

Land is generally broken up in the spring with one or two horses, and the crops cultivated with one-horse plows. In a word, the method of farming, kind of crops, labor, wages, etc., are similar to what they are throughout the cotton region of the Central Basin.

In the census report of 1870, Marshall county is credited with a greater number of bushels of rye than any other county in the State. The following table exhibits the products of this county for 1870. These statistics refer to the county as it was before the addition of the Cornersville district:

Corn.....	591,358	bushels.
Wheat, Spring.....	3,217	
Wheat, Winter.....	123,416—126,633	"
Rye.....	18,526	"
Oats.....	83,691	"
Hay.....	1,734	tons.
Cotton.....	2,063	bales.
Tobacco.....	12,788	pounds.
Peas and Beans.....	342	bushels.
Potatoes, Sweet.....	16,556	"
Potatoes, Irish.....	16,182	"
Grass Seed.....	315	"
Clover.....	10	"

Butter.....	170,658	pounds.
Cheese.....	1,633	"
Wine.....	239	gallons.
Sorghum Molasses.....	17,674	"
Maple Sugar.....	281	pounds.
Honey.....	13,040	"
Wax.....	1,190	"
Wool.....	34,553	"

*The Cornersville District.* In regard to the Cornersville district we have a full statistical account furnished by Mr. Geo. T. Allman, whose success as a farmer and breeder of stock has given him a national reputation. Portions of this district were settled more than sixty years ago. The best lands were originally covered with cane. Mr. James S. Haynes, the oldest living inhabitant, remembers distinctly when the broad surface of the county was almost an impenetrable thicket of cane. The bottoms on Richland Creek will average very wide. The soil on the best lands is black with a clay subsoil. It is very retentive of moisture. All the elevated lands are gravelly and porous, and are well adapted to the growth of the grape. The amount of stock water is ample. There are fifteen running streams in this district, confluent of Richland Creek. Land in this district varies from \$15 to \$75 per acre. It is very productive of all crops consumed by man or beast, that are suited to the latitude. Intelligent immigrants would be welcomed, not only in this district but in every part of the county. In this district there are two hundred farms, about twenty of which are rented, the remainder worked by their owners, or on shares for the owners. About one-half of this district is in woodland. Three-fourths of the whole district is enclosed with substantial fences, and not a single acre of waste land is turned out. In this particular, as well as in many others, this is a model district. But little land is for sale, scarcely one-tenth could be bought at what would be called reasonable figures. The following may be regarded as the price of lands that are for sale :

Best improved bottom lands.....	\$50
Best improved uplands.....	50
Medium bottom lands.....	30
“ uplands.....	30
Inferior bottom.....	\$15 to 20
“ uplands.....	15 to 20

It will be observed that the uplands are regarded as being as valuable as the bottom lands, and this because, in addition to being nearly as productive for corn, cotton, hay, &c., they grow blue-grass much better

and are not subject to overflows, which sometimes impede the work of the farmer. The amount of untillable land does not exceed one-tenth. The average rental per acre paid for these lands is one-third of the crop, or \$3 in money. For inferior lands \$2 per acre rent is paid. The usual terms of sale are one-fourth cash, balance in equal annual payments, without interest. At least ninety per cent. of the farms in this district are worked on shares. The crops grown are corn, wheat, cotton, oats, hay, tobacco, Irish potatoes, sweet potatoes, hemp, flax, &c. The following is an estimate of the average yield for the whole district :

Corn, (the proportion planted being one-half of the cultivated land).....	30 bushels per acre-
Wheat, (the proportion planted being one-tenth cultivated land).....	10 " "
Oats, (the proportion planted being one-fifth cultivated land).....	600 binds.
Irish potatoes.....	100 bushels, per acre.
Sweet potatoes.....	75 to 100 bushels "
Cotton.....	800 to 1600 pounds.
Apples, per acre.....	150 bushels.
Peaches, " .....	100 "
Hay, timothy.....	3000 pounds.
Hay, clover, per acre.....	4000 "
Hay, herds-grass, per acre.....	2000 "
Hay, millet, per acre.....	5000 to 6000 "

The grazing grasses furnish a large quantity of feed from April to December.

*Stock in the County.* The average price of stock is placed high, though not higher than their intrinsic value justifies. From the early settlement of the county it has been noted for its saddle stock. Horse-back riding is the almost universal custom with persons of all classes. Recently there have been imported some fine trotters, and public attention is being directed to that special department of breeding. Next to horses, cattle, hogs and sheep are the principal stock. Cotton, wheat and stock are the principal sources of money. Mules are largely raised and sent south. The number of improved breeds of cattle, hogs and sheep is rapidly increasing. The flocks of sheep, mostly graded Cotswolds and Southdowns, are very fine. Nearly all the hogs are more or less mixed with the Berkshire, which experience has demonstrated to be the best hog for the county. Stock is kept under fence usually, though a certain class of farmers still rely upon the commons. In the fall of the year the abundant mast from the oak, beech, hickory, walnut and chestnut supplies a gratuitous living for the hogs.

We gather from the census of 1870 the following statistics as to stock, and here again the Cornersville district is not included :

Horses, number of.....	6,202
Mules and Asses.....	2,598
Milch Cows.....	3,881
Working Oxen.....	396
Other Cattle.....	4,878
Sheep.....	16,218
Swine.....	32,038
Value of all Live Stock.....	\$1,229,100

For the Cornersville district we have the following report for 1873 :

Cows kept for milk.....	price \$ 50 00
Work Oxen.....	" 75 00
Beef Cattle, over two years old.....	" 35 00
Horses, common.....	" 150 00
Horses, thoroughbred.....	" 300 00
Mules.....	" 135 00
Number beeves killed annually.....	600
Number Short-horn cattle.....	100
Number other improved breeds.....	400
Number Sheep, Southdown and Cotswold.....	500
Pounds of wool per head.....	4
Number Sheep killed for mutton.....	500
Number Sheep killed annually by dogs.....	350
Number Hogs.....	8,000
Killed for bacon.....	3,000
Berkshire Hogs, price per pair.....	\$ 20 00
Essex Hogs, price per pair.....	15 00
Other Improved Breeds.....	15 00
Cashmere Goats, per pair.....	150 00
Number Chickens.....	15,000
Chickens sold.....	5,000
Improved Breeds, number.....	1,000
Turkeys, price per pair.....	1 75
Geese, price per pair.....	1 00
Ducks, price per pair.....	75
Guinea Fowls, price per pair.....	75
Peafowls, price per pair.....	1 50

Bees are raised to some extent, and the average of honey per hive is sixteen pounds. From seven to nine pounds of butter per week is the average yield per cow.

*Labor.* In regard to the labor of the county, Mr. Steele says: "This is strictly an agricultural and stock-raising county. The white

people own nearly all the land, and they were generally the owners of the colored people in time of slavery. But there are many white farmers in Marshall, hard working, honest, intelligent men that owned lands, but no slaves, before the war. They are thrifty now. The colored people work remarkably well. They generally hire to the landowner or proprietor at wages varying from five to twelve dollars per month, or take a share of the crop, say one-half, when the landlord furnishes land, implements, feed for stock worked, and other expenses of the crop, the laborer to have his house, firewood, garden, etc., besides, furnished to him. This plan works well when the freedmen are industrious and economical, and are treated fairly by the landlord. I believe, sincerely, that the best friends of the colored people are their former owners. Very few women work in the fields, and none that I know of from compulsion and necessity." In some sections of the county, the laborer is allowed to keep a milch cow, a horse, hogs, and whatever stock may be necessary to his comfort or convenience.

The number of acres allowed for each able bodied hand in pitching crops, is of corn, if of that crop alone, twenty; if in connection with other crops, from five to ten; of cotton, five, wheat five, oats five. The prices paid for good farm hands will average twelve dollars per month and board.

There are employed, in the Cornersville district, 150 white males, and 300 colored males, and 50 colored females, making the total of field hands employed on the 200 farms, 500. Of those employed, three are of foreign birth, and fifty born in America, but not in Tennessee.

By the year, laborers can be procured for \$150 with board, or \$225 without board. Harvest hands are worth per day, with board, \$2.00; without board, \$2.50. Transient hands, not in harvest, per day, \$1.00. Price paid for cutting wheat per acre \$1.00, and the same is paid when the wheat is cut by contract, with a machine, the contractor furnishing the machine, but requiring his board and feed for teams, and sometimes even teams are furnished by the farmer, the owner of the machine driving or furnishing a driver, and assuming all expense of repairs, etc. House servants, cooks and washerwomen, are worth \$8 per month and board. There is a great demand for farm hands, hostlers, and especially for cooks.

*Farm Statistics of Cornersville District.* For the Cornersville district, we subjoin other statistics of more than local interest, as they will



apply with slight modifications to the whole country lying in the Central Basin: Height of fences, 5 feet; average size of fields enclosed, 20 acres; cost of plank fencing, per 1,000 feet, \$50; rails per thousand, \$20, except for cedar and chestnut, which delivered cost from \$50 to \$70 per thousand; cost of splitting rails per thousand, \$10; cost of splitting rails and putting up per thousand, \$15; two-thirds of the openings to fields have gates, one-third bars; average cost per hundred yards of worm fence, \$9; with cedar or chestnut rails, \$18 to \$20; average cost per hundred yards of post and rail fence, \$20; average cost per hundred yards of plank fence, \$17.50; average cost per hundred yards of stone fence, \$100; annual repairs to fences other than cedar, chestnut or stone, are one rail to the panel per annum; oak, hickory, poplar, walnut, chestnut and cedar are the woods used for fencing. Chestnut and cedar are worth two and a half times as much as the most durable of the others. Cedar and chestnut rails will last fifty years, the rails made from the other woods enumerated, will last from eight to fifteen years. A few farmers keep their fence corners clean, the majority, however, suffer them to grow up in briars and bushes. About one-third of the stock of the district runs at large, and subsists during the summer upon the highway pasturage. The reading, progressive farmers favor a stock law. The expense of fencing out other people's stock is felt to be onerous. Mr. Allman thinks that soiling stock would be profitable; that one acre mowed and fed will furnish as much provender as three where stock are turned in to graze, and tramp out the herbage. The tenant has to do more fencing under the present law to protect his crop.

The number of two-horse cast iron plows used in this district, containing 200 farms, is 300, at an average cost of \$12 each; the number of cast iron one-horse plows, 900, at an average cost each of \$6; the number of wrought iron one-horse plows used is 2,000, at a cost each of \$3.50; subsoil plows used 25; hill-side plows 10; cultivators 75; walking cultivators 2; buggy plows 2; harrows used made in the county 150; harrows used not made in the county 75; number of rollers used in the district 20, at a cost each of \$5; reapers 20, at a cost each of \$225; mowers 25, cost each \$125; horse rakes 25, cost each \$10; straw-cutters 100, cost from \$5 to \$40 each; six-horse wagons 20, cost each \$175; four-horse wagons 51, cost each \$125; two-horse wagons 110, cost each \$100; spring wagons, one-horse, 30, cost \$125; ox wagons 75, cost \$75; carts 25, cost \$50; pleasure carriages 10, cost \$250; buggies 100, cost \$200; wheelbarrows 50, cost \$5. The mowers and reapers are usually combined.

In regard to mechanical industries, the following statistics will give the number of establishments in the district for 1873: carpenter shops, 5; hands employed, 10; wagon shops, 7; number of wagons made annually, 28; plow shops, 6; number of plows made, 150; saw-mills, water-power 1; steam, 2; lumber, mostly poplar made, sells at \$17.50 per thousand feet; blacksmith shops, 6; hands employed, 12; grist mills, corn, 3; wheat, 2; wool-carding machines, 1; tanneries, 2; value of products, \$2,500; shoe shops, 3; value of products, \$3,000; hands employed, 9; wages per day, \$1.50; harness and saddle shops, 2; value of products, \$3,000; carriage and buggy factories, 1; value of products, \$1,500; hands employed, 2; wages, \$1.50 per day; hand-loom, 25; value of products, \$750. A few ladies manufacture superior blankets, jeans, linsey, etc., on the old hand-loom. During the late war nearly all did. Very little homespun is now worn in that district, though the amount is considerable in the county. In the smaller industries, this district makes a respectable showing. Apples, dried, 1,000 bushels; peaches, dried, 500 bushels; chestnuts gathered, 400 bushels; beeswax, 2,000 pounds; feathers, 3,000 pounds; ginseng, 500 pounds. At the usual prices at which these articles are sold, the amount reported would bring into the district \$6,600.

In concluding his answers to the questions sent him, Mr. Allman, in reference to this district, says:

“We have as fine land as can be found in America. Limestone, sandrock and timber for building, and fine water privileges for machinery. The greatest want of this district, as well as for the whole county, is good roads, reliable labor, and capital to start manufactories. A woolen or cotton factory would pay well. We need skilled mechanics, also quite a number of live, progressive immigrants. The large bodies of land ought to be cut up into farms of 100 or 200 acres, then we could build roads, churches, sustain schools, etc. The tenant system will never develop this section. We need more labor-saving machinery. We should sow more grass, grow a better class of stock. Ours should be second to no part of the United States, and would not be if our people would only will it.”

*Manufactures.* The county is well supplied with water and steam mills, either for grinding grain or for sawing lumber. There are more water mills than steam mills. Marshall county has no cotton factory, and no woolen factories outside of carding machines. The blacksmiths, mechanics and farmers make many of their agricultural implements.

They buy, however, too much from the North in the way of agricultural implements, when better and cheaper articles could be produced and made in the county and in the State, if the people would give their attention to it. The supply of wool and cotton manufactures is limited. The people sell the raw products at a low price, and buy the manufactured goods, paying the manufacturer a great profit. Still a good quantity and quality of jeans, linsey, blankets and cotton cloth are made from the original wool and cotton by the women, who, for industry, economy and skill in household and domestic affairs, are not excelled. They ply the wheel, loom and needle, and make cotton and woolen fabrics that vie in utility and comfort with any in the country. In 1870 the value of home manufactures was \$45,466.

*Academies, Schools and Churches.* Academies and schools are generally supported by voluntary contributions. The county has several fine, flourishing academies and many excellent private schools. Except about five schools for colored children, no free schools exist in the county. The colored people draw their part of the funds and enjoy the benefits—the whites seem indifferent, and prefer to send to private schools and academies. The county is well supplied with churches, some of which have well furnished rooms for worship. The churches are entirely Protestant, and are of the Presbyterian, Christian, Methodist, Cumberland Presbyterian and Baptist denominations. The clergy are devoted, able and learned men, and are well supported.

The statistics showing the amount of taxable property, number of polls, etc., which are not herein given, may be found in the chapter on statistics.

*Social Characteristics.* The citizens of this county are mainly the descendants of emigrants from North Carolina, Virginia and South Carolina, and have imbibed from their infancy lofty principles of honesty, morality, hospitality and generosity. Unsuspicious by nature, they welcome the stranger to their hospitable boards with a heartiness as sincere as it is rare. Through all the bitter trials of the war they maintained their self respect by the preservation of order, and when it ended and their slaves became freedmen, they dealt honestly and kindly with them, faithfully observing their contracts, and bore with patience the ebullitions of new born freedom. Quiet as citizens, noble as men and women, proud without being arrogant or ostentatious, courteous in bearing, kind, generous and law-abiding, but withal not sufficiently alive to the educational tendencies of the age, nor to that

spirit of progress which weaves garlands of beauty and honor about the homes of the industrious, and without some share of which communities and men decay.

The thanks of this Bureau are due to Hon. A. A. Steele, Major G. T. Allman, Mr. Talley and Mr. McClelland for many valuable facts pertaining to this excellent county.

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## MAURY COUNTY.

### COUNTY SEAT—COLUMBIA.

Maury county was organized December 21, 1807, and was named in honor of Hon. Abram Maury, of Williamson county. The act authorizing its establishment was passed November 24, 1807. Since its organization, its boundaries have been curtailed from time to time to furnish all or part of the counties of Giles, Bedford, Marshall, Lewis, Lawrence, and Hickman. At present the number of acres, exclusive of town lots assessed for taxation, amounts to 366,910, valued at \$7,650,478. Small as this area is, compared with its original dimensions, Maury is still one of the large counties of the State.

From its earliest history, Maury county has been noted in the State for its fertile lands, its fine farms and the hospitality, culture and refinement of its society. In the point of country wealth, it ranks first; its farms are among the largest, and are held at the highest figures per acre, and, excepting Davidson and Shelby, it has long maintained a larger number of good schools than any other county in the State. It is not strange, therefore, that it should have exercised considerable political influence in State affairs, or that its citizens are proud of it. The early settlers were mostly from North Carolina and Virginia; many of them were immediate descendents of revolutionary soldiers, and well to do for those days. As a consequence, they brought to the young county as much of refinement and culture as was known in the older society from which they came. This fact had much to do with the after development of the county. People who have been reared to know the comfort and conveniences of life, to say nothing of its luxuries, will not willingly live without them when they can be procured. The early settlers soon showed their culture by the style of their houses,

the planting of fruit trees and flowers, and the general care and attention bestowed on the adornment of their homes. Inseparable from this love of comfort and regard for the looks of things, was the high appreciation of education. Not a few of the first generation of young men raised in the county were sent off to college. Chapel Hill, North Carolina, was the favorite resort, while the young women were sent to Nashville to be finished off. We shall see that this spirit never died out.

*Topography and Physical Features.* An orographic view of the county would present the picture of a section of a river valley running almost due east and west, with the dip to the west, and fringed to the north and south by smaller valleys which furrow the sides of irregular ranges of knobs or hills which lie along the northern and southern boundaries of the county. To the west, these hills broaden out into the uplands known as the barrens forming a part of the Highland Rim. The bed of this valley is occupied by Duck River, which flows through the whole extent of the county, dividing it almost equally. This river drains the entire county; all other streams in the county flow into it. It is not navigable, though it is floatable through the entire extent of the county, and was, in former years, much used for the transportation of corn and lumber, principally cedar. Rafts are still floated out in considerable numbers every winter, during the high water. The main use and great value of the river, however, are as a water-power in driving the many excellent flour, corn and saw-mills that line its banks. The current of the river is moderately swift, its banks comparatively steep, and on one side, tolerably high throughout the county, while in the west, where it breaks through the Rim escarpment, its banks rise steep and high into almost perpendicular bluffs of solid rock. This escarpment is about three hundred feet high from the surface of the river. The bottom of the river is either smooth rock, or more generally, of smooth round gravel, averaging about two and a half inches in diameter, and of a clay color. The fords are, therefore, permanent and safe where at all practicable. The number of its tributaries is so great that when protracted rains prevail, the river rises rapidly and to a great height; its banks are such, however, that it does comparatively little damage outside, while the solid character of its bottom enables dams to be built which are impregnable.

*The Creeks.* From the north and south ten good sized creeks flow into Duck River. They all take their headings near the boundaries of the county, and their average fall is about two hundred feet from

headwater to mouth. These creeks are in character much like the river. They wind considerably within narrow plains, and one of the banks is always tolerably high, and often consists of a perpendicular bluff. There is a marked difference in the velocity of the creeks near their heads among the Highlands, and along their lower course as they near the river. In several creeks, on the western side of the county, this difference is marked by beautiful waterfalls. On the north-west and south, the Rim which borders the county is slashed by narrow and beautiful valleys of extreme richness; the remainder, and main body of the county, is of a gently rolling surface, stretching out toward the west and south of the river into almost a plain-like smoothness.

*Soil, Timber and Crops.* With the exception of the small portion around the northern, western and southern edges, invaded by the Highland Rim, the entire county is of a limestone formation. It is by no means of one uniform variety, however, nor is the soil the same over the county. Entering the county with the river on the east, we find a lead or dove colored rock containing many fossils, and lying in thin layers, which are easily lifted from their bed and make tolerable good paving stones without any dressing. This stratum continues to show itself along the river and on the surface until we reach Columbia. The soil in which it is embedded is dark and friable, and exceedingly rich. The subsoil is generally a stiff, dark colored clay, which weathers rapidly into a rich soil. But the characteristic of this region is the cedar timber, which abounds in some places so thickly as to exclude all undergrowth, and to shut out every ray of the sun as effectually as the darkest clouds of winter. In "the cedars" the rock comes to the surface, and lies in masses, separated by narrow strips of earth, from which spring giant cedars. The appearance is very singular, and may be not inaptly compared to great flocks of giant sheep lying at rest beneath the shade of the friendly trees. This character of land is found in several other sections of Middle Tennessee, and is commonly known as "the glades." The soil is admirably suited to wheat and grass, and peach trees do finely in it. The other timber is chiefly ash, walnut, hickory, and elm. North of the river and running up to the county line, and westward to Columbia, the limestone lies in much heavier and thicker strata, and is of a dark blue color, shading off into a whitish gray in the upper strata. This rock is very heavy and dense; it quarries with regularity, and is much esteemed as a building stone. It makes lime of snowy whiteness with comparatively little heat. The soil of this region is of dark brown rich loam, mixed more or less with

fine sandy chert, the produce of the weathered rocks. It is excellent corn land. Generally speaking, the surface is considerably rougher north of the river than south of it. There are more abrupt hills, and these often show rocky ledges destitute of soil. There is, however, in this region one characteristic level section of land, where the land both in surface and general texture resembles the plain-like land in the south-western part of the county. Spring Hill lies in this section, and the county around is a fair type of it. The favorite crops are corn, wheat, barley and the grasses. From Columbia south-westward lies one of the most beautiful bodies of land in the United States. Certainly none other in Tennessee surpasses it, and no other is so well known, or so often spoken of by travelers. The soil is of a dark, calcareous clay, mixed with siliceous sandy impurities. The surface is gently rolling, carpeted with indigenous blue-grass, and adorned with a luxuriance of forest almost tropical in size; walnut, maple, hickory, elm and oak abound of enormous size. This section extends over almost the entire territory embraced between the Little and Big Bigby creeks, and contains some of the handsomest and most productive farms in the State. This region resembles very closely the famous blue-grass region of Kentucky, but has one very great advantage over that region, in that it is abundantly watered, a point in which the Kentucky region is sadly deficient.

*Agriculture.* If ever nature designed any country for the farmer's paradise, it must have been Maury county when first the virgin soil was turned by the white settlers in the young years of this century. It is difficult to conceive of richer soil, of more congenial climate, or a greater combination of natural comforts ready made to the farmer's hand, than nature offered to the first settlers of Maury county; nor were they unmindful of these bounties. Few counties in the State sprang so rapidly forward in population and importance. This was due, however, not entirely to the natural fertility, but in a large measure to the character of those early settlers. They were very generally men of good means, large numbers of them owned slaves, and came to the county well equipped, for that day, in the appurtenances of farming, so that, strictly speaking, they did not have to pass through those primitive and trying stages of pioneer life with which the less fortunate settlers of some of the older counties had to contend.

The early crops were corn, cotton and flax—the cotton and flax only grown for home use, and in such quantities as the home wheels

and looms could spin and weave. Corn was the selling crop—the only marketable crop, indeed. In a little while, however, the impetus which Whitney's invention of the cotton gin gave to cotton growing reached the county, and cotton began to be a sale crop. The erection of flouring mills also opened the way for wheat culture; but this crop made very slow progress, and it was only at a comparatively recent date that enough was grown for home use. Oats came earlier into favor and general cultivation, but this crop, too, had to wait until there grew a demand in the increased live stock. Hemp came to be considerably grown in the county, and at an early day it was used for ropes, and for making bagging for the cotton.

The opening of the Mississippi lands to entry and purchase at a later date exercised perhaps a more immediate and powerful influence upon Maury county than upon any other part of Tennessee, great as was the influence upon the entire State. Mississippi was the El Dorado of cotton planters. The slaves brought to Maury county had increased, multiplied, furnished their owners with the best possible instruments with which to win the golden fleece of the cotton fields. Large numbers emigrated from the county, and made their homes in Mississippi, while many others and the more wealthy bought land and opened plantations in Alabama and Mississippi, while they retained their homes and kept their families in Maury county. But the influence was scarcely less on those who did not become planters. The rapid development of the cotton interest of Mississippi drove the Maury county cotton planter out of the market. New Orleans was the cotton mart, and if the Maury man could have grown as good cotton as the Mississippian, he was too far away from market to compete with him. But it soon became evident that there was no comparison between the staples grown by the two. So, per force, cotton was driven from Maury county in a large measure. But there was a compensation in store for the farmer. The planter might monopolize the cotton market, but he was almost as much at a disadvantage in trying to grow his own supplies of hemp, corn and bacon. For these he must look elsewhere. Naturally he came to Tennessee, the nearest and then the best hemp, corn and hog region in the Union. In response to this demand, hemp came to be one of the staple crops in Maury county, and rope walks and hemp factories were quite as common in the county as cotton gins are now. At the same time, increased attention was paid to the growth of corn, hogs and mules, and the selling crops increased from the one article, corn, to corn, hogs, mules and hemp. This change favored and was



favored by the reduction of the number of farm hands. More land was put down in grass and more negroes were taken to the cotton region. In time, however, Missouri, Kentucky and other States entered the hemp field, and the competition became too strong. Hemp gradually ceased to be grown, but its place was occupied by more grass and stock, and more negroes were sent to the cotton fields. By this process the number of persons residing in Maury county and planting in some of the cotton States increased year by year. The influence of this condition of things we shall soon have occasion to notice. One singular feature presents itself in the agricultural history of the county, and that is that at a certain period a mania for making brandy and whisky seems to have pervaded the whole community, accordingly we find an astonishing number of still-houses built. This feature we are unable to account for, and all the more so as it was not peculiar to this county, but seems to have been more or less common to the other counties at the same time.

The following letter to the Secretary from Major Campbell Brown, of Spring Hill, gives much information in relation to this excellent county. In it are embraced some items given by Mr. Akin:

“There are four leading divisions of lands, the barrens, the creek bottoms, the cedar lands, and the rich limestone and clay soil, the latter constituting the bulk of the county. The soil of the barrens is light, sometimes red and clayey, sometimes gray, but in either case washing off readily, and said to be soon worn out by tillage. It brings good fruits and vegetables. Very fair clover and corn grow on it, on a small scale as regards the clover. The creek and river bottoms are alluvial, of the richest description, but not constituting any large portion of the county. The north-eastern and eastern parts of the county are cedar lands, of the poorer class, as far as my observation (which is limited) extends, a very black, pasty soil on white and gray limestone, much stone and the soil thin. The well known blue-grass lands, which constitute the bulk of the county, have occasionally rising above them a fifth class of soil, which I have not specified, flinty hills with a good deal of slate in their lower parts, the tops and sides covered with fragments of flintstones and sharp gravel. These hills, where not too steep, are excellent for corn and grass, but not so good for cotton. The soil is darker than that of the lower grounds. I am unable to say what are the special aptitudes of our best lands—the yellow poplar and beech lands. They seem, if properly cultivated and well treated, to produce

almost anything desired. But they grow some of the grasses to perfection, cotton, corn and tobacco well, wheat and small grain ditto.

“With such variations in quality, land ranges from \$100 per acre for small, highly improved places, in good neighborhoods, a price paid two or three times in the last three years near Ashwood and Mount Pleasant, down to \$1 for wild lands in the barrens, plenty of which can be had at that price. It is hard to give an idea, but excellent places, with tolerably good improvements, and conveniently situated, have sold for \$35 to \$40 per acre, and fair lands near them at \$20 and \$25, on usual time.

“The average yields on our better class of soils I should put not higher than, corn, 30 bushels; wheat, 13 bushels; cotton, 600 pounds (seed); tobacco, 900 to 1,000 pounds. Very little tobacco or peanuts are grown. Hay,  $1\frac{1}{4}$  tons, though this is a mere guess, as it is rarely weighed or sold. On the poorer class of soils not over two-thirds of this, perhaps not over one-half. I mean the barrens and cedar lands by this class. There is not over one acre in forty or fifty actually thrown out of cultivation and gone to waste from exhaustion, but at least one-fourth the land is worked at a loss, in my opinion, and ought to be rested. We have reached a point where on many places farming must improve or stop. I attribute this more to bad tillage than to actual exhaustion of the soil. Our lands are rolling, and when plowed up and down hill wash badly, especially where there is a *hard pan* four or even three inches below the surface, as is not seldom the case. It is still the case that some of our farmers break up with a one-horse plow, or if they use two horses do not give proper attention to the manner in which the work is done. A piece of land within sight of my door was cleared in 1870 and put in tobacco. In 1871 it was again in tobacco, and that fall put in wheat, the rows always running up and down the face of a short but steep hill. It is now utterly worn out, or washed off, rather. Another reason why I attribute deterioration more to bad farming than to exhaustion by crops, is that some of the very oldest farms in the county are among the most productive. I am satisfied that the most profitable farming for the county is a strictly *mixed system*, embracing both stock-growing and money crops. I know that the percentage of returns on capital invested in stock-growing has not heretofore compared with that received from money crops, chiefly cotton; but last fall a farmer, who is regarded as among the most successful, if not the most successful, of the cotton planters in the county, and whose farm is comparatively level, assured we he would soon have

to begin stock-growing and the raising of grasses to renovate his lands, which are, he says, deteriorating fast. He regretted not having combined the two pursuits in the first place, and said his land had lost in value a good part of what he received for his crops. A near neighbor of mine, who follows the mixed system strictly, is perhaps the most successful farmer in the county, and as I know of no failures to make money where it has been observed, (though many may have occurred) the result of my observation is that it promises best for the county. Our soils are all adapted to the grasses. Even in the barrens clover grows well, and there are native grasses which furnish good summer grazing. I never saw the meadow grasses tried on that soil. On our better lands, timothy and red-top (or herds-grass) have been the usual meadow grasses. Orchard-grass is rapidly coming into favor, and for grazing also is nearly as well liked as blue-grass, though it has not yet had a free and fair trial. Clover is the only renovator in habitual use. Barnyard manure is beginning to be cared for, and plaster is occasionally sown on clover, but clover alone is the chief reliance for worn-out lands.

“Labor is sufficiently abundant. Cotton and corn are chiefly grown on shares, or by renters, except that a large proportion of the cotton in the county is grown by the smaller farmers and their families. Hands on shares feed themselves and get one-third or one-half of the crop, where the owner furnishes teams, implements and forage. Where they furnish these, they get one-half to two-thirds. Farm hands get \$12 per month and rations, for good men, ranging down to \$5 or \$6 for women.

“*Rents.* Where these are paid in money, \$4, \$5 and \$6 for cotton, corn and wheat lands respectively, are the usual rates. Sometimes more, sometimes less is paid, owing more to accidental circumstances, or to relation of supply and demand, than to the quality of the land. Leases are not much in fashion. Where made, they are usually for five years, so far as I have observed, with a stipulated annual rent, the lessee being bound to stricter care than an ordinary renter, and having compensating advantages allowed him. I am inclined to think it would be well for the county if long leases were more in use, as three-fourths of the bad farming is done by annual renters. In leasing for terms of years, owners would find the character of the lessee as a farmer more important than the higher rent that another man might promise, and tenants feeling permanently settled would be encouraged

to be careful, and to improve the lands. In this connection, while recognize the value of the negro as a laborer, or as a manageable annual tenant, let me say it is of no use to expect him to improve or keep up rented land without close personal attention on the part of the owner. As for being a tenant for years and caring for the land on his own account, it is quite outside of his philosophy.

“There is a good deal of land for sale in the county—some good farms belonging to men with large families who want to seek a new country, or to men who are in debt and obliged to sell, and a good many farms run down by the same bad management that makes necessary for their owners to move.

“*The Live Stock* of Maury county is probably a little better than was in 1860, when there was a great deal of highly improved stock in the county, most of which was swept away by the war. In 1866 there was scarcely a good horse in the more exposed portions of the county, and the stock of cattle was very small and inferior. Most of the cattle have an infusion of Short-horn blood. The horses are generally well bred, but deficient in size and bone. The sheep are generally natives, with a good proportion of Southdown grades, and the hogs are Berkshire or grades. In hogs, indeed, Maury county is better off than in any other class of stock, having both more of the improved specimens and a better average. A good deal of improved stock has lately been brought into the county. In horses, it now has four good trotting stallions, four or five good thoroughbreds, and a large number of saddle horses, mostly bred in the county, some of them quite good. In cattle quite a number of excellent Short-horns, some good Devon and Jerseys, and in sheep, a few Cotswolds and a good many Southdowns. But I fear it would be too much to say that any *general* interest in improved stock has been aroused. The stock of the county, however, cannot help improving steadily, under present circumstances, as the number of well bred sires increases yearly. There is very general complaint of the trouble given by dogs, and it prevents many from attempting to grow sheep. If the loss in the county were as great annually as it is in this neighborhood, I should estimate it at 1,000 head, but it will scarcely fall short of 600 at the least. It is not always the case that the largest owners lose most. The largest flock in the county has lost less than one-half of one per cent. from this cause for three years past. I have had a good deal of experience with sheep-killing dogs, and feel tempted to go outside of the strict questio

as far as to say that it is the rarest of things for a dog that is good for anything, or whose owner takes decent care of him, to kill sheep. Nine-tenths of the damage is done by rambling, half-starved curs, whose owners cannot or will not feed them. I have poisoned fully 100 dogs in fields where sheep had been killed, and never failed to get the guilty one—never killed but one dog that was of any value, and he had undoubtedly killed the sheep by whose carcass we found him.

“There are several drawbacks to farming:

“1. *The System of Annual Renting* and cultivation of cotton on acres. This begets a feeling of insecurity and want of permanence in relations, both of tenant and owner, that is palsyng to all systematic efforts at improvement. The object of the owner is to obtain the largest return with the least expenditure of labor or money, as the next tenant may require an entirely different arrangement from that which would suit the present one, and the tenant obviously has no interest, but to make the most out of the land for the present season.

“2. This system arises from the lack of means on the part of the land owners, as much as from any other circumstance. There are few of them who possess the capital to buy stock, or to be able to seed and to pasture and wait for returns from it. Their wants necessitate the constant cultivation of their arable land, and as it annually decreases in fertility, the necessity is continually more stringent. For which there seems but one escape—in the practice of most careful economy until a capital has been accumulated, or the sale, where possible, of part of their lands, to procure means to improve the rest, and as most own more than they can have thoroughly tilled, this is the most promising course.

“3. The scarcity of stock, of permanent pastures, and the lack of proper rotations of crops are all corollaries from the above facts. I believe it is accepted as an axiom, that either commercial fertilizers or home-made manures are essential to improvement, or even to sustained fertility of farms. Commercial fertilizers are not used (except occasionally plaster on clover) and few farmers keep enough stock to furnish the necessary manures, or take care of what manures are made.

“4. Those who keep stock often handle them carelessly, pay too little attention to weeding out the unprofitable ones, and consequently find themselves more pinched for means than if they kept none.

“5. The means of communication throughout the county are bad,

so that there is less of social intercourse than ever before, and less attention paid to those things that render a farmer's life graceful and cheerful, and make his children content to remain with him. I think this will soon change for the better. This lack of intercommunication is a great obstacle to the spread of improved ideas, and is a real, not a fancied, evil, of the most serious nature.

"The valuable varieties of timber are growing scarce. The walnut in the county, has been much thinned since the war, as have the poplar and cedar. Probably more of poplar and walnut have been exported than of any other lumber. Some walnut logs (uncut) have gone direct to Cincinnati by rail, and a good deal of lumber has been sent to the same market. There is a large number of saw-mills in the county. I am safe in saying that the feeling of the people toward immigrants is most friendly and favorable, and that they are anxious for anybody to come who expects to work for a living. This I have seen practically demonstrated in repeated instances. The farmers are rather disposed to sell and emigrate, the wish seeming almost confined to three classes:

"1. Those of limited means, with large or growing families, who want to go where land is cheaper, so as to be able to own more and leave better provision for their children.

"2. Those who are in debt and sell out by way of clearing off old scores, taking the money left them for a fresh start in a new country.

"3. Those who are renting land here, and who do not, therefore, come strictly under this class, who move where they can buy. \*

*Roads.* At an early day the natural facilities for making good roads were taken advantage of in Maury county in a general way, but it was not until the joint stock turnpike companies came into vogue that the present system of roads were established. The building of the Nashville turnpike gave such an immediate and powerful stimulus to trade and travel that the other roads were built without much trouble. These roads are first graded, then macadamized, and in many cases covered with a thick coating of gravel, which may be obtained from the bed of almost any of the creeks, and from any shoal in the river. These roads are not well kept up at present, and an efficient road law is sadly needed."

*Farm Houses, Out-buildings, Fences, and Fictures.* A majority of the houses in the county are weather-boarded, framed, painted, white with green blinds. The prevailing plan is two rooms, with a passage

between, with an L addition running back; kitchen detached and smoke house by itself. With comparatively few exceptions, the houses are comfortable and roomy, and the most of them have some attempt at ornament in the way of a front porch, or ornamented front door. So, too, the front yard always shows some desire for something beyond the merely useful, in the shape of a rose bush or other flowers. In the better class of houses, all these regards for comfort are multiplied and the refining influence of woman is made more manifest. This spirit and influence culminate in the finest residences in the county, which were always in the country, and not in town. Around these residences are beautiful pleasure grounds, and costly green-houses, conservatories and flower gardens, all devoted alone to the delight and comfort, and not at all to the profit of the owners, their families and friends. The buildings in such places are usually of brick, and designed and finished in the highest style of art within reach. Here we find the ripened fruit of that spirit of comfort and good taste which marked the early settlers.

The out-buildings are, perhaps, not quite up to the level of the houses, relatively speaking, yet they will compare favorably with those of the best counties in the State. In one particular, there is a favorable exception, and that is in the fences. No county in the State can boast fences superior to those in Maury county. The abundance of excellent timber and building stone has been wisely and widely used. Stone fences are gradually extending along the boundaries of the best farms. As a natural appendage, good gates accompany good fences.

*Towns.* There are in the county twenty-three towns and villages. Of these, Spring Hill and Sante Fe lie north of the river, and Williamsport, Hampshire, Mt. Pleasant, Campbellsville, Bigbyville, and Culleoka south of the river. Columbia, the county seat, is situated on the south side of the river, nearly midway the county. The villages are neat, with wide streets, and have the same air of taste that marks the country towns of the State. Columbia is, in some particulars, a noticeable county town. It is, in the first place, the cleanest town in the State. It lies so as to drain itself. Its streets are broad, well built and gravelled, bordered with wide and smooth sidewalks. Originally, these sidewalks were laid down of slabs of shaly limestone in the native state, but these have mostly given place to brick. Along each side of the streets, but not in the pavements, shade trees have been planted and preserved. They are mostly of the paper mulberry and maple. Columbia is one of four or five towns in the State with public water-works. A primitive style of wheel and pump supplies

the town from a splendid spring, situated about half a mile from the town, and has done so for more than a quarter of a century. But an observing traveler having been through the county, and coming into the town, would hardly fail of being disappointed in its appearance. The residences are not such as, judging from other counties and towns, he would be led to expect. But this phenomenon is easily explained. The county is emphatically an agricultural county. By way of illustrating the English love of the country, it has been said that every native inhabitant of London, at some time in his life, dreams of a happy future when he can go to the country to live. This saying would be literally true of every native of Columbia. The wealth of the county lies in the country; there are the finest houses, and there the mass of the intelligence and refinement of the county is found. By this it is not to be understood that Columbia would not compare favorably with its sister county towns, for most assuredly it would, and in one most important particular, would be acknowledged the peer of any town or city in the State, not excepting even the capital itself, we mean, of course,

*The Female Schools.* We have seen that the early settlers brought with them, from their old homes, a high appreciation of education, and sought to secure the best within reach. This appreciation was inherited by their children, so that at an early day schools were established in all the large neighborhoods, which were quite equal, if not superior, to schools of their class elsewhere, but it was properly left to Columbia to build up higher institutions. In 1837 a few wise and good men, noted alike for their learning and liberality, their zeal and self-sacrificing devotion to the cause of education, determined to build an institution in Columbia that should be at once a pride to the town and a blessing to the State. The work was long and arduous, but it was done, and the Columbia Female Institute was the result. It took, from the beginning, a stand in behalf of female education far in advance of the times. Under the wise management of its gifted rector, it became known far and near, and drew pupils from all of the Southern States. In 1853 the Columbia Athenæum was established, and soon became as popular and as widely known. These institutions, which still flourish, have made for Columbia an enviable reputation, and exercised a happy influence in elevating and refining the tone of society in the town and county, or for that matter, wherever their pupils were sent far and wide throughout the South. For many years, Jackson College offered fair opportunities to the young men of the county for



acquiring something more of education than could be obtained in the neighborhood schools, though these were very good. The buildings were destroyed during the war, however, and the college has not been revived. There is at present a lack of good male schools, not only in Columbia, but throughout the county. There are some very good ones, but not enough to meet the wants of the community. Precisely why this want should continue so long unsupplied, is not easy to say, but it is quite possible that the things needed are not taught in the schools, or rather the things taught are not the things felt to be needed. The farmers want something more than the abstractions and dead forms of dead people, and though they may not be able to define their wants, they certainly feel that what is offered in the old style curriculums, is not the thing. Herein lies the root of much of the indifference to schools, of which speakers and writers have so much to say. When the schools shall offer what the farmers need, live matter and life-giving matter, then there will be found plenty of interest. In this field lies the most important and urgent work that belongs of right to farmer's clubs and Granges.

*Since the War.* In all the South a new era has begun since the war. In Maury county the loss by the war was excessively great. The mobilized wealth of the county consisted of negroes and stock, and much of the value of the negroes consisted in their familiarity with and skill in the management of stock. At the close of the war the negroes were free and scattered, the stock gone, stables and barns burnt, and fences destroyed, and the farmers had to begin almost as empty-handed as the first pioneers. This condition of things, added to the further fact that cotton was the one thing in demand, compelled every farmer to devote more or less of his land to cotton. The free negroes would not work other crops, and no one had money to stock a farm. Nine years have passed, and a wonderful change has been wrought. The recuperative powers of the land and the people have shone out in great force. Fences have been rebuilt, barns and stables renewed, roads repaired. The county agricultural society has been revived, and for six years has held annual fairs with great success. A large, live and earnest farmers' club has been established. The true policy of the county is restored. Cotton is fast giving way before improved stock; hogs, cattle and sheep of the very best blood and form are perhaps bred now by a larger number of farmers than was ever the case before. The one great obstacle in the path of all agricultural progress in the county is the uncertain and disorganized condition of the labor

force. This condition of things is common to the entire South. The labor question is indeed the great question with American farmers. In stock-raising the labor must be skilled, and in some measure fixed. Stock farmers, therefore, find it more difficult to get good hands than do cotton-growers, to whom the quality of the labor is not a matter of such great moment. The solution of this problem is one of the works for the coming generation. The loss of property, and especially of the incomparable house servants, consequent upon the war, has reduced the style of living among the wealthier families very greatly, and worked many other changes in the domestic arrangements of the farmers. But the wives and daughters have proved themselves equal to the emergency, and are meeting the difficulties and overcoming them with most commendable cheerfulness.

*The Country Store.* Prominent among the institutions which have grown up or received new life since the war is the *Country Store*. In the olden time the owner of servants, having to provide their food and clothing, bought in bulk and dealt almost exclusively either in Columbia or Nashville, but since the freedman has to provide for himself he, of necessity, buys by the dollars' worth, or less, and cannot afford to go far to buy. Out of this consideration of things have sprung up country stores that keep on hand a small stock of all the ordinary articles of household needs, and buy or barter for almost everything that can be brought to market. The influence of these institutions is just beginning to show itself. In time they will become the nuclei of little villages. It will be all the easier to build up these little towns, now that the absence of good servants robs country-life of many of its old-time pleasures. Both Columbia and the older villages are getting the benefit of this same influence, as may be seen by the increased number of country people who are "moving to town." The result is a marked improvement in the towns in the number of residences and amount of business carried on.

*Manufacturing in Columbia.* There had been for many years, before the war several manufactories of carriages and of furniture, and the business was growing. Since the war, however, the demand for pleasure-carriages has not been so great, or at least the style of carriage desired is not so costly, but in place of this branch of business the manufacture of plows, harrows, &c., has been entered upon with zeal and success. In the meantime furniture-making has largely increased, and a factory erected, in which the making of hickory-framed split-bottomed

chairs is a specialty. A foundry has been established, and there is manifestly an increasing inclination to make things at home, which in time may ripen into an active manufacturing spirit.

*The Smaller Industries.* Springing from the same causes that give rise to the country store, is a general tendency to pay more attention to the little industries. The selling of butter, chickens and eggs was in the palmy days of the old regime, beneath the dignity of too many of the farmers and farmers' wives of Maury county. A wiser and more profitable sentiment is spreading abroad through the county. As a consequence, the town markets are improved, and the pocket money of the farmers' wives is increased. The change is a healthful one, and deserves encouragement, since, there is still much room for improvement in this direction. Among these smaller industries, the

*Growing of Fruit* deserves especial mention. It is something near twenty-five years since, through the active canvassing of some Ohio nurserymen, a new impetus was given to the planting of fruit trees in the county. By the praiseworthy persistency of these agents and their successors, the county became pretty thoroughly stocked with fruit. Much of it was worthless, it is true, because many of the agents were swindlers, but there was also much good fruit put out. Especially did the peaches and plums do well; the northern apples all failed. But the farmers got a taste of good fruit, and since then, have been steadily buying. They have begun to learn from experience that there is a difference in fruit trees. In the meantime, a few trustworthy nurseries have been established in the county, so that, in the future, gross mistakes may be avoided. The uniform experience of all careful experiments establish conclusively that peaches, plums, pears and apples, of the finest quality and in paying quantities, may be grown in any part of the county. In peaches, several splendid seedlings have been established.

*Railroads.* The Nashville and Decatur Railroad traverses the county about midway from north to south. It is one of the best built roads in the country, and has been of immense benefit to the county. At present, active measures are on foot for building a narrow gauge road from Johnsonville to Columbia, and on to Fayetteville. If built as projected, it will be of exceeding value to the county in developing its latent resources.

*Common Schools.* Under the old condition of things there were, in

the sense in which the terms are used in the Northern States, no poor people in Maury county. This fact, coupled with that spirit of personal independence, which made it alike a matter of duty and of right as well as of honor for every man to take care of and educate his own family at his own expense, obviated the necessity for schools made free at the common expense of the tax-payers. Under the present condition of things, circumstances are altered, and a tax for common school purposes has been voted by the county, and the system is in good working order, [as will be seen by reference to the scholastic statistics appended to chapter xx, part first.]

*Religious Observances.* Attendance upon church exercises is a social requirement in this county, of quite as efficient force as if it were a statutory regulation. No where are the people more addicted to church-going, and nowhere does church-going do more good. Most of the leading denominations of Protestant Christians are represented in the towns, and almost every large neighborhood has a handsome church building.

*Newspapers.* From an early day in its history, Columbia has boasted one or more weekly papers, and no chapter in the history of the county would be more interesting than that which should give an account of the press of the county. Many of the most distinguished men in the State have, at some period of their lives, been connected with the Columbia press. At present, the Herald and Mail is the only paper published in the county, and it is no disparagement to any other paper to say that it has no superior, if it has an equal, as a weekly county newspaper in the State.

*The New Order of Things.* Whether it be true everywhere, as some hold, that where the soil is fertile, the climate salubrious, and the markets near, institutions are of rapid growth and quick development, certain it is that the people of Maury county are rapidly adapting themselves to the new order of things, and rapidly aligning themselves with the new movements. In this, they are but keeping their place in the front rank. In the nature of things, they could not hold back. Honor, duty and interest all demand that Maury county shall continue to lead, as in times past, she has lead in all forward movements. Farming is the calling of the county. Commerce and manufacturing may be and should be developed as auxiliaries, but the great bulk of the wealth will, of necessity, remain on the farm. In the hands of the farmers, therefore, rests the future of the county, and especially of

the young farmers. The young farmers must come to the front, and come in a body organized and educated. Old slipshod ways may do for out-of-the-way places, but where nature has done her best, and set it in the eye of the passing world, shame and confusion must follow neglect. None but the best known practices can be afforded here. In time no other will be tolerated.

*Statistics.* In point of wealth Maury stands the third in the State, Shelby being first and Davidson second. It had a population, by the census of 1870, of 36,289, of which 16,265 were colored. In 1860 there were 32,498 persons in the county, including 14,654 slaves, and 143 free colored. The entire value of taxable property is \$11,109,144, number of polls 4,728, number of voters 6,521, of whom 2,405 are colored.

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## MONTGOMERY COUNTY.

COUNTY SEAT—CLARKSVILLE.

On the 12th day of April, 1780, on the eastern shore of the Cumberland River, at what is now called the mouth of Red River, in the county of Montgomery, Moses Renfroe landed the rude boat constructed by his own hands far away upon the head-waters of the Holston. That boat, loaded with his household goods, had brought him down stream, and up stream, more than 1,000 miles through a country inhabited by hostile Indians. It had been the home of himself and his family for four months of the hardest winter on record, and here it rested in the gentle waters of Red River, and from it stepped his brave old wife, and his sons, and sons-in-law and their families, led by the old patriarch, "who entered into and possessed the land." And as Moses Renfroe disembarked with his family and his dogs (for of these he had an abundance) and his household goods, he might have felt proud, for of all the adventurous men and women who lived in these adventurous times, he was the first to occupy that goodly land. But one band had preceded him in the settlement of the country west of the Cumberland Mountain, and that band was led by Captain James Robertson, who, in the early spring of 1779, set out from the parent hive at Watauga, crossed the wild Cumberland Mountains, or Table Land, penetrated the thick cane-brakes, and pitched their tents near the French

Lick, where the city of Nashville now stands. Six hundred miles away to the east, and separated by a trackless wilderness, lay the old home of Moses Renfroe, in North Carolina—and the settlement of the Watauga, half that distance, then the extreme frontier, and looked upon by the old colonists as beyond the verge of civilization, and outside the pale of their protection. It were a pleasant task to narrate the many hazardous adventures encountered, the dangers and trials, the toils and sufferings, and the many privations endured, and deeds of daring performed by this resolute band, but our task is one of the present, and not of the past—to deal with what is, and not what was.

In the year 1788 a new county, called Tennessee county, was organized by the Legislature of North Carolina, and its boundaries embraced the present counties of Robertson, Montgomery and Stewart. The State was admitted into the Union in 1796. Tennessee county gave up its name, and the State took it, and during the same year, by authority of the Legislature, then sitting at Knoxville, the counties of Robertson and Montgomery were established. The county was named in honor of Colonel John Montgomery, a native of Virginia, who came west early, and was killed on the frontier. James Ford was the first Senator from the county of Tennessee, and Thomas Johnson and William Ford Representatives—elected in 1796. This Thomas Johnson was the father of the late Hon. Cave Johnson.

*Size, Geography and Topography.* The county of Montgomery at present embraces nearly 500 square miles, and is divided into nineteen civil magisterial districts. It had a population, according to the last census, of 24,747, of which 11,670 were colored. It is one of the northern tier of counties, and is bounded on the north by the State of Kentucky, on the east by the counties of Robertson and Cheatham, on the south by Dickson, and on the west by Houston and Stewart. The general surface of the county is undulating, with a mean elevation of over 500 feet above the sea. The records of the survey of the Memphis, Clarksville and Louisville Railroad, for which we are indebted to J. B. Tapscott, civil engineer, show the subjoined elevations from Sailor's Rest, in the south-western part of the county, to the crossing of the State line, near the north-eastern corner. The figures on the left give the distance in miles between stations:

.....	Sailors' Rest .....	385 feet.
5 .....	Carbondale .....	383 "
1.8.....	Palmyra .....	388 "
1.7.....	Allen's Switch.....	382 "

3	Steele's Spring.....	385	feet.
5.9	Bottom on Cumberland River at Rail- road crossing, Clarksville.....	326	"
	Passenger Depot.....	454	"
	Stewart College .....	496	"
	Bottom on Red River, 1.4 miles from Clarksville .....	329	"
3.6	Cherry's Station.....	557	"
1.9	Dudley's.....	514	"
3.2	Hampton's.....	533	"
6	State line.....	563	"

The first six stations are in the river basin. The last four are on the level plateau, which extends over the north-eastern part of the county, and probably more nearly approaches the general elevation of the county. On the south side of the Cumberland River, the undulations swell into considerable hills.

*Streams.* The Cumberland River is one of the finest and most beautiful streams in the country. It enters the county near its south-eastern extremity, runs in a northerly course, until it passes the town of Clarksville, and then makes a great bend, and leaves the county near its south-western corner. With an unchangeable channel, rock bound, with banks high and precipitous in places, and its rich bottom lands, among the best in the State, spreading out here and there on either side, it presents to the traveler passing up or down, a picture hard to be excelled in beauty. The Cumberland is a fine, bold stream, and presents quite a contrast to most of the rivers in the west. It is navigable for boats of good size about eight months in the year. The tributary streams within the boundaries of the county are numerous, and spread themselves into nearly every district, furnishing many fine mill sites, and a sufficiency of water-power to drive any quantity of machinery. Red River enters the county on the east, near the ancient and honorable town of Port Royal, which once competed with Nashville for the seat of government, and flowing in a westerly direction, enters the Cumberland between the towns of Clarksville and New Providence, which lie scarcely a mile apart, with this river for their dividing line. Before the days of railroads and steamboats, many flat-boats were built at Port Royal, and loaded with tobacco and other produce, and floated down Red River into the Cumberland River, and thence to New Orleans. Chickens and turkeys, in great droves, were not unfrequently compelled to take compulsory voyages of a thousand miles. Big West Fork, Little West Fork, Sulphur Fork,

Spring Creek and Passenger Creek are all confluent of Red River, and several fine mills are in operation upon their banks. Blooming Grove Creek, which passes in a semi-circle through district number nine, empties into the Cumberland on the north side, below the mouth of Red River, and Big Brush Creek on the same side above the mouth of Red River. South of the Cumberland, Yellow Creek, a fine stream, and the delight of all genuine fishermen, winds its way through fertile bottoms, and discharges itself into the Cumberland below Palmyra. Budd's Creek, McAdoo and Half Pone are also good streams, with rich and productive bottoms and are thickly settled along their banks. They empty into the Cumberland above Clarksville. The early settlers of the country all hunted for springs and water courses, and hence the banks of these streams bear evidences of a much older civilization than the country back in the interior. The rich barrens, as they were called, near the Kentucky line, were totally neglected until there were no more springs for emigrants to settle around, and then they came into notice. The most fertile and productive lands in the county were thus saved for the last comers. Cisterns are now used almost exclusively in the "barrens."

*Geology.* Montgomery is one of the counties of the Highland Rim, and is geologically on the upper or Lithostrotion bed of the Siliceous Group of the Lower Carboniferous. This formation is always characterized by hopper-shaped sinkholes, which are produced by the removal of the rocks and earth beneath the surface by subterranean streams. The Lithostrotion bed, sometimes called the St. Louis limestone, is the prevailing rock. It affords valuable building material. Some of this limestone is oolitic, other layers are interstratified with flinty masses. In color it varies from a blue to a dingy white. On the south side of the Cumberland beds of sandstone occur of a yellowish cast. This rock is sometimes used in repairing furnace hearths. Caves are quite numerous. One known as Dunbar's Cave, four miles north-east of Clarksville, is a favorite resort in summer. It is two or three miles in length, and has a magnificent entrance overarched by limestone.

*Lands, Soils, Timber and Crops.* The soils of this county are strong and durable. They produce well and are easily reclaimed after exhaustion. Resting upon a bed of red clay with layers of interstratified chert, they have the capacity of retaining moisture without suffering from a want of drainage. Calcareous and siliceous, they combine the strength of the one with the friableness of the other. Though not so rich generally in the elements of plant-food as those in the Central



Basin, they are more reliable for the production of crops. The limestone lies at a great depth beneath the surface, as is shown in the digging of wells and cisterns. Away from the river basins it is rarely seen cropping out, and where it does so, it is usually in isolated blocks and not in continuous layers. In the part of the county south of the Cumberland River the country is traversed by long hollows and ridges, much broken, and the soil, though thin, is fertile. It washes easily, and careful cultivation is necessary to preserve it. The northern slopes of the ridges are peculiarly fertile. All this portion of the county was formerly covered with magnificent timber, but much of it has been used in the manufacture of iron. Oaks predominate, hickory is plentiful, and walnut is found on river slopes and in the valleys. The supply of timber is still ample for generations to come. The soil is largely intermixed with "bastard flint," and is suited for grazing purposes, for fruit, and especially for the grape. Good crops of corn, oats and tobacco are made. The lands are cheap, unimproved selling from two to ten dollars, improved from five to thirty. River and creek bottoms are worth more, varying from twelve to fifty dollars. "Indeed, the Cumberland River bottoms are unsurpassed in fertility. We have the statements of reliable farmers that they have produced from fifty to ninety-five bushels of corn per acre. Wheat and tobacco do not grow so well on these low lands, the former taking the rust, and the latter the spot. For grass, clover, oats and pumpkins, however, they are among the best lands in the State. The lands lying south of Red River are not so broken generally as those included south of the arc made by the Cumberland. Near the Cheatham county line they become flat. The soils here are unproductive, except in the creek bottoms. They assume a whitish color, and their sterile character is indicated by the prevalence of the sweet gum. Where the surface is elevated the soil is better. These flat areas produce grass and oats in paying quantities, though they will scarcely repay the cost of tillage in corn or wheat. For fruit trees, and especially for the peach and the cherry, they are highly commended. Between this region and Red River the country is heavily timbered, and large quantities of boards, staves and shingles are made annually. It is the great lumber region of the county. The soil is productive and the region is thickly settled by small farmers. Lands vary in price from three to thirty dollars. The lands north of Red River and the Cumberland, and bordering on the Kentucky line, are comparatively level, becoming more broken but not less fertile as one approaches the rivers. The farms are large and well

improved, and were, before the war, in the best state of cultivation. Many of them are still well kept. Three and four-horse plows are in frequent use. Double shovels, cultivators, and the most approved implements are to be found on nearly all the farms, but as the farmers rely upon negro labor almost entirely, they have not prospered in the same degree that the farmers have in those portions of the State blessed with small farms. Lands have greatly declined in price. From fifty to seventy-five dollars per acre they have been reduced to twenty-five and thirty, and in proportion to their productive capacity are the among cheapest in the State. This division of the county is the great tobacco and wheat-growing region, and produces one-seventh of all the tobacco grown in the State, and about three-fourth of all grown in the county. The soil when first cleared is a mellow loam underlaid by a deep red subsoil.

*Tobacco.* The soil last mentioned grows tobacco to great perfection, and the type of the article is of such merit that it is well known throughout Europe. The farmers, however, by overcropping and inattention to housing, stripping and firing, have reduced the standard until it comes in competition with the inferior grades grown elsewhere. If, instead of planting so much, they would plant less upon lands well manured, and thus raise the best style of tobacco, as they can do, they would have competition from but one place in the United States, and that is the lands on the James River in Virginia. A great error is committed in aiming at quantity instead of quality. The region around Clarksville is singularly favored in the peculiar composition of the soil and in the inscrutable agency of climate for the production of this crop. Under judicious culture and correct management the farmers may grow a quality of tobacco that can be grown in no other place in the Mississippi Valley. In raising an inferior article they are thrown in competition with the farmers of Indiana, Illinois and Missouri, who can produce a low grade much cheaper, because the soils in those States will yield a greater number of pounds per acre. Manifestly it would be to the highest and best interest of the farmers to produce the highest type, and thus avoid competition, and secure a better price. For this reason small farmers would do well. Indeed, there are but few places in the South where intelligent farmers could do better. Of all the crops grown in this State none requires the exercise of so much judgment, skill and foresight. It is impossible for an unthinking man to manage successfully a crop of tobacco. A difference in the shade of color will often make a difference of twenty-five per cent. in the price

of the article, and how to produce this color, exactly when to cut, and how to house, when and how long to fire, when to bulk and how to prize, are all questions in its management that require the nicest discrimination and judgment. The best managers will sometimes get two or three times the price realized by the common, ignorant farmer. The chief drawback to the county has been that farmers plant out a crop too large, and run the risk of procuring additional laborers at the critical time in its management. It too often happens that when this critical time arrives additional help cannot be procured, and consequently the value of the whole crop is impaired. The best tobacco land may be known by the native growth of blackjack and scrub hickory with an undergrowth of hazel and black gum. It should be slightly undulating, with an admixture of blackish red pebbles, an argillaceous rock with fossil remains silicified, but still retaining a trace of phosphoric acid. These pebbles, interstratified with clay, form an admirable natural drainage, and make the land much warmer. The best type of tobacco is thick but fine, heavy of leaf, but small of stem and fibres. The next best land for tobacco may be known by the growth of poplar, sugartree, beech, and white oak, with pawpaw. The tobacco grown on this land is more leafy, but not so rich or fine as that grown on the blackjack and hickory land. Red oak land with a mulatto subsoil will grow a fancy article of tobacco, but it is always light. The average amount grown annually in the county is 3,500 hogsheds, or about 5,000,000 pounds. Sometimes the crop reaches 5,000 hogsheds. The average yield per acre is 850 pounds, though the best soils often produce 1,000, 1,200, and sometimes more. Though the locality described is the largest tobacco-producing district in the State, yet the same type of tobacco is grown all over the county, and also in the counties of Stewart and Robertson adjoining. These, with the contiguous counties in Kentucky, grow what is known as the Clarksville tobacco.

*Wheat.* There is probably no land in the State better for wheat than the best uplands in Montgomery. The siliceous soils, strongly impregnated with lime, give strength to the straw while they also give plumpness to the berry. Under the best system of tillage the yield often reaches thirty bushels per acre, and some few farmers have raised forty. The most general average is not far from ten bushels on the lands south of the Cumberland, and fifteen on the farms bordering on the Kentucky line. By judicious tillage this yield could be doubled. The use of the drill in the best parts of the county is increasing the

yield. Reapers are in general use. Nowhere is there better flour manufactured. In the northern markets it is eagerly sought after. The extent to which this crop is raised may be inferred from the fact that there are thirteen large flouring mills in the county, that manufacture annually 65,000 barrels of flour for shipment, besides the amount consumed at home. The flour has the valuable property of retaining a large percentage of water in the baking process, so that a barrel will make a larger number of pounds of bread than that grown north. Nor is this property peculiar to the wheat grown in Montgomery only, but is characteristic of nearly all the wheat grown in the State.

*Indian Corn* is a staple crop, and is grown upon every farm in the county. The yield on best uplands is forty bushels; on bottoms, fifty bushels per acre.

*Clover.* This plant finds a congenial soil in Montgomery. It is grown in every portion of the county, and is much used as a renovator. The best farmers have it in regular rotation with other crops. The following are the usual rotations practiced: First year corn, second oats and sometimes wheat, third and fourth years clover; or first year tobacco, second wheat, and third and fourth clover. The clover seeds are sown with the oats or wheat.

*Hay.* On the alluvial bottoms, considerable quantities of hay are grown. Some very fine meadows are made, and the yield from timothy sometimes reaches as high as three tons per acre, though rarely. Usually, about one and a half and two tons of hay from this grass are regarded as satisfactory. Larger returns are obtained from German millet and Hungarian grass. Mowers and horse-rakes are quite commonly used.

*Potatoes.* Sweet and Irish potatoes are grown upon every farm. The yield of the former varies from seventy-five to one hundred bushels. For several years, owing doubtless to unfavorable seasons, the Irish potatoe has not done so well. This vegetable was largely exported ten years ago, but more recently, not a sufficient quantity has been raised to meet the home demand. For early varieties, the Early Rose and Russet are preferred. Some farmers still raise the London Lady, which is very rich, but not so early nor so productive as those mentioned. For market, the late varieties—Peach Blow and Mountain Sprout—were once grown very remuneratively. We have known, in extreme cases, 400 bushels of the latter to be produced upon one acre.

The usual average is 100 bushels. Rich uplands are much better suited to the growth of this vegetable than bottom lands, though on the latter the vines will grow more vigorously. All the garden vegetables do well. For the growth of hops, the soil seems especially adapted.

*Fruits.* We cannot undertake to recommend every part of this county for the production of fruit. Neither the apple nor peach tree is long lived, except in special localities. While some excellent apples and peaches are grown, the compact clay, especially in the northern part of the county, checks the growth of the roots, and induces a premature decay in the trees. The borer also attacks the trees, and they have to be carefully watched and nursed. Some of the lands south of Red River, those in which the subsoil is largely composed of gravel, produce trees vigorously, and in special localities the peach never fails. The Murrillo and May cherries probably give as satisfactory returns as any other fruit, but the finer and larger varieties of cherries rarely ever bear. Dwarf and standard pears bear bountifully, and the trees are long lived. Some quite successful adventures have been made in grape-growing, and judging from the experiments that have been made, we are inclined to the belief that there are but few counties in the State better suited for the growth of this delightful fruit. Such readers as are interested in the cultivation of the grape in this county can refer to the chapter on grape-growing, page 154.

*Minerals.* Iron ore is abundant in the south-western part of the county. In 1854 seven furnaces were in operation in the iron district that produced over 8,000 tons of pig metal. At present there is only one in operation—Mount Vernon Furnace—which has a capacity of 360 tons per month. Some of the iron banks in this county are very rich. The one known as Steele's Bank, lying on Yellow Creek, and one mile from Sailor's Rest Station, on the Memphis Division of the Louisville, Nashville and Great Southern Railroad, deserves special mention. This bed has been penetrated to the depth of twenty-three feet without reaching the bottom of the ore. The ore lies in horizontal strata, eighteen inches in thickness, and the strata are separated from each other by a half inch of red clay, and this thin layer of clay constitutes the whole amount of dead matter. Captain Gracey, who has had charge of the workings of the banks, raised 1,500 tons, a fair sample of which, upon analysis, yielded  $57\frac{1}{2}$  per cent. of pure metallic iron. The ore is entirely free of flint. Mr. Oltawoth, of Pittsburg, expresses the opinion that the ore found at this place is the best that

has come under his observation, with the exception of the pipe ore used in the manufacture of the boiler Sligo iron. Less than two tons of ore are required to make one ton of iron, and it needs no calcining before being used in the furnace. The limits of this bank have not been reached on any side, and from present indications, the thick bed extends in every direction for miles, for this same character of ore is found cropping out on the property adjoining. In working the bank, a shaft eighty-five feet deep was sunk on a hill, and in the valley below, another thirty feet deep, both striking the solid stratum of ore. Hitherto the ore was thought to be confined to the hills. The ore is limonite or brown hematite, and is believed to be practically inexhaustible. Many other rich banks occur in the same region, and the attention has not been given to this interest which its importance deserves.

There are numerous mineral springs in the county. The sulphur springs, near Dunbar's Cave, have been improved to some extent, and for a few seasons they were frequented as a summer resort.

*Towns.* Clarksville, situated on the right bank of the Cumberland River, sixty-five miles by water, and fifty by land, north-west from Nashville, has a population of 5,000, and a suburban population of 3,000. Its location is a beautiful one, being high and hilly. When viewed from the river above, or from a few points on the railroad south of the Cumberland, it reminds one, with its rolling green hills and uneven surface, of the "Queen of the Tiber." Perhaps, in all the State, a more elegant, intelligent, refined and hospitable people cannot be found. From the institution of the State government to the present time, her citizens have always taken deservedly prominent positions. At the bar and on the bench, in legislative halls, and in the cabinet, on the hustings and in the field, they have won a character honorable to themselves, and built up a well merited fame for their city. Yet, there are many places in which enterprise and public spirit are more conspicuous. With the best facilities for building up a manufacturing town, there are but few establishments that deserve to be called manufactories. These consist of one foundry, two carriage shops, two wagon shops, two planing mills, three boot and shoe shops, one establishment for making agricultural implements, one chair factory, two saw-mills, two flouring mills, and one large steam tannery. The whole amount invested in manufactories is only about \$2,000,000 with a trade equal to \$600,000. The wholesale grocery trade reaches

\$575,000; dry goods, hats, boots and shoes, \$600,000; hardware, \$150,000; livery and trade stables, of which there are three, \$200,000; retail grocery, \$40,000; furniture, \$40,000. There are four banks, including the one in Providence, representing a capital of \$400,000; six stemmeries, including the one in Providence, which shipped, for 1873, 2,000 hogsheads of strips and dry leaf. There are six warehouses which sold, for the year 1873, 13,500 hogsheads of tobacco, and shipped, altogether, 14,500 to New York, New Orleans, and other points, besides 2,000 hogsheads of strips. The average annual shipments before the war were 15,000 hogsheads, and during one year 18,000. The tobacco goes mostly to Liverpool and London, Bremen, and to the French and Italian governments, via New York. The average price of a hogshead of tobacco for the year 1873, was \$160. Altogether, there are about forty-one business houses in the place. Their entire trade will aggregate \$1,750,000 annually. This excludes the manufactures, livery stables, and tobacco trade. Pork packing was once carried on to a great extent, but under the present system of farming, the crop of hogs barely supplies the demands of the county. There are two large pork-houses in the county, one in Clarksville, with a capacity of slaughtering 600 hogs daily, and another in Providence. The Clarksville and Providence Transfer Company is a chartered institution, with a capital stock of \$20,000, and does business to the amount of \$50,000 annually. There are in the place two Methodist Churches, two Episcopalian, one Presbyterian, one Cumberland Presbyterian, one Baptist, one Christian, one Catholic, two colored Methodist, two colored Baptist, and one colored Presbyterian. Two hotels are also kept in the city.

*Educational Advantages.* But few places have better prospects for educational advancement than Clarksville. There are in operation eight private schools, besides the free schools, for which the city has voted a tax of ten cents on the hundred dollars worth of property, and the sum of \$27,000 for the erection of school houses. The Clarksville Female Academy is an excellent institution, and has a regular attendance of about 150 young ladies. The buildings are beautifully situated in a grove of native timber. It is of many years standing, and under the patronage of the Methodist Episcopal Church, South.

*South-western University.* Since the chapter on public schools went to press, the synods of the Presbyterian Church of the States of Alabama, Mississippi, Louisiana, Texas, Arkansas and Tennessee have loca-

ted the University at this point. It is the intention to make this institution thorough in every particular, and second to none in America. The amount donated to it by the city of Clarksville reaches in bonds, notes, buildings, apparatus and museum \$194,000, as follows:

Bonds.....	\$85,000
Old Endowment Fund.....	2,000
Notes.....	27,000
Buildings of Stewart College, and grounds.....	60,000
Museum, apparatus, &c.....	20,000

It is the intention of the trustees to raise an endowment fund of \$500,000, the interest only upon which is to be used. It is thought that the Presbyterians of Missouri will co-operate with those of the States named, and possibly those of Kentucky and Georgia. Houses will at once be erected for the professors. The selection of Dr. B. M. Palmer, of New Orleans, as Chancellor, is almost equivalent to a guaranty of its success, usefulness and widespread popularity and influence. No better spot could have been chosen for a seat of learning. Clarksville is noted for its healthfulness, for the high-toned morality and intelligence of its citizens, for its accessibility by river and by rail, and for the varied but subdued beauty of the surrounding landscape. Students will not occupy dormitories, but will be distributed among the various families of the city, and thus be preserved from contracting the rough manners and wild habits almost inseparable from protracted seclusion from the refinements and restraining influences of the domestic circle.

*The Press* is represented by the *Chronicle* and the *Tobacco Leaf*, two of the best country papers in the State. Both are Democratic in principle, and are able and earnest advocates of all measures tending to the development of the country. The city has a wharf-boat, gas works, and a new market-house, but the court-house and jail are unworthy of the county, being old, unsightly, inconvenient and disagreeable. Two bridges span Red River, three macadamized roads run out from the city east, north-east and north, the latter passing through Providence. The professions are represented by sixteen lawyers, thirteen doctors, three judges, four dentists, and ten or twelve ministers of the gospel. The bar of Clarksville has always been distinguished by the ability and learning of its members, and it would be difficult to find in the State, within the same limits, so many men of influence and weight.

*New Providence.* This thriving town is within two miles of Clarks-



ville, separated from it by Red River, and is situated on the north side of Cumberland River. It has a population of 2,000, and is a place of considerable trade. Besides the bank, pork-house, and warehouse, which we have mentioned, it has eighteen commercial establishments, and does a business to the amount of \$600,000 annually, one-half of which is in groceries. The tobacco trade is carried on largely. The region of country lying north of Providence is very fertile and productive. The other towns and villages are Palmyra, situated in the southwestern part of the county—old and almost deserted—shorn of its ancient glory, for it, like Port Royal, once competed for the seat of government; St. Bethlehem, on the railroad, north-east of Clarksville three and a half miles; Port Royal, Peacher's Mills, Woodlawn, Oakwood, Carbondale, and Jordan's Springs. All of these places have from two to six business houses. At Peacher's Mills there is a wool factory, which at one time employed thirty operatives. Besides these towns and villages there are scattered through the county forty country stores that supply their respective neighborhoods with staple goods.

*Transportation.* Prior to 1860 the county was altogether dependent upon the Cumberland River for transportation. During that year the railroad leading from Memphis to Louisville was completed. It passes diagonally through the county from north-east to southwest, crossing Red and Cumberland rivers at Clarksville. This road intersects the St. Louis and South-eastern road at Guthrie, 14 miles above Clarksville, and only a few hundred yards beyond the county line. New roads are projected, connecting Clarksville with the Kentucky coal regions more directly, and also Nashville with Clarksville.

*Indebtedness of the County.* The depreciation in the price of land in this county is doubtless attributable to the local taxation, which for several years was one and a half times as much as the State tax. The county created a debt in aid of the construction of the Memphis, Clarksville and Louisville Railroad. Some of this has been paid off. The present county debt is \$278,000, but as an offset it holds securities to the amount of \$180,000, so that the true debt does not exceed \$100,000. With the present energy and financial ability of the county officers, it is thought the entire debt will be extinguished in four years. That we are correct as to the cause of the low price of land, will appear from the fact that the same qualities of land in Robertson on the one side, and Stewart on the other, though not having equal advantages of transportation, are worth from ten to twenty-five per cent. more per acre.

*Fluctuations in Land.* But a great depreciation took place in consequence of the devastating results of the war, as will readily appear from a comparison of the taxable value in 1858 and 1859 with the valuation since. For the first named year the land in this county was valued at \$4,373,673 or \$13.50 per acre. For 1859 it was valued at \$4,714,171 or \$14.36 per acre. In 1867, as appears from the Comptroller's Report, the total value of the land was \$2,409,029 or \$7.16 per acre; in 1872, \$2,672,195 or \$8.29 per acre, in 1873, \$3,341,880 or about \$10.70 per acre. On the other hand the railroad tax, while it relatively diminished the price of land as compared with those counties levying no tax, the construction of the railroad itself nearly doubled the price of the land in every part of the county. In 1850 first-rate farms could have been bought for ten dollars per acre; in 1860 the best farms were in demand at forty and fifty dollars per acre. For the year 1859 the taxable property of the county amounted to \$10,362,762, or nearly double what it is at present, notwithstanding the stringent assessment law now in force. From 1855 to 1864 there was no county in the State more prosperous, and no one in which there was a better or more thrifty class of farmers. It was the golden period in the agriculture of the county. The city of Clarksville for a portion of this period had sixteen tobacco stemmeries in operation. Money was abundant. Life and energy were everywhere apparent. The farmers practiced a diversified husbandry, and reaped rich rewards. The number of hogs driven to the Clarksville market was almost incredible. The streets were crowded with wagons from morning until night, laden with produce of all kinds from the country. Even turkeys formed no inconsiderable article of export, and as many as 1,500 have been sent out of the county in a single year. The contrast between 1860 and 1874 is a painful one. Many of the smaller industries are now totally neglected. With soils well suited for the growth of potatoes, potatoes are imported. With the greatest facilities for raising hay, hay is brought from Ohio and sold at \$30 per ton, when it may be produced at a less cost than \$8 per ton. With rich pasture lands, where the finest and best breeds of cattle may be raised at a small cost, and butter and cheese manufactured as cheaply as in Ohio, yet butter and cheese from the Western Reserve supply, in great part, the market. The county has been in the past peculiarly prosperous. It may be so again with the same energy and the same directness of purpose on the part of the farmers. The farms are too large. Too much reliance is placed upon the negro. Too few intelligent men labor.

Hard working men, industrious by nature and provident from principle, interest and habit, are sadly needed in this county, and nowhere could they occupy a land more healthful, more kind in production, or more varied in its products. The farmers are carrying a burden in land greater than they are able to endure. Farms may be bought at very reasonable prices, and nothing would afford so much pleasure or so much relief to the land-holders as an influx of frugal and industrious farmers.

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## MOORE COUNTY.

COUNTY SEAT—LYNCHBURG.

Moore county was organized in the year 1872, from fractions of Lincoln and Franklin. Its superficial area embraces about 160 square miles, or about 100,000 acres, 98,024 of which are reported by the assessors for taxation.

The surface of the county is greatly diversified. On the eastern border it is a high, flat, slightly rolling plain, which breaks off to the south and west into ridges and ravines, some of the latter having a depth of 300 and 400 feet below the plain. These ridges are spurs which shoot out into the valleys of the Elk and Mulberry and their tributaries, the valleys constituting a part of the broken southern division of the Central Basin, which is partially cut off by Elk Ridge. About one-half of the county lies upon the Highland Rim and the remainder in the Central Basin. These ridges are very fertile on the slopes and often to their very summits. They are composed mainly of the Nashville Limestone, upon which rests the Black Shale or Devonian, which is often mistaken as evidence of coal. Upon this shale rests, as a protecting rock, the siliceous layers of the Barren Group, which is characteristic of the barren portion of the Highland Rim. The county is bounded on the north by Bedford, from which it is separated by Elk Ridge; on the east by Coffee and Franklin, being separated from the latter on the south-east by Elk River, on the south by Franklin and Lincoln, and on the west by Lincoln.

*Lands, Soils, Timber and Crops.* Elk Ridge is a remarkable arm, running east and west, dividing the waters of Duck River from those of Elk River, and cutting off the part of the Basin that lies in Giles,

Lincoln and a portion of the county under consideration. This ridge is narrow, irregular and winding, like the inverted channel of a stream, though its general course is nearly straight. Its soil is very rich, friable, gravelly and productive. For agricultural purposes it is almost as good as the lower lands. The slopes are heavily timbered with poplar, oak, chestnut, walnut, sugar tree, linden and black locust, with an undergrowth of pawpaw, dogwood and other growths indicative of fertility. This ridge may be taken as a type of all the subordinate ones shooting out southward from it. Indeed, the broken portion of Moore county is far more productive than the flat lands of the eastern border, and ranks second only to the valleys. The valleys of the Elk, Hurricane and Mulberry, and especially of the latter, are exceedingly generous in their yields of the staple products of the county, which are wheat, corn and oats. Twenty bushels of wheat and thirty bushels of corn are the average product on these valleys, which yields, under more judicious cultivation, might be increased to thirty bushels of the former and fifty of the latter. On the rich slopes of the hills the yield of these cereals, though not so large, is abundant and satisfactory, being fifteen bushels of wheat and twenty-five and thirty bushels of corn. The flat lands are generally poorly timbered with rough black-jacks and scrubby post oaks, though occasionally fine groves of chestnut timber, interspersed with red oaks, occur. Generally, the timber is better on the flat lands, where the surface is rolling, and on the borders of the streams. These lands will barely pay the cost of cultivation, the yield of corn averaging about ten bushels and wheat four or five bushels. They are, however, excellently well adapted to fruit, which their high elevation secures from premature budding and from the killing of late frosts. This land is also well suited for tobacco, growing a fine, silky article, much prized by the lovers of the weed on account of its excellent flavor and agreeable mildness. The wonder is that more of this weed is not grown by the farmers living in this portion of the county. The soil is thin, leachy, clayey and unproductive, and is of the same character and quality as that described as occurring on the flat plains of Lewis county, to which the reader is referred. The prices of the lands vary from \$5 to \$50, according to kind, condition, facilities for market and improvements. The quantity of waste land is inconsiderable, and what there is has been made so by injudicious cultivation.

*Streams.* This county is well watered by the streams heretofore mentioned and their tributaries, which ramify almost every square mile

in the county. Elk River, Mulberry and Hurricane all furnish good mill sites, and are much used for grinding grain. The banks are usually encased by bluffs or ledges of limestone, which supply an excellent material for the construction of dams, though heretofore wood has been used for that purpose as involving less outlay. The descent of the streams is rapid, and the supply of water good, especially in Elk River.

*Farms and Crops.* The farms of this county are said to be in a better condition now than before the war. They are usually small, and much of the labor performed on them is done by industrious white men. In addition to the crops before mentioned, stock-raising is carried on to some extent, and the character of the land in the broken portions of the county is well suited for that purpose. Blue-grass grows well on the slopes of the ridges and in the bottoms, and in the latter Hungarian grass, German millet, timothy, clover and herds-grass make bountiful returns. The natural advantages offered for dairy farming are very superior. The numerous springs afford admirable sites for the building of cool milk houses, and the grasses in the fertile valleys and on the slopes would sustain large herds of cattle. The direction of the farmers is being turned to the improvement of their breed of cattle, sheep and hogs, and they will doubtless in time be attracted to the business of dairy farming, to the successful prosecution of which their natural facilities furnish a guaranty.

The old bull-tongue plow is still used by a large class of farmers, who maintain that it is best adapted to their rolling lands, but the hill-side plow, so satisfactory upon hilly lands, is coming gradually into use, and the surface soil which has been, in places, cultivated through successive generations, is being replaced by a deeper loam. For the cultivation of crops the double shovel and bull-tongue are mainly used, upon which, for this purpose, there has been no improvement. Both mules and horses are used upon the farms—rarely oxen.

Labor is moderately abundant, as is the case in almost every county where the farmers as a general rule labor themselves. Some laborers prefer a part of the crops, others wages; the latter ranging, for boys, from \$4 to \$13 per month, and for men, from \$10 to \$15 with board, without board, about \$10 additional.

The rents of lands run as high as \$7.50 per acre. One-third of the crop is usually given. Some few places are leased for several success-

ive years, upon the same basis as rents, the lessee enjoying the benefit of the wheat crop, which is impossible to the annual renter. Land is not in ready demand, and a considerable quantity is offered for sale, both improved and unimproved. Corn and wheat are hauled in wagons to Shelbyville and Tullahoma, and from these points distributed to Nashville and various points south. The Nashville and Chattanooga Railroad passes through the eastern corner of the county.

In the construction of the map which accompanies this report an error was made in placing Tullahoma within this county. Tullahoma lies in Coffee county, the Moore county line running a short distance west of that place.

As in nearly every county in the State, the good farmers greatly complain of the depredations made upon their flocks of sheep by dogs and the estimate of loss in this county is placed as high as fifty per cent. annually by good farmers.

The best building stone is limestone. This is used in some of the better improved farms for fencing. It is also used as foundations for houses and for building chimneys.

*Manufactories.* Whiskey is largely made in this county, and is known in commerce as Lincoln county whiskey. There are in the county twelve registered distilleries, which average thirty barrels per day for eight months in the year. These distilleries employ seventy-two hands. The capital employed in this branch of industry is said to pay twenty per cent. The manufacture of domestic goods is carried on to a great extent. About sixty per cent. of the population wear home-made goods, and small quantities of jeans, linsey, wool socks, etc., are sometimes exchanged for such articles of foreign manufacture as are needed for family use. Where such industry prevails among the women of the family, the farmers are prosperous. Many of them realize as large a percentage from their investments in farms as the manufacturer of whiskey. Poplar and walnut lumber is made, and a good deal shipped to Nashville and other points.

*Orchards and Fruits.* We have before stated that the soils of the flat lands in the eastern part of the county were well adapted to the growth of fruit trees. The same may be said of the high slopes of the ridges. Peaches especially do well upon these elevated spots. Grapes also do well, and the thick purple clusters which hang from the few vines that have been planted in the county foreshadow the period

when the sunny slopes of Elk Ridge, with their gravelly loams, shall be crowned with vineyards, and rival in fruitful beauty the French vineyards of St. Genes. Plums and cherries, as well as raspberries, gooseberries and strawberries are found upon many farms.

*Immigrants and Emigrants.* A good class of immigrants would greatly stimulate production in this county. The citizens desire such a class, and especially would they welcome the hardy Teuton, who, with brawny arm and stalwart muscle, aided by his habits of economy and industry, would give a renewed impetus to the agricultural development of the county; but it must be added that a good many of the farmers have an inclination to move "West," under the impression that land is cheaper, and that they can secure homes for their children. This view has so often proved fallacious and ruinous, that the sooner our people learn, that all the best lands in the so-called West are in the hands of speculators who "decoy but to deceive" the better. The truth is that it will cost more to clear an enclose a farm West, where the lands are cheap, than a good farm in Tennessee is worth, to say nothing about the improvements necessary to make life comfortable and pleasant. It may be stated as a fact that two-thirds of those who move from the best parts of Tennessee to the West, return worsted in property, and often in health, after the expiration of a few years, while of the third that remain in their new homes, at least half would return if they could. For the benefit of those who are still beguiled by the phantoms of the unbounded wealth to be gained by going West, we subjoin an extract from a letter received from a gentleman now living in Iowa, who roamed this region in search of the fabled treasures of mineral and agricultural wealth, which he could only find on paper. He says "the different railway companies, who have obtained their millions of acres so generously donated to them by an indulgent Congress, have flooded the country with flaming advertisements of those lands, the amazing fertility of the country, its vast natural resources, etc., until the credulity of many an unsuspecting tiller of the soil becomes so excited at the prospect of amassing a fortune in the great El Dorado, that they have, in many instances, sacrificed their comfortable homes, and gathered together their household idols to wander toward the setting sun. Midsummer indicates the drouth this country is subject to, and the yield of crops is exceeding short and scant, compared with what they are east of the Mississippi. The emigrant, while traveling over this country, may stretch his vision as far as the eye can reach, and although aided by the telescope, not a tree, bush or blade

of grass higher than the wire grass at his feet is to be seen. A great many of the settlers upon these railroad lands, as well as all over the country, actually dig holes in the ground in which to live, for the want of timber to build with, and do their cooking with dried manure and grass, for the want of better fuel. As incredible as this may seem, let your would-be emigrant but look before he leaps, and go and see for himself to find this statement verified to the letter. The scarcity of timber in the West, renders the winters more unpleasant than they would be otherwise. In heavy timbered countries, the great air current passes too far above us to make its force felt to any great extent. But when you reach the country where the great tide of emigration is now flowing; where, while looking, even by the aid of a spy-glass, not a tree, shrub or bush is discernible, you may imagine what an awful force the north-western winds have in the winter, upon the bleak and desolate hills that surround you upon every side. It was only last spring, while we were engaged in putting in our crops in south-eastern Iowa, that a terrible snow storm swept over Nebraska and the western part of this State. But its greatest casualties were felt in Nebraska. In some places snow drifted into and over houses, whole families perished, and men, who, in some instances, went out to try to save their stock, were found frozen within fifty and one hundred yards of their houses. Thousands of horses and cattle perished, and in many instances were found huddled together where the snow was completely drifted over them, hiding them from view until it melted away after days and weeks had passed. And all this transpired while, doubtless, the farmers of Tennessee were engaged in the happy sunshine of spring, planting and plowing corn in sight of flowery meadows and green forest trees."

Let the well-to-do farmers of this county, rich in the elements of agricultural wealth, study the picture of cold and desolation here presented, and take a second thought before sundering connection with those who have been their protectors, associates and friends ever since childhood.

*Schools.* The people of Moore county were pleased with the trial made of public schools last fall. The private schools, with four or five exceptions, were absorbed. Says a gentleman writing to the Secretary of this Bureau on this subject: "We need a change in the law authorizing private schools to draw a *pro rata* share of the public money for the benefit of the pupils attending them." The funds at present are just sufficient to interfere with private schools, without fur-



nishing a substitute. The Lynchburg Male and Female Institute is the only chartered school in the county, and has sixty pupils. There are four academies.

*Roads, Health, Towns and Statistics.* There are two macadamized roads in the county, one leading from Lynchburg to Fayetteville, and the other from Lynchburg to Shelbyville. The dirt roads are kept in good condition.

There is, perhaps, no county in the State more healthful. It is high and well drained, and has no swamps contaminating the atmosphere by their deadly miasmatic exhalations. Fevers, when they occur at all, are of a mild type. Cholera has never visited the county.

Lynchburg has a population of about 350. It has a good trade in dry goods, there being five stores, selling from \$125,000 to \$150,000 worth of goods annually. There is also one drug store doing a good business. The manufacture of whisky is carried on largely in this place. County Line and Marble Hill are small towns, doing each about one-sixth of the business done at Lynchburg. Ridgeville and Booneville are small villages. Altogether the trade of the county in dry goods will amount to \$225,000. From some portions of the county the citizens go to Shelbyville and Fayetteville to purchase goods. There are no public buildings, no court-house, jail, or poor-house, and no appropriations made for that purpose, though the county is out of debt, and has a surplus in the treasury.

## STATISTICS.

Population, estimate based on polls.....	8,000
Acres of land taxed.....	98,024
Value of same.....	\$983,484
Personal property taxable.....	\$103,422
Mills are valued at.....	\$13,800
Number of polls.....	1,003
Total value of all taxable property is.....	\$1,130,168

This county is yet in its infancy, and has, by reason of its diversity and fertility of soil, its healthfulness, the industrious and elevated character of its citizens, the high regard which is paid to law and order, bright prospects for the future. With good schools and proper railroad facilities, its lands would rapidly advance in price, its productions would be greatly increased. The Moore County Pioneer is the only newspaper in the county, and gives promise of working great good for the material and intellectual progress of the citizens.

The Bureau is indebted to A. F. Seitz for many facts pertaining to this county.

## OVERTON COUNTY.

COUNTY SEAT—LIVINGSTON.

This county was organized in the year 1806, the territory being taken from Jackson county. The first court was held at a place now known as James' Store, five miles north of Livingston. The county was originally very large, embracing, in addition to its present area, about one-half of Clay, one-half of Putnam, one-third of Cumberland and two-thirds of Fentress. At present, its extent is about an average of the counties in the State. In the year 1807, the town of Monroe was laid off and selected as the county seat, but it was not suffered to possess its honors undisturbed. Livingston appeared as a formidable rival, and for many years there was a lively feud between the two towns. The latter was victorious in 1833 by a small majority of votes, but still the agitation was continued, until the Constitution of 1870 was adopted, by a provision of which it is required that a county seat cannot be removed without a two-thirds vote in favor of removal.

*Towns.* Livingston, the county seat, is situated in a beautiful valley, on the head waters of Roaring River, and about sixteen miles west of Cumberland Mountain. It is a thriving business town, containing; besides the public buildings, some elegant residences and several well appointed and well furnished stores. Population about 300.

Monroe, six miles east of Livingston, has two stores and a population of about seventy-five. Oak Hill and Olympus are small villages, the first having four stores and the second one.

Hillham, founded by Dr. Moses Fisk in 1805, is the oldest town in the county. Dr. Fisk graduated at Harvard University in the same class with Daniel Webster. He settled at Hillham when the county was a wilderness, and devoted himself to study and to the education of young men. He spent a large fortune in building turnpike roads and in making other improvements, but his anticipations of the future greatness of Hillham have not been realized. It now has two stores and a population of about seventy-five.

*Topography.* The south-eastern extremity of the county lies on the Cumberland Table Land, and possesses the characteristics common to this natural division of the State. But little of the Table Land proper belongs to the county, but an outlying ridge, or more properly an arm,

most of which belongs to Overton, extends northward between the East and West Forks of Obey's River. Its length is about fifteen miles and its breadth from two to six, but its outline is very irregular. Throughout the greater part of its extent it has an elevation equal to that of the Table Land, but at two or three points it is broken by gaps which drop down to a level with the terraces or "benches," spoken of elsewhere as a characteristic feature of the western face of the mountain. These terraces occupy a considerable and quite a valuable part of the county. Their elevation is about half that of the Table Land, or about 500 feet above the average level of the Highland Rim. From below the cliffs which form the western escarpment of the Table Land, they extend westward and northward, broken in places by valleys, coves and ravines, but in other parts affording extensive tracts of nearly level land, on which there are now many good farms. It is difficult to define the limits of this natural division. It is often deeply indented and scalloped by coves, and many spurs of greater or less length project outward. It will be borne in mind that this terrace region occupies all of the south-eastern part of the county except a little that lies on the Table Land. On a level with these terrace lands there is a long ridge or spur extending through the middle of the county, and forming the "divide" between the waters of West Fork and Roaring River. Being an arm of the bench, it is difficult to fix its southern limit, but reckoning from Thorn Gap, thirteen miles south-east of Livingston, it extends northward for about fifteen miles, to a point near Monroe. Here it makes nearly a right angle, and then extends in a westerly direction for some fifteen miles further. Its breadth in some places is several miles, while in others it is nearly cut in two by coves on the opposite sides. The top of this little mountain is a well defined plateau, but at several points there are knobs rising from its surface, two of which attain an elevation nearly equal to the Table Land. Between this mountain and the higher one, on the line between Overton and Fentress counties, lies the Valley of West Fork. Beginning in a narrow cove near Thorn Gap, it extends northward, growing rapidly wider until an average breadth of about two miles is attained. It is about twenty miles long. In quality of land and other advantages this valley is the best part of the county, considering the extent of its area. Nestled cosily in the angle formed by the long ridge or mountain spoken of above, there is the beautiful little valley in which Livingston is situated. It is three miles long and from one-half to one mile wide. Along the eastern side, above Livingston, the lands are

very fine. Further south is a group of three coves—Nettler's, Cope-land's and Eldridge's—all of which may be regarded as an irregular valley, somewhat larger than the one last described, and very fertile. This valley has several very large and fine springs, which furnish the headwaters of Roaring River. Between the fringing spurs of the Table Land and its outliers there are a great many small valleys or coves, most of which are very rich. It is estimated that nearly half of the cultivated lands in the county is in the coves and in the creek bottoms. West of these ridges, valleys and coves there is a broad belt of clay upland, much of which is rich, especially along the creeks and in the neighborhood of limestone hills. In the extreme west, comprising perhaps one-tenth of the entire area, there are some tracts of barrens.

*Rocks, Soils and Timber.* The cap rock of the Table Land is a massive layer of sandstone and conglomerate. The soils which rest upon it are the poorest in the county. This is true also of the tables of the outliers. Yet these mountain lands are by no means valueless. They produce good grasses, and for orchards they are unsurpassed. The timber is generally of the smaller and hardier kinds, among which post oak and small black oaks and black jack are most abundant. Chestnut trees are numerous, and there are some hickorys and a few of other kinds.

Below the shale beds which underlie the bluffs of sandstone and conglomerate, there are stiff clays and limestones which crop out above the terraces. This limestone is found also in the knobs which rise above the tables of the outliers. Wherever it is found, the terrace lands adjoining are good, and often rich. The timber is dense and heavy. Poplar, ash, shell-bark hickory, sugar maple, buckeye, elm and many other varieties are common. But these bench lands are often disposed to be leachy, and away from the vicinity of the limestone they are less fertile and the timber of a different character. Here there are gigantic chestnut trees, besides white poplars, oaks, etc.

The cap rock of the terrace, and also of the outliers, is a sandstone, but neither so much indurated nor so massive as that above, consequently the escarpment is not so well defined. Below, the limestone prevails to the base of the mountain, and large and valuable trees abound. This Lithostrotion limestone which crops out on the lower slopes is the same that underlies the rich lands in the valleys and coves. The cove lands are the richest in the county, and where favorably situated they are very valuable. The surface is generally level, and the

soil a good loam, easy to till, and with good cultivation will never wear out. Some of the coves seem to be alluvial. Because of their similarity, we may class with the cove lands the bottoms along the creeks. But of these there are but few worthy of note. Of the tillable lands in the county, by far the largest part is what is sometimes called clay upland. This class of lands occupy most of the area of the valleys and extend in a broad belt across the county west of the mountains. The surface is rarely level, sometimes undulating, but generally rolling or broken. Caves and sinkholes are common everywhere, and most of the smaller streams soon disappear from the surface. Limestones crop out on the hill-sides and along the streams. In many places there is scattered loosely over the surface a coarse chert, known locally as "crag rock." This chert is rich in calcareous matter, and by its gradual decomposition adds to the fertility of the soil. But there is another kind of chert which occurs especially in the western part of this clay belt. It is locally known as "bastard flint." It is more siliceous than the kind spoken of above, and consequently does not furnish the elements of fertility. Its natural position is in beds on the tops of the hills, but it has been washed down, and is now found in large quantities along the streams. Towards the west the lands become gradually less fertile. The limestone disappears or is replaced by a hard, highly silicified variety of a dark blue color, which is valueless as a fertilizer. A fine-grained brown sandstone, soft and easily quarried, abounds. The surface, except where cut by the streams, is level or gently undulating, and thinly wooded, and the soil generally poor. The red clay subsoil gives place to a yellow or bluish variety, which is less retentive of manures. But tracts of better lands are met with in places, and there are many good farms in this part of the county.

*Unimproved Lands.* It is estimated that nearly half the lands in the county are yielding nothing. A large percentage of these waste lands lie on the mountains, and are now considered almost worthless. On the benches there are a few farms, but large tracts of valuable lands remain unimproved, and can be bought for a trifle. For meadows and orchards, these lands possess peculiar advantages. Fruit crops rarely suffer from frost and are never a total failure. Good grain crops can be raised, and with kind treatment the fertility of the soil will never be impaired. The barrens in the western part embrace about one-tenth of the area of the county. They afford a valuable summer range for cattle and sheep, and there are many tracts that might be converted into beautiful meadows. The price of unimproved lands ranges from ten cents to ten dollars per acre.

*Farms* vary in size from fifty to 1,000 acres. Two hundred acres is about the average. The work on small farms is mostly done by owners, but on most of the larger, hired labor is employed as help. Farmers complain of the scarcity of good laborers, and many more of the right kind could find employment. Fifty cents per day is the average price for farm hands, but extra good laborers command better wages. In harvest, one dollar per day is the rule. It is customary for laborers to board with their employers. Where they board themselves, an allowance is made for that. Letting lands to tenants on shares is more common than renting for cash. In such cases, the tenant usually provides farm stock, implements, &c., and gives the owner one-third of the crop. When the owner furnishes everything, he receives half the crop. The price of farms varies with quality of land, improvements, advantages of location, &c. Ten dollars per acre is about an average, and twenty dollars is perhaps the highest limit of farms that are for sale. Well improved places can be had at very reasonable figures. During the last two years, considerable improvement has been made in the condition of farms, but they are not yet up to the standard of excellence and good management maintained before the war. But if the efforts for improvement are continued, it will not be long until we shall see a higher degree of prosperity than has ever been attained heretofore. The farm stock and implements are of the kinds common throughout the State. Horses, mules and sometimes oxen are used for plowing. For heavy draught, oxen are always preferred, but they are rarely used where the work can be done by horses.

Many farmers prefer mules on account of the economy of keeping them, while others use mares to do all the farm work, and by breeding them every year, a considerable amount is realized from the colts. Improved plows are more generally used now than ever heretofore. One and two-horse turning plows are common, and there are a few of larger sizes. Hill-side plows are rare. The old fashioned "bull-tongue," though not so universal as formerly, is still extensively used, but is gradually giving place to cultivators and double-shovels.

*Crops.* The leading crops, in the order of their importance, are corn, wheat, tobacco, oats, rye, cotton, potatoes and turnips. Very little of any of them, except tobacco, is carried out of the county. The cultivation of this staple is increasing, and it bids fair to be ere long the most important farm product of the county. But little attention is paid to grass. Corn fodder is chiefly relied on for winter provender. It is estimated that less than one-tenth of the cultivated lands

is in grass. The little that is sown is chiefly for mowing. Clover and herds-grass are the common varieties, but there is a little timothy and orchard-grass. Good pastures are by no means common, but the best farmers are giving more attention to them. Clover and herds-grass are preferred for this purpose. The principal cause why pastures have been so much neglected, is that the native grasses have heretofore afforded abundant pasturage, but when the country becomes more densely populated, this can no longer be relied on. Manuring with green crops is almost unknown. Sometimes an old sod or a clover lea is turned under, but it is done rather to destroy weeds that have taken possession of the meadow, or for the purpose of raising a crop of grain, than with a view to benefitting the soil. In sowing wheat, the common practice is to plow it in among the corn. The Walker wheat has been for many years the most popular variety. Mediterranean and Tappahannock or Boughton have been tried, but have not made much headway against the old approved kind.

*Live Stock.* As in most other counties in Tennessee, the rearing of live stock is the leading and most profitable business within the range of agricultural pursuits. Grass can be produced more readily and with less labor, and will yield a better return per acre than any other crop. There are many hill-sides too rocky or too steep to be tilled, where blue-grass or orchard-grass would grow with great luxuriance. The range on the mountains and in the barrens, where the land is too poor to be cultivated with profit, affords almost unlimited pasturage for about half the year, so that with a little meadow land on each farm to furnish winter provender, cattle and other stock can be raised with but little expense. Most of the stock is scrub, and until recently, but little effort has been made to improve it. There is but one thoroughbred horse, we believe, in this county. Some fine Short-horn bulls and heifers have been brought in from Kentucky since the war. A commendable desire to secure graded animals, by breeding to these, is manifested, and we look for good results. Berkshire hogs, in considerable numbers, are scattered over the county, and have already greatly modified the character of the hogs. Owing to the great destruction of sheep by dogs, but few are raised. The number killed annually is at least ten per cent. of the entire number, and the county is thus robbed of hundreds of dollars worth of property. Of the improved breeds of sheep, there are a few Cotswolds and Southdowns, in the county, the former being most numerous. The question of the comparative profits of improved and unimproved breeds of stock is

settled by common consent in favor of the former, and many more fine animals would be brought in if the farmers had more capital.

*Smaller Industries.* Dried fruit is produced largely for home use, and considerable quantities are shipped. There are few articles that bring more money into the county, and with better means of transportation it would be very profitable. Butter is made for home use and to a limited extent for market, and an inferior quality of hard, tough cheese is sometimes found in the stores, but dairy products do not receive the attention that their importance demands. Poultry is raised for the market, and Overton county has become famous for chickens. Feathers are an important article of trade. The supply of honey is scarcely equal to the demand, for home consumption. Small quantities of beeswax are sold.

*Manufactures.* At the falls of Roaring River, in the south-western part of the county, there is a factory in successful operation, with machinery for carding, spinning, weaving and knitting, and in the same building and propelled by the same wheel, a good flouring mill. The wheel is an overshot, fourteen feet in diameter, and the supply of water is abundant at all seasons of the year. On Nettlecarrier Creek, eight miles east of Livingston, there are a carding machine, cotton gin, saw-mill, grist-mill and turning lathe, with wagon shop attached, all propelled by the same power. At Olympus, in the north-east corner, there is a steam saw-mill, and water mills are numerous in every part of the county.

*Household Manufactures.* Jeans, linsey, cotton cloth, flax and tow linen, blankets, rag and woollen carpets, straw matting, and woollen and cotton socks are the leading articles of home manufacture. Most of the every-day clothing worn by the farmers and their families is manufactured and made in the county. The value of home manufactures in 1870, was \$51,813, or about four dollars and a half for each person in the county.

*Streams and Water-power.* Except Obey's River, which touches the county on the north-east, West Fork is the largest stream. Rising twelve miles south-east of Livingston, it flows north through a beautiful and fertile valley into Obey's River. Throughout its whole course it is a bold, rapid stream, hemmed in by high banks, and has many valuable sites for machinery unemployed. Roaring River is formed by several large springs, five miles south of Livingston, and flows north-west into Cumberland River. It is, as its name indicates, a bold,



impetuous stream. Besides the factory spoken of above, it has three mills before crossing the county line, besides a number of noble powers unemployed. Flat Creek, a tributary of the last, heads four miles north-west of Livingston, and flows south-west. Its length, in a direct line, is ten miles. It has two mills, and might have several more. Matthew's Creek, in the southern part of the county, is a good stream for machinery. It has two grist-mills, and might have several more. Spring Creek, forming the southern boundary, is described in connection with Putnam county. Nettlecarrier is a short but valuable creek, flowing into West Fork; though but little more than three miles in length, it propels a factory (spoken of above) two good flouring-mills and one saw-mill. From these particulars it will be seen that in Overton county, as in all the other eastern counties of Middle Tennessee, the natural advantages for manufacturing by water-power can scarcely be over-estimated.

*Minerals.* Near Obey's River, in the northern part of the county, there are valuable deposits of coal. It has been worked, to a limited extent, at a point where the stratum is four and a half feet thick, and a few boat loads have been carried down the river to Nashville. At the angle of the mountain, one mile south-east of Monroe, coal has been mined in considerable quantities for local use. The bed averages three and a half feet thick. The blacksmiths who have used it, speak well of its quality. At two points on Alpine Mountain, a spur of the Cumberland, coal has been worked. The first is eight miles east of Livingston, and the other about the same distance south-east. It is elevated about 200 feet above the valley, and the stratum is from two and a half to three feet thick. This coal was formerly used at a bloomery on Roaring River, and it is said that it will make iron without coking. Coal is known to exist in many other places where no developments have been made. There is an extensive bed of iron ore, covering several square miles between Livingston and Roaring River, beginning one and a quarter miles south-west of Livingston, it extends nearly west seven miles to the site of the old bloomery. Its average breadth is about three miles. The ore is brown hematite, similar to that found in the Western iron region. There is another large bed of the same kind of ore in the northern part of the county and reaching into Clay, but it has never been worked, and its extent is not known. The Black Shale is exposed at several places in the valleys of the creeks and rivers. In rock-houses, formed by the over-capping sandstone, incrustations of alum and copperas are often found. This

shale also yields oils, of which the oil well on Spring Creek is a notable example. It was opened in the spring of 1866, and yielded large quantities of petroleum for about two years, but the cost of transportation was so great that it was not profitable. When work was suspended there was no perceptible diminution of the oil. Sulphur springs are also common in this shale. Five miles south-west of the town of Livingston, there is a very fine red sulphur spring. It is said to be of nearly the same quality as the famous "Red Boiling Spring" in Macon county. During the past year, Mr. Livingston, the proprietor, has erected a comfortable boarding-house at this place, and it will doubtless become a popular resort. Within one mile of this place, there is a chalybeate spring on Roaring River, which has been resorted to by people in the neighborhood for many years. Chalybeate springs are common in the mountainous parts of the county.

*Miscellaneous.* The number of acres, according to the late assessment is 254,618, valued at \$787,263, and the total value of taxable property \$828,465. The population in 1870 was 11,297, of which 550 were colored, but since that time, nearly one-third of the county has cut off to form the new county of Clay, so that it is impossible to give an exact statement of the number, but basing the estimate upon a comparison with other counties in this part of the State, there are about twenty to the square mile. The scholastic population is 3,686, and the public schools are generally well attended. There is a county academy at Livingston, and a permanent private school at Pond Ridge in the southern part of the county. Good schools have heretofore been sustained in almost every neighborhood. Want of facilities for transportation is the great drawback to the prosperity of the county. The stimulus of a railroad is needed to infuse new life into all branches of business, and to carry the great and increasing productions to market. At present, everything is hauled in wagons to Nashville. There is complaint of the burdensome restrictions imposed upon the producers of tobacco, but no general feeling of discontent, and but little disposition to move away. Since the abolition of slavery, most of the large farmers see the necessity of reducing the size of their farms, consequently there is a large amount of land for sale. The people would be glad to receive, into their midst, any number of good working men, and will give such all possible assistance and encouragement. The cost of living is very low, board being \$1.50 to \$2.50 per week. There was before the war a county agricultural association, but it has not been revived, and the fair grounds remain unimproved.

## PERRY COUNTY.

## COUNTY SEAT—LINDEN.

Perry county was established November 14, 1821. At the time of its organization, it embraced a large part of the present county of Decatur, lying west of the Tennessee River. Subsequent legislation greatly reduced its limits, so that it lies altogether east of the river, and contains only about 400 square miles. Perryville, now in Decatur county, was the original county seat. After Decatur county was established, this place, once very flourishing, went to decay. The deserted public square, with the debris of torn down buildings, forcibly reminds one of Goldsmith's "Deserted Village." The ancient capital of Perry has been reduced to a mere shipping point.

*Towns.* Linden, after the erection of Decatur county, became the county seat of Perry. It is some ten miles from the Tennessee River, almost due east from the old town of Perryville. It has a handsome court-house, and for an inland town, is a place of considerable trade. Buffalo River flows on the east side of the town, and Buffalo Ridge, with its high wooded crests, lies on the west. The present population of Linden is about 200. It has six stores, four groceries, and two hotels. The other villages, or places of business, are Britt's Landing on the Tennessee River, Lobleville, thirteen miles north of Linden, Beardstown, and Farmer's Valley, all of which have one or more stores.

*Geology.* Blue and gray limestones outcrop in all the valleys, excepting a few in the northern part of the county. These limestones belong to the formations known among geologists as Niagara and Lower Helderberg. Many of the bluffs along the Tennessee River are made up of their strata. There is a number of glady places in the county formed by the outcrops of the Niagara limestones, which have supplied geologists at home and abroad with fine specimens of fossils. Many of these fossils have been taken to Europe. Above the Lower Helderberg limestones, which by the way are generally thin-bedded, blue, and full of fossils, lies the Black Shale, a formation which everywhere attracts attention, mainly because it is mistaken as an indication of stone coal. This bed ranges in thickness from a few feet to thirty or more. Above the Black Shale, and constituting the mass and tops of the ridges, is the siliceous division of the Lower Carboniferous.

The lower strata of this division are often silico-calcareous shales, mixed more or less with limestones. The upper portion contains more limestone, which often shows cherty masses. The latter being liberated, cover more or less the tops of the ridges.

*Topography and Streams.* The topography of this county is beautiful, from the regularity and great number of the ridges. Buffalo Ridge, west of Buffalo River, rises to the height of 700 feet above tide water, and 300 feet above the adjacent valleys. It traverses the county longitudinally north and south throughout its entire extent, and sends out westward eight subordinate ridges, nearly to the Tennessee River, a distance of nine miles. Between these various ridges, streams of pure sparkling water flow in parallel lines, and empty into the Tennessee River. On the eastern side of Buffalo Ridge are parallel spurs, running down to the banks of Buffalo River. These spurs are seldom over one mile in length, and the troughs which they form convey the waters from the eastern slope of the ridge into Buffalo River. The portion of the county east of Buffalo River is also fluted with ridges and valleys, similar to the western side, and many beautiful streams, bordered by fertile lowlands, empty into that stream which is the great artery of the county. Beginning at the southern end of the county, the tributaries of the Buffalo from the eastern side are Coon Creek, Brush Creek, Hurricane Creek, Short Creek, and Cane Creek, the last of which is by far the largest, and has a fine fertile valley. Most of these creeks are rapid in their descent, and flow alternately over gravelly beds and limestone rock. They have a sufficiency of water-power to drive mills. The tributaries of the Tennessee, beginning at the southern limits of the county, are Cedar Creek, Marsh Creek, Cypress Creek, Spring Creek, Lick Creek, Tom's Creek, Roan's Creek, Crooked Creek, and Blue Creek. The average length of these creeks is about nine miles, and they usually flow through flat wide bottoms, the channels often changing, the water cutting out the banks on one side or the other, and throwing up a wide expanse of rounded pebbles and sand on the other. After heavy and continuous rains, these streams rise with an amazing rapidity, the water sweeping down from the steep declivities on each side, and swelling them until they carry away in their inundation, fences, and oftentimes cover acres of the finest land with gravel and sand to such a depth as to injure them permanently.

*Timber.* This county is heavily timbered. White oaks and walnuts,

black oaks and hickories of magnificent size, prevail upon all the slopes and in the bottoms. Chestnut oak, exceedingly valuable for its bark, is very abundant, and large quantities of tan-bark could be collected annually for shipment. Boards, staves and shingles are shipped to St. Louis and New Orleans. The lumber trade is considerable, and rapidly growing.

*Soil and Crops.* The finest soils, and perhaps almost the only ones that will remunerate the farmer for his toil in the cultivation, are in these bottoms. Dark in color, they are heavily charged with flinty quartzose gravel, sometimes comminuted until it approaches a coarse sand. These stones serve to keep the land friable, and make it easy of cultivation. By reason of its mellowness, the soil is specially adapted to the cultivation of peanuts, and this crop, for a number of years, has been the principal staple of the county. At the time when the price of peanuts reached its highest limit, one hundred dollars an acre was asked for the best peanut land, the product on an acre sometimes reached, though rarely, one hundred bushels. The introduction of the culture of the peanut in the county, marked a social revolution. Previous to this time almost all the cloth used in everyday wear was manufactured by the wives and daughters of the farmers. But as the labor required to cultivate the peanut was not so confining, nor so arduous, or long continued as the labor of the spinning wheel and loom, the latter were exchanged for the hoe, with which they were able to buy from six months labor in the field what before required twelve to manufacture within doors. It is no uncommon sight to see women of fairest face and comliest form, with hands encased in gloves, and their faces screened from the rays of a blazing sun by an old-fashioned sunbonnet, hoeing long rows of peanuts, while the sterner sex drives the plow. And especially when this crop is being harvested are the nimble fingers of the women of peculiar value. It is said that a woman can pick from the vines at least one-third more in a day than a man. As a consequence of this outdoor exercise, the women of Perry county have a most fascinating beauty in striking contrast to the wan, care-worn, pale faces of those who pace to the spinning wheel, or work with tireless patience over the loom. Nor has this change been without other benefits to the community. It is said that the farmers who habitually grow peanuts are in a highly prosperous condition, nearly all of them being free of debt, with money to lend. Cotton was the staple (and still is in some portions of the county) before the introduction of the peanut, but the moist, cold soil,

while it induced a vigorous growth of stalk, did not bring all the bolls to maturity, and the yield was, in most cases, small. Sometimes, however, in favorable localities, 1,000 lbs. of seed cotton are made to the acre. Wheat will make a yield of about ten bushels per acre on soils of the many small coves that everywhere run up into the ridges, and upon the gentle slopes, but it is not a profitable crop for the lowlands, the overflows frequently injuring it. Corn, oats and hay grow well on the bottom lands, but of the latter, though the soil and situation are well adapted to its growth, but little is sown, and of that which is grown, three-fourths is made of the annual grasses. There are very few permanent meadows in the county, though timothy and herds-grass both make a fine return. Clover is rarely sown as a renovater of the soils, but often for pasturage.

*Stock.* The number of streams which thread the county, with the large extent of bottom land, would indicate stock-growing as a profitable business, and yet stock-growing is in its infancy. A few improved hogs and cattle have recently been introduced into the county, but the long-horned, scrubby cattle that browse upon the scanty herbage which springs up in the woodlands, and the pike-nosed "king fisher" style of hogs that roam the forest, or search the streams in quest of food, feeding upon acorns and devouring the muscles, show too plainly that stock-growing has not, as yet, become an art in the county of Perry. Prior to the war, a considerable number of mules was raised for the southern markets, and hogs, in more or less quantities, were driven to various places. Enough of these animals are still raised for home demand, and a few mules are driven to Alabama. The high hills and green valleys make this a county well suited to the rearing of sheep, but the same cause has operated to the injury of this pursuit as in other counties. It is estimated by competent persons, that the loss is not less than fifty per cent. annually by dogs. At this rate, all the flocks will soon be exterminated. Sheep can live at least nine months in the year without being fed, so great is the abundance of short, wild grasses, ferns and mosses.

*Benefits of Small Farms.* The beneficial effects of small farms which are cultivated by their owners are clearly perceptible in this county. There is an unmistakable air of thrift about all the farms. Houses are usually in good repair and comfortable, though not so neat and tasteful as might be desired. The lack of taste about the dwellings is due more to inherited habit than to a want of means. There is but

little land in market. Improved farms range in price from \$20 to \$50 per acre; unimproved, from \$3 to \$10; ridge lands, \$1. In those counties where large farms predominate, and the owners rely upon hired labor and not upon their own strong arms to cultivate them, land is a drug, and immense quantities can be bought at prices which in Perry county would be considered exceedingly low. The farmers of Perry, though not rich as a class, are independent and contented. The farmers in those counties that were considered the most fertile and the most opulent before the war, are usually in debt, land-poor, discontented and unthrifty. The old plantation system, wherever continued in force, is giving discouraging results. No difference is observable in the farms of Perry since and before the war, while the dilapidated appearance and the air of desolation and decay that mark many of the homesteads in the hitherto more desirable portions of the State tell more plainly than the strongest words how miserable has been the failure of the old plantation system. Farming lands in such counties are for sale in great quantities, while in counties like Perry, where the labor on the farm is done by the owner and his family, but little land is in the market. The farms of Perry will not average over 100 acres of arable land, and the comparative scarcity of old fields clothed in a tawny mantle of obnoxious broomsedge, shows that, though clover is not greatly used as a fertilizer, the lands have not been exhausted by bad tillage. Indeed, constantly fed as the valley farms are by the washings of the adjacent hills, it would be difficult to exhaust them, for like the Nile, these streams are subject to annual overflows, and leave a rich sediment upon the land after their subsidence.

In consequence of the fluted topography of the county, most of the civil districts are laid off so as to embrace a valley, and the half of each of the parallel intervenient ridges. Neighborhoods are known by the creeks, for it is easier to go eight or ten miles up or down one of these streams than to cross the high ridges that bound them.

*Labor, Rents and Markets.* There is a scarcity of transient labor. Farmers hire but little help, and then only in the busy seasons. As a consequence, they have to pay higher for it than the average price paid in the State. From \$15 to \$20 per month and board is the usual price for stout, able-bodied farm hands. There is but little demand for house servants or cooks, the industrious housewives preferring to do the work themselves. A few, however, are hired at from \$5 to \$10 dollars per month. Corn land rents for \$3 per acre; peanut land, \$5; oat and

wheat land, lower. One-third of the crop is sometimes given. There are but few renters or croppers. Most of those engaged in agriculture own their farms. Products are shipped by Tennessee River. Peanuts usually go to Cincinnati. This crop, mainly raised in the northern portion of the county, reached 250,000 bushels in 1872. Tobacco is raised to a limited extent. The nature of the soil is very generous towards this weed, growing a fine, silky, small stem leaf, well suited for the manufacturer.

*Minerals.* Iron ore is abundant. Blossoms outcrop on the west side of Buffalo Ridge. These blossoms are dark, blackish boulders, whose great weight shows iron to be the predominant ingredient. Before the late civil war, there was a furnace in operation on Cedar Creek that made 1,500 tons of pig metal annually. Nearly every civil district has more or less iron. A rough species of variegated marble, not devoid of beauty when polished, and very valuable as building stone, is plentiful. This red marble overlies a stratum of hydraulic rock, which, from the tests that have been made, will make cement equal in quality to any in the country. The facilities which the Tennessee River affords for the transportation of heavy products will doubtless bring this rock into notice. A kind of soft sandstone is very common. This stone is easily hewn into any desirable shape when first quarried, but hardens by exposure, and is much used for building chimneys, a purpose to which it is admirably adapted. It is cheaper than brick, and will resist the action of fire much longer. The Black Shale is rich in oil, but so far from being an indication of coal, it is the best sign of its non-existence. Petroleum there may be, but coal, which many think exists in the county, has never yet been met with, and a stratum of it in the counties that border the Tennessee River would be an anomaly as strange as trees growing downward. When the oil excitement ran so high, great expectations were entertained as to the wealth of Perry county in this particular, and nearly all the lands were leased to oil speculators, but we believe no attempt was ever made to find it, at least no successful attempt. Mineral springs are found in various localities, but they have never been improved, and their qualities or healing properties are unknown.

*Fruits and the Smaller Industries.* The large extent of rolling lands, their elevation, and the variety of exposures which they present, would indicate an unusual adaptation of the county for fruit-growing. Nearly every farmer has a small orchard of apples and peaches, but most of



them are planted in the valleys, and the fruit is liable in such localities to be killed by the late frosts. On the tops of the ridges, and especially on the crest of Buffalo Ridge, fruit often escapes this danger. Dried fruit, if advantage was taken of high elevations in the planting of orchards, could be made as remunerative as the growing of peanuts, and the condition of society is such as to make this branch of husbandry peculiarly agreeable to the farmer. The apple orchards that are planted in the valleys have a thrifty appearance, but the fruit often specks before coming to maturity. The blackberry grows in the valleys and the huckleberry on the hills in every part of the county. Honey in sufficient quantities for home consumption is made. Nearly every farmer has a few hives of bees, and they are healthy and prolific. The thousands of blossoms that with their bright hues garnish the sides of the ridges and lend their fragrant perfumes to the valleys, supply material in abundance for honey. The facilities for the cultivation of the smaller industries are great, and an impulse given in this direction would add much to the wealth of the county.

*Water-power.* It might naturally be inferred from the large number of streams, that water privileges are abundant, but such is not the case. The character of the stream beds is such as to unfit them for milling purposes. The channels of a majority are not encased with limestone or other rock banks, but are cut out of the alluvial soil, and are constantly changing. The thick beds of sand and gravel absorb the water during the summer months, so that no reliance can be put in a constant supply. Though this is the character of the greater number of streams, the Buffalo has some admirable water privileges. At a point a mile or two south of Linden, there is one of the best water-powers in the State. The main stream makes a circuit of about three miles, forming a peninsula. A tall, inaccessible bluff, 300 feet in height, forms the neck of this peninsula, but a subterranean passage has been eroded under this bluff, and the water pours through this in a volume large enough to run a dozen mills. So rapid is the fall after its emergence that scarcely any mill-dam is required. The supply of water is constant, the volume being measured by the calibre of the underground channel. Neither wet weather nor dry has any perceptible effect upon the quantity. When the river is high the surplus water flows around the bluff, and when low the larger quantity passes through the subterranean passage. At this point a flouring and saw-mill have been erected. There are a few mills on the other streams, but the number is not sufficient for the convenience of the county.

*Immigrants and Emigrants.* Though Perry county offers some fine inducements for an industrious population, but few immigrants come to it. This is doubtless owing to a want of railroad facilities and of school advantages. The want of the latter has caused many good citizens to leave the county and seek other locations where their children can enjoy the privilege of attending good schools. This want is scarcely felt by a large proportion of the population. Generally with limited education, they do not recognize what a powerful lever it is in building up the prosperity and greatness of a community, in attracting population, in diversifying pursuits, in awakening dormant energies, in multiplying the effectiveness of labor, in softening manners, in nursing manly sentiment, in mitigating ferocity, in harmonizing the different shades of society, and in beautifying, adorning and ennobling private life and manners. Schools, without which in this age there can be no permanent progress, meet with but little favor. No additional tax was ever levied to supplement the scanty pittance received from the State, which of itself will run free schools a month or two, only long enough to inflict a grievous wound upon private enterprises, without rendering any effective service in the cause of education.

*Public Improvements.* Perry county has no poor house. Paupers are put out to the lowest bidder. There is not a macadamized road within its limits. Streams are not bridged. Public spirit and enterprise are at a low ebb. A tax for public works is so obnoxious that to advocate it is to render one extremely unpopular. The convenience of the public is made secondary to the convenience of an individual. Money paid for public improvements, in the opinion of the many, is money abstracted to benefit all others except the tax-payer. It is to be regretted that a county which has so many of the elements of wealth within its limits should be so indifferent or unmindful of the steps necessary for its development. To work up their vast treasures of iron ore there must be skilled labor. To have skilled labor there must be schools. To have schools there must be a public sentiment created which will view the taxes paid for such a purpose in the light of an investment. Were there twenty furnaces in operation in Perry, or twenty cotton factories, the increased revenues which the farmers would derive by reason of the home markets thus created, would pay the tax demanded for the support of a good school system twenty times. The whole community would be benefitted, and the stagnation that now reigns over the county like an incubus, would be replaced by activity, zeal, public spirit and awakened enterprise.

*Statistics.* Perry county has eleven civil districts. The number of acres of land assessed, 220,139; value, \$1,011,850; number of town lots, 79; value, \$12,295; value of horses, mules, mills and other taxables, \$210,940; number of polls, 956; total value of all property, \$1,235,085; total State tax, \$5,896.34. Population in 1860, 6,042; of which 556 were colored. Population in 1870, 6,925; of which 472 were colored, showing a diminution in the number of the latter class. School population, white, 2,143; colored, 171; total, 2,314.

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## PUTNAM COUNTY.

### COUNTY SEAT—COOKEVILLE.

This county was created by act of the General Assembly of Tennessee in the year 1842, the territory being taken from White, Overton, Jackson, Smith and De Kalb counties. In the same year an attempt was made to organize, but soon after, a bill in Chancery was filed by the county of Jackson, through the County Court of said county, suspending any action that the county of Putnam had taken, or might take. This delayed the organization till 1854, and the parts taken from the several counties were thrown back to them. In 1854, the county was permanently organized. Monticello, which had been first nominated as the county seat, failed in the second instance to carry the election, and Cookeville was chosen. The county was then laid off into sixteen civil districts.

*Towns and Villages.* Cookeville, the county seat, is a neat little town, with a population of about 250. It has an elevated site, from which there is good drainage in every direction. The only village in the county worthy of mention is Bloomington, about ten miles north of west from Cookeville. It has a population of about seventy-five. It is chiefly remarkable on account of a fine chalybeate spring, and is becoming popular as a summer retreat.

*Topography.* In order to have a sufficient amount of territory, without encroaching upon the constitutional limits of previously existing counties, it was necessary to make the county long and narrow and very unsymmetrical in shape. Its length from east to west is more than forty miles, while its average width is not more than twelve miles. The eastern end, comprising about one-eighth of the entire area, is on

the Cumberland Table Land. This part of the Table Land is remarkable as containing the head springs of streams radiating from it as a centre toward every point of the compass. The east and west forks of Obey's River flow north, Spring Creek north-west, Fallingwater nearly west, Calf Killer River south-west, and just across the line, in Cumberland county, are the head springs of Emory, which flows east into Clinch River, above Kingston. These facts are an evidence of its great elevation. These streams, except the last, in their descent from this elevated plateau, have cut through the western escarpment, forming many deep ravines and sequestered valleys, with towering ridges projecting between. The scenery here is remarkable for its wildness and sublimity. Bold cliffs of sandstone and conglomerate crowned with scraggy trees, where the scream of the eagle is not unfrequent, and the howl of the wolf is sometimes heard; mountain sides, rugged with jutting cliffs, the deformities of which are sometimes cancelled by mantling ivy; "benches" (terraces) here and there with good farms and orchards; deep valleys sometimes with narrow bottoms, but more frequently pressing close upon a stream which dashes and thunders down one cascade after another—such are the characteristic features of this part of the county. As we approach the central part of the county, the valleys become wider, and the ridges and spurs run out into lower hills, or disappear entirely. We are now in the red clay region, a broad belt of which extends along the western base of the Table Land. In Putnam county this belt is about fourteen miles wide, and is the best part of the county. Its surface is diversified with hill and dale, the beds of most of the streams being considerably below the general level of the country. Sinkholes and caves are a characteristic of this belt of clay lands, and in the neighborhood of the mountains are many large springs, whose waters have accumulated, and perhaps flowed for miles in underground channels. The country becomes more level and the lands less fertile toward the west, until the part of the county designated by the significant name "barrens" is reached. Here the red clay gives place to a yellowish subsoil, greatly deficient in calcareous matter, and too leachy to bear improvement. There is but little humus in the surface soil, and it is not well adapted to the production of grain. The surface is generally level, except in the neighborhood of the streams, and the timber is thin and of small size. But the valleys and the hill-sides along the streams afford some good lands, and the less fertile portions are covered with nutritious wild grasses, which furnish pasturage for large numbers of cattle and

sheep. The extreme western end of the county runs down into the hills bordering the Caney Fork and Cumberland Rivers, and takes in a small part of the Central Basin. The Highland Rim is so broken by the valleys separated by projecting ridges that its escarpment is not well defined. The surface is broken, but the soil of the valleys lying upon Silurian limestones is very fertile.

*Soils.* The soils of the Table Land are light and sandy, and not valuable, except for fruit-growing and grazing. But little of this part of the county has been improved, and lands can be bought at very low figures. The Mountain limestone on the western face of the Table Land does not present any very extended areas of land level enough to cultivate, but there are several farms on some of the benches, which are rich enough to produce any crops grown in this latitude, and are especially valuable for fruit farms. In such situations orchards never fail to bear good crops. The cove lands are often level and always very fertile. The soil is a mellow loam, having enough of sand to render cultivation easy, but not so much as to impair its fertility. It is sometimes several feet thick, resting upon red clay or limestone. As already stated, the clay uplands occupy the central part of the county, and embrace the largest area of good lands. The soil is a dark brown mould, rich in humus, and with good tillage will continue to increase in fertility. The subsoil is a strong red clay, possessing many of the elements of fertility. At a greater or less depth beneath the surface is found limestone, either blue or gray, and sometimes fossiliferous. It often crops out on the hill-sides, and nearly always along the streams. The soils in the barrens are chiefly valuable for grazing. We believe there is no part of the State better adapted to the rearing of sheep. The coarse native grasses are nutritious, and the cultivated grasses grow finely. But the porous yellow subsoil is so leachy that we do not recommend these lands for grain farms. There are places, however, where red clay and limestone are found, and in all such the lands are rich. The bottoms along the streams and the hill-sides, especially those facing the north, are generally fertile. The valleys in the western end of the county have a deep dark soil, generally resting on Silurian limestone and very rich.

*Valleys.* Buffalo Valley, in the Western end of the county, is four miles long, with an average width of one mile. The surface is level, and the soil very fertile. Dry Valley is scarcely less fertile, and has a large area. Along the base of the mountain are several coves, or small valleys.

*Farms and Crops.* According to the last assessment, the total value of taxable property is \$890,712. The county contains about three hundred and forty square miles, with a population of 8,698, being more than twenty-five to the square mile. Of the entire area about thirty-five per cent. is yielding nothing. Farms vary much in size. Some that yield a good living to their owners contain no more than fifty acres, while others have one, two, three and even as high as six hundred acres. Most of them are cultivated exclusively by the owners, but on the larger some hired help is employed all the year, and on occasions of extra work, such as harvest time, almost all farmers require more or less assistance. There is rarely any difficulty in obtaining common hands, but skilled labor is scarce. The wages paid, however, are not such as to invite good laborers from abroad. Twelve to sixteen dollars per month are the regular terms, but harvest hands generally receive something higher. Money rents range from three to five dollars per acre, according to the quality of land. One-third of the crop is generally paid by those who rent on shares. The leading field crops, in the order of their importance, are corn, tobacco, wheat, oats, hay, potatoes, turnips, cotton, buckwheat and barley. Walker wheat is the most common variety. Tappahannock is preferred by some. About ten per cent. of the cultivated lands are in grass. It is customary to mow a meadow until it becomes foul, and then turn the sod under, but this is done rather for the purpose of destroying the weeds than for improving the land. Several of the best farmers use clover as a green manure. Grass is sometimes sown for pasture. "New ground," or land just cleared, is plowed with a coulter to cut the roots, but after these are out of the way, breaking is done with turning plows. Subsoiling is practiced to some extent, but it is generally done with a narrow shovel or "bull-tongue," following in the furrow after the turning-plow. Single and double shovels are used in cultivating crops. Horses are most popular for work stock, but mules are also used, and are preferred by some. For very heavy plowing, and other work that requires a strong team, oxen are often used, but rarely or never where horses or mules can do the work. The condition of farm improvements, especially fences and barns, has undergone a change for the better since the war. More attention is paid to the improvement and care of lands, and the yield of cultivated crops is greater. These improvements are due in a great measure to the efforts made to systematize the farming, under the direction of the County Agricultural Society.

*Live Stock.* The rearing of live stock is and will probably continue

to be the leading and most profitable branch of farming. Almost all of the stock is of the common breeds known as scrub. Several good horses, with fashionable pedigrees, have been brought in since the war, and their influence is beginning to be felt. There are also in the county a few Short-horn cattle. Berkshires, Chester Whites and perhaps some other breeds of hogs are represented by a few fine specimens. More recently an effort has been made to improve the sheep by bringing in Southdowns, Cotswolds and Leicesters. The adaptation of the county to sheep husbandry has already been spoken of, and the business is steadily on the increase. We hope before many years to see flocks of hundreds and thousands roaming over broad acres of "barrens" that are now waste, and yielding fleeces and mutton that will rival those produced on the "downs" of "merrie England." But before this can be realized, the old scrub stock must be bred out and replaced by those which will afford a better return for the labor and care bestowed on them. Nor is this necessity for improvement confined to sheep; horses, cattle and hogs must be bred with care, until a scrub of any kind will be a thing unknown. There has been but little complaint for several years past of sheep-killing dogs, and most of the farmers are opposed to a tax or any other restriction upon the keeping of dogs.

*Household Department.* The smaller industries belonging to farm economy receive some attention, but not as much as their importance deserves. Dried fruit is prepared for home use, and is also shipped in considerable quantities. Butter enough for family use is made on every farm, the year round, and often enough extra to buy the supplies of sugar, coffee, etc. Poultry receives a good share of attention. There is scarcely a family in the county without a good stock of chickens, and many raise also turkeys and guineas. Honey is not so common, but many families have enough for home use, and a few produce it for market. Geese and ducks are common, and feathers are an article of some importance. Household manufactures embrace such articles as jeans, linsey and cotton cloth, also blankets, coverlets, counterpanes and cotton and woolen socks. Most of the cloth worn by the farmers, except their "Sunday clothes," is made at home or in the neighborhood.

*Streams and Water-power.* Fallingwater, which is partly in Putnam and partly in White, is a fine stream for machinery. It rises among the mountain spurs in the eastern part of the county, and flows west south-west into Caney Fork. As its name indicates, there is a continual succession of falls and rapids along its entire course, and the

quantity of water is sufficient for machinery of any size or amount. There are now several good mills along its course. Spring Creek is next in importance. Its source is near the western base of the mountain, and its course nearly north-west. For a part of the way it forms the dividing line between Putnam and Overton. There are several good falls along its course, the one at Waterloo, where there was once a large powder manufactory, being the most important. There is no machinery at this place now. There are three cascades within a few hundred yards, the total fall being about thirty feet. It is now the property of Col. J. D. Goodpasture, of Livingston. Blackburn's Fork rises near the center of the county, and flows north-west into Roaring River. The smaller creeks are Indian, Pigeon Roost, Cane and Huggin's, all of which afford water enough for light machinery.

*Transportation and Markets.* Caney Fork River, bounding the county on the west, is navigable for small steamers for about five months in the year. Cumberland River, twenty miles north-west of Cookeville, is navigable during six months of the year. But most of the produce is sent to market in wagons, and merchandise is carried from Nashville in the same way. The line of the South-western Railroad is located through the county, passing one and a half miles east of Cookeville.

*Minerals.* Coal is abundant in the eastern part of the county. It has been worked at Horne's Cove Bank, nine miles south-east of Cookeville, and at Whitaker's Bank, ten miles east of the same point. It is known to exist in quantity at many other points, but the demand for it has been merely local, and there is nothing to stimulate development. At several places it is reported to be six feet thick at the outcrop. Pilot Knob, two miles south-west of Cookeville, is reported to be very rich in iron ore. The beds of brown hematite extend all around its base, and probably underlie the entire mountain. But little effort has been made to develop it. In the immediate vicinity of Cookeville, we saw some good ores, but are unable to estimate the quantity. In the neighborhood of Huggin's Creek is another extensive bed of iron ore in quality similar to the hematite common in this part of the State. Several years ago there was a bloomery on Fallingwater, four miles south of Cookeville, which, with the imperfect machinery used, yielded about forty per cent. of pure iron. The ore was obtained in the neighborhood and from Pilot Knob. With good machinery, it would doubtless yield from fifty to sixty per cent. When better facil-



ities for transportation are provided, the manufacture of iron will doubtless assume great importance. We are informed that there is a quarry of excellent marble at Pilot Knob, but have seen no specimens. It has been used for tombstones to a limited extent. The limestones are of the blue and gray varieties, the former being very hard, and more or less silicified, but the latter is easily burned into lime of excellent quality; both kinds are valuable for building stones. The sandstones of the Table Land and barrens are quite different in appearance and structure. The former are generally very much indurated wherever they are exposed, and are frequently mixed with conglomerate. In many places they split readily into thin, tough slabs, and would make excellent paving stones. But the barren sandstones are generally soft, easily worked, and furnish a beautiful building stone. There are seven well-known mineral springs in the county, three of which are chalybeate and four sulphur. Boarding-houses have been erected at several of these. Bloomington, where there is a very excellent chalybeate spring, is becoming popular as a summer resort. The buildings are new, commodious, and well adapted to the purposes for which they were erected.

*Schools.* The scholastic population of the county is 3,420. There are fifty-two public schools, with an average attendance of more than fifty per cent. of the entire scholastic population. Besides the public schools, there is an academy at the county seat, and good private schools have heretofore been sustained in several neighborhoods.

*What is Needed.* A railroad to stimulate developments and carry the productions to market, is the most pressing want. Owing to the great length of the county, compared with its breadth, it has been impossible to secure county aid for a north and south line, but the citizens in the central part are willing to make liberal donations to any company that will undertake the completion of the Southwestern Railroad. One survey for the Tennessee and Pacific Railroad passes through the county from east to west, and if it should be located on that line, county aid could no doubt be obtained. The restrictions imposed by the revenue law upon tobacco, are very much complained of among the farmers, and it is hoped that the government will remove them.

*Miscellaneous.* Immigrants will meet with a cordial welcome if they come to stay and do not hold themselves aloof from the people, and are willing to look upon them as neighbors and friends. They are

greatly needed, for there are many broad acres of good land unimproved, and many noble streams for manufacturing, yet unemployed. The price of land is very low, and there is plenty of it for sale. As a general rule, the farms are too large, and many of the farmers desire to sell a part so that they can better improve the remainder. Indeed, we think that trying to cultivate too much land is the greatest drawback to the prosperity of agriculture, not only in this, but in most of the counties of the State. Although there is a great deal of land for sale there are not many of the farmers who wish to move away. General contentment prevails, and a spirit of improvement is manifest. There is an Agricultural and Mechanical Association which holds annual fairs at Cookeville. The fair grounds embrace five acres, and the value of the improvements are estimated at five thousand dollars. There is also one farmers' club in the county.

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## ROBERTSON COUNTY.

### COUNTY SEAT—SPRINGFIELD.

Robertson and Montgomery counties were, previous to 1796, known as Tennessee county. The Territorial Legislature, sitting at Knoxville, passed an act bearing date April 9, 1796, dividing the county, the western half taking the name of Montgomery and the eastern that of Robertson, named in honor of the brave pioneer who planted the first colony west of the Cumberland Mountains. On the 6th of June of the same year, the State was admitted into the Union, taking the name of the county previous to the division. The county contains about 550 square miles, and is bounded on the north by Kentucky, on the east by Sumner county, on the south by Davidson and Cheatham, and the west by Montgomery. The first settlements in the county were made on Sulphur Fork. Tradition has it that one Caleb Winters, in the year 1781 or 1782, settled on the place now occupied by Hon. G. A. Washington, and never eat a piece of bread from the time of settling them until he made it. It was about this time that corn was worth \$165 a bushel in Kentucky, in Continental money.

*Topography and Geology.* The topography and geological features of Robertson county are so much like those of Montgomery that a description of the one may well answer for the other. The surface is

generally broken, except near the Kentucky line, where it becomes a level plain. A small strip of level plateau land also bounds the southern and eastern borders. The middle belt running east and west is more broken, but is quite fertile. Geologically, the county belongs to the Lower Carboniferous and to the upper or Lithostrotion bed of that group. The St. Louis limestone abounds in the county and crops out all along the streams in high bluffs.

*Water Courses.* Sulphur Fork runs centrally from the eastern extremity of the county, passing about one mile north of Springfield. It is a fine stream, affording sufficient water for almost any manufacturing purpose. It has numerous rapids which would render the harnessing of it for driving machinery comparatively easy. North of this stream are good farming lands, being in the main level, but well watered and somewhat broken by the smaller streams and the inevitable two hills between which they ripple. Red River, a much larger stream than Sulphur Fork, runs westward through the northern part of the county. It has several merchant and one or two woolen mills or factories on it. As affording water and sites for manufacturing purposes it is almost unsurpassed. Buzzard's Creek, Miller's Creek and Elk Fork are small streams, the latter entering Red River from the north. These are suitable for small mills. Red River has two prongs known as Middle Prong and North Fork, both of which are utilized to some extent. Stock-water is everywhere abundant and convenient, if not in running streams, in the numerous ponds that form in the basin-like depressions which characterize the county. Springs are quite common, and cisterns are easily and cheaply constructed in the stiff clay, requiring no wall to hold the cement. Sulphur Fork may be considered a dividing line near the center of the county. North of this line is the highest and levellest country and the richer and more fertile soils. South are more hills, more streams and less productive soils. There are, however, many farms in this part of the county. The bottoms along the larger streams are usually rich and last well. Carr's Creek empties into Sulphur Fork, three miles west of Springfield, and the two form a V, Springfield being situated in the fork. It is something smaller than the latter, but has more fall, is more rapid and dashing, but would be still more easily harnessed. Sycamore Creek forms the southern boundary of the county, rising in Davidson and emptying into Cumberland River in Cheatham, just below Ashland City. It, too, is a large stream, affording fine water-power and almost innumerable mill sites.

*Lands and Soils.* These are very much as in Montgomery, to which the reader is referred. A strip of thin porous land with siliceous soils, begins on the Kentucky line, near the north-west corner of Sumner county, and rims the county on its east, south and half of its west boundaries. This land has a whitish subsoil and though well suited for the growth of fruit, is not considered fertile or suitable for general farming. All the lands north and east of this rim rest upon a good clay foundation, and until impaired by injudicious cultivation were among the best in the State. The soil is strong, durable, quick and productive. It abounds with flinty gravel, which, without impairing its fertility, adds to its friability. From Sulphur Fork to the Middle Prong of Red River, there is a very fine body of land, constituting a fine agricultural region. From the Middle Prong to North Fork of Red River the lands become more level, though not less productive. South and west of Sulphur Fork, a portion of the lands are very fine. The rim of thin lands, which we have mentioned, has a few good spots of arable land that will richly repay cultivation. From Tyree Springs to Cross Plains, the country is very thickly settled, the land high and level. The finest soils for tobacco lie on Sulphur Fork, Buzzard's Creek and that portion of the county east of Miller's Creek. There is also around Fort's Station some very excellent farming lands, probably, all things considered, the most desirable in the county. A few elevated swamps occur in the various parts of the county. One on the railroad covers probably 600 acres. It goes dry, or nearly so, in summer.

*Timber.* The finest timber in the county is to be found on Sulphur Fork. Black oak, red oak, white oak, poplar, ash, black gum and walnut are the most valuable varieties. In the northern part of the county, on the level lands, the timber is not so good, being mostly black jack and hickory. Near the Davidson county line, chestnut is abundant. A large amount of the best timber has been used in the making of staves for tobacco hogsheads, whisky and flour barrels, for which there is a great demand. Saw-mills are quite numerous and a considerable amount of lumber has been shipped by railroad. Much of the land lying contiguous to the railroad has been stripped of its timber, and the lumber trade is not carried on to the same extent as formerly.

*Crops and Farms.* Precisely the same crops are grown in this county as in Montgomery. Corn, wheat, oats and tobacco are the staple crops. The yield of corn has been greatly lessened by bad cultivation. When first opened the best soils will produce, per acre, from forty to sixty

bushels of this cereal, but there are thousands of acres in the county that have been so over cropped that it would be a difficult matter to gather ten bushels. Everywhere the farms are scarified by deep gullies and the fatness of the soil is being continually swept away by every rain. Tobacco on the best lands will yield from 800 to 1,200 pounds per acre. The quality is excellent and is classed with the best Clarksville tobacco. Wheat and oats on the fresh soils yield bountifully. Clover is not sown to the extent necessary to keep up the fertility of the soil, though there is no better soil in the State for its production. Meadows are scarce. Most of the hay made is from the annual grasses. Both sweet and Irish potatoes do well and yield abundantly. The amount reported by the Census Bureau will compare favorably with any county. Milk and butter are produced in considerable quantities, and much of the latter is sold in Nashville. Bees are prolific, and the supply of honey is good. Farmers pay great attention to providing for home wants, and usually live well at their tables. Sorghum was a favorite crop for many years, but is now pretty well abandoned. The system of farming may, as a general thing, be called slovenly, though there are many neat farmers in the county. Fences, with few exceptions, are not good, and the corners are suffered to grow up in bushes and briars. Broomsedge puts up on all the old fields, and there are but few counties that have more abandoned land or land that is worn out. On the old fields sassafras and persimmon sprouts vie with the broomsedge in occupation. The aspect of the county is by no means inviting. The farm-houses, while they are comfortable are not tasteful. The cultivation of tobacco, prevents any attempts at ornamentation. But few localities exists in the State that show more plainly the earnest fight for the almighty dollar, at the expense of the soil. And yet we should do injustice to a large class of excellent farmers, were we to fail to mention the fact that some of the best improved farms in the State are in Robertson county. Such farmers are scattered like bright lights in every portion of county. Their farms are pictures of beauty, surrounded by frames of waste and desolation. Yet their examples appear to be lost. Though they thrive, yet their thrift does not inspire a desire to imitate. Corn succeeding corn has destroyed more fertile land in Robertson county than would be sufficient, if sold, to build two railroads throughout the entire extent of the county. The habit contracted in early times of working land until exhausted, and then turning it out, has a firm grip upon a large per cent. of the farmers. They have the virtues of economy and industry, yet their econ-

omy descends into stinginess, when practiced towards the soil. More clover is needed on their heretofore fertile soils. Rotation of crops with regular rests, is imperatively demanded. Their industry, under a different system of tillage would fill their pockets, while their capital in trade would be preserved. There are but few better citizens, so far as the observance of law and the requirements of society are concerned than those of Robertson county, but they have an idea that what their fathers did with virgin soil and a superabundance of land, can still be done with impunity. The earth cries out against it, and the haggard and red fluted old fields show that the abused soil will no longer render its rich rewards to those who so abuse and mistreat it.

*Labor, Rents and price of Land.* The county offers a profitable field for the employment of both additional labor and capital. Wild and exhausted lands sadly need husbandmen and can be bought very cheap. Land ranges in price from about two to sixty dollars per acre. There is land in the county that could not be bought for \$100 per acre probably, but such land is not for sale at any price. The usual way of renting is for a part of the crop. One-third or one-half is charged, according to the producing capacity of the soil. Twelve and a half dollars is about the average price paid for farm hands per month. Good laborers are in demand, and can obtain higher wages than the above. Farmers have to rely principally on the colored class for labor. Those of this class that have stuck to the farm since free are generally good hands, but these are few.

*Live Stock.* Considerable interest is being manifested in importing and raising fine stock. The Robertson County Agricultural and Mechanical Association is doing a great work in this direction. The Messrs. Bell (Bell & Co.) have made several importations of Berkshire hogs direct from England. They are extensively engaged in raising fine stock of different kinds, as also are many other persons in the county. The raising of hogs has been always carried on extensively. The numerous distilleries supply slops in sufficient quantity to rear large droves. Before the war there were but few counties in the State that surpassed it in this branch of breeding. The prospects are more hopeful of an improved agriculture, with its ever accompanying blessings to the county, under the stimulating effects of the Agricultural Association. Premiums should be offered for reclaimed lands and for the largest yields of corn, wheat and tobacco.

*Fruit.* The high plateaus on the east and south are said to yield

fruit well, and in the more fertile portions peaches, apples and pears are generally planted on every farm. Cherries and plums, of certain varieties do well. Grapes have not been tried to any extent, but it is known that the same quality of land in the adjoining county of Montgomery bears them profusely. Dried fruit and feathers are exported to some extent.

*Whisky Making.* In nothing is Robertson county so much distinguished as in the making of whisky. From an early period in the history of the State, this brand has been sought after. Its manufacture was begun by a family of Woodards, who were among the first settlers of the county, and their honesty in the preparation of this article gave it a name second to none in America. It was first made in small distilleries, with capacities of thirty or forty gallons per day. Sour mash was used altogether. Along little streams and at the heads of hollows may still be found the decaying "still-house" where the original sour mash was made. It is said that on some streams there was once a distillery every hundred yards. It seems always to have been a lucrative business, as they are usually men of means who have been long engaged in its manufacture.

At present "Robertson County" whisky is made by the sweet mash plan, which is shorter and less expensive. As will be seen by the appended figures, the present traffic in whisky in the county is immense. The Government derives more revenue from Robertson than it probably does from any half dozen other counties in the State. In point of revenue, as compared with other Congressional districts, Robertson county alone is entitled to one or more members of Congress. Less than two per cent. of the revenue it annually pays the United States Government would pay the salary of a Congressman.

The letter given below, from Hon. Wm. Moore, of the firm of Woodard & Moore, will throw much light upon the extent of the business at present. It shows also very clearly the impetus which any one branch of manufacture will give to other pursuits. While it has acted perniciously in tempting the farmers to wear out their land in the cultivation of grain, it at the same time shows how a ready market at home will stimulate production even to exhaustion. As a result of this manufacture, cooper shops have sprung up in every part of the county, and form one of the subordinate industries of the county.

SPRINGFIELD, TENN., March 7, 1874.

J. B. Killebrew, Secretary :

Fully appreciating the important work you have undertaken, and the great labor requisite to compile reliable statistical information of the vast mineral and agricultural wealth of Tennessee, which needs but to be computed to show her the richest and most prominent of her sisters, I have been led to the conclusion that, perhaps, some reliable information in reference to the whisky statistics of our county of Robertson would be as interesting as they are important. I have devoted some time to collecting facts and figures, which readily show the magnitude of the business done in this line, and do not require at my hands, I think, much comment.

The extensive reputation which Robertson county whisky enjoys is founded upon the fact that our distillers take more pains and pride in its distillation, use better material and thoroughly understand the business, many of whom have been engaged in its manufacture for forty years.

No effort has ever been made to evade the law, and although this county pays annually a half million of dollars as tax to the general Government, not a solitary arrest has ever been made for illicit distilling, and I am sure that the Revenue Department has competent and vigilant officers to guard honestly and faithfully her interests.

The immense amount of grain required in the manufacture of the article has stimulated the farming community to produce more corn, there being an active and steady demand for it at the highest and most remunerative prices. Seven hundred and fifty bushels of grain are being daily consumed, (which would be forty-five thousand barrels annually). This will give some idea of the immense business. The increasing demands for grain have absorbed the entire surplus of corn in the county, and have compelled our distillers to rely in a great degree upon the St. Louis and other foreign markets, including the productions of the rich Wabash valley. This business of manufacturing whisky direct from the grain is carried on by the following named persons, with the amount of their daily capacity appended, viz :

Dr. Geo. E. Draughan.....	3	barrels per day.
Hopkins & Lawrence.....	3	“ “
James H. Woodard.....	4	“ “
Woodard & Moore.....	10	“ “
H. H. Kirk & Co.....	5	“ “
G. H. Garrett & Co.....	18	“ “
Charles Nelson.....	10	“ “
James W. Powell.....	5	“ “

Besides these, the following are in contemplation, and the parties propose to commence their construction at a very early day.

*Distilleries in Process of Construction.* George H. Garrett & Co. design building an additional distillery, with a capacity per day of from 15 to 20 barrels.

Henry H. Kirk.....	from 15 to 20	barrels per day.
Wilson Pitt.....	“ 2 to 3	“ “
Thomas, Baird & Co.....	“ 4 to 5	“ “
Thomas Woodard.....	“ 2 to 3	“ “
Thomas Pepper & Co.....	“ 3 to 4	“ “

The business of re-distilling is actively carried on by the following named persons, and the capacity of each establishment will show the large amount of business done in this line, independent of the manufacture direct from the grain.



Woodard & Moore have recently erected in the suburbs of our city, a large establishment for this purpose, upon an improved plan, with a capacity of making twenty-five barrels of finished whisky per day, which can be easily increased to fifty.

John W. Stark.....	Re-distills annually about 600 barrels.
Thomas Pepper & Co.....	“ “ “ 600 “
Carroll Huey.....	“ “ “ 600 “
William Clotworthy & Co.....	“ “ “ 600 “
Wiley Woodard & Co.....	“ “ “ 1000 “
J. E. Morrow.....	“ “ “ 500 “
John G. Couts.....	“ “ “ 500 “
Farmer & Fuqua.....	“ “ “ 300 “
Hopkins & Lawrence.....	“ “ “ 600 “

Which shows that about thirteen thousand barrels of whisky is annually redistilled, and beside these I shall notice

*Distillers of Apple and Peach Brandies.* There are about ten apple and peach brandy distilleries in operation in the fruit season, which produce about seven hundred barrels.

*Wholesale Liquor Dealers at Springfield and Vicinity.* Before the war there were no houses of this character, and just at its expiration, Woodard, Moore & T. L. Green embarked in the business, and the increasing popularity of the whisky induced others to operate in this department, and today it has assumed gigantic proportions, showing that a business of nearly, or quite, one million dollars is annually done. Below I give you the names of the wholesale dealers, with an approximate estimate of their business, which is steadily increasing, and in doing so, I deem it but right to state that I have endeavored fairly and impartially to obtain said information from the most reliable data at their command. Below we give the annual approximate sales of the firms named :

Woodard & Moore.....	\$250,000
Harrison, Murphey & Bell.....	100,000
L. L. Polk.....	50,000
Thomas Pepper & Co.....	100,000
John W. Stark & Co.....	100,000
Wiley Woodard & Co.....	75,000
Thomas L. Green & Co.....	75,000
Farmer & Fuqua.....	25,000
William Clotworthy & Co.....	25,000
Hopkins & Lawrence.....	125,000
Carroll Huey & Son.....	25,000

This shows a large and growing business, and the number of firms who have established houses at this point.

*The Manufacture of Barrels,* is an item of no small importance, and I can safely estimate that at least one hundred and twenty-five thousand dollars are annually paid for their production.

The shipment of whisky from the depot at this point amounts to about forty thousand barrels annually, and when the other distilleries are put in operation, of course there will be an increase.

Eighteen months ago the Springfield National Bank sprung into existence,

which has proven an indispensable auxiliary to every department of business, and more especially to the whisky interests, as our merchants were compelled to rely upon Nashville banks for facilities.

The solidity, prudence and strict integrity of the officers of this institution command the respect and highest confidence of the business community. With the Hon. John Woodard as its able President, Thomas Pepper, Vice-President, and Henry T. Stratton, Cashier, and with an average deposit of over one hundred thousand dollars, it has given a new impetus to business, and those heretofore opposed to the national bank system are loud in their praises of the manner in which this institution is conducted. During the financial storm of 1873, when the largest banking houses of the country were reeling, tottering and breaking, it stood like a stone-wall, and defied the storm from without, never suspending, never oppressing.

There are other interests which time will not allow me to discuss, and if I have written anything which will be of interest, or worthy of publication, it is at your command.

Very truly, your friend,

WILLIAM MOORE.

*Towns.* Springfield, the county seat, is situated on the St. Louis and Southeastern Railroad, twenty-eight miles from Nashville, a little west of north. It has about forty business houses, a population of 3,000, and does an immense trade in whisky. There are two good schools, male and female, well sustained, and the principal Protestant denominations have churches. It has also a bank recently established, of which mention has been made in Mr. Moore's letter. The Springfield Record, an excellent county paper, is issued here, and is alive to the interests of the county, and more given to developing enterprise than to making politicians. It is well sustained and handsomely printed. Besides Springfield, there are several towns in the county, the largest of which is Cross Plains, a thriving village of some 500 inhabitants, located on the line of the proposed Owensboro Railroad. Adams Station and Cedar Hill are stirring stations on the St. Louis and Southeastern Railroad. Coopertown, Turnersville, Black Jack and Barren Plains are active little post towns off the railroad. There is a church and a school-house in almost every neighborhood, but the educational interest is sadly neglected. Cross Plains, Cedar Hill and Coopertown have each a good school.

*Statistics.* Population in 1870, 16,166, of which 4,813 were colored; number of voters in 1871, 3,112; acres of land assessed in 1873, 284,116, valued at \$3,409,035; total value of taxable property, \$4,516,117; number of polls, 2,436. Robertson county reported in 1870, 140,641 acres of improved land; 139,456 woodland, and 5,020 acres of other unimproved.

The value of farms in 1870 was.....	\$4,291,516
“ “ farming implements and machinery .....	196,239
“ “ farm products.....	1,359,245
“ “ orchard products .....	18,588
“ “ forest products .....	8,862
“ “ home manufactures.....	12,991
“ “ animals slaughtered, or sold for slaughter .....	361,549
“ “ all live stock .....	970,816

## LIVE STOCK.

No. Horses.....	3,908
“ Mules and asses.....	2,461
“ Milch cows .....	3,000
“ Work oxen .....	134
“ Other cattle.....	3,157
“ Sheep.....	11,140
“ Swine .....	29,817

## FARM PRODUCTS.

Winter wheat, bushels.....	157,404
Rye, bushels.....	937
Corn “ .....	559,020
Oats “ .....	149,019
Tobacco, pounds.....	2,103,322
Cotton, bales.....	11
Wool, pounds.....	19,387
Irish potatoes, bushels.....	19,295
Sweet potatoes, bushels.....	27,455
Butter, pounds. ....	155,653
Hay, tons.....	953
Sorgham, gallons.....	4,292
Wax, pounds.....	627
Honey “ .....	12,936

*Miscellaneous.* The Bureau is indebted to the Hon. G. A. Washington, Hon. Boyd Cheatham, J. L. Watts, Esq., and to Hon. Wm. Moore for assistance in the preparation of this account of Robertson county—a county formed by nature for a varied industry, and one which, under more judicious culture, must, in the future, take a high position among the wealthy counties of the State. In no county are immigrants more needed or desired. The efforts of all leading citizens are tending to attract good men. Lands in portions of the county are cheap, and thousands of acres may be bought in a single body for the settlement of colonies. Coal can be brought by the St. Louis and Southeastern Railroad from the coal fields of Kentucky. The streams of purest water that glide through every portion of the county, and

the meadow lands that border them, invite the dairyman to a pleasant and profitable locality. The fruit-grower would find a ready market for all his products, while the adaptation of the soil to a diversified agriculture should entice the intelligent farmer from the colder regions of the north to pluck his profits in a more genial climate.

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## RUTHERFORD COUNTY.

### COUNTY SEAT—MURFREESBORO.

Rutherford county was organized in the year 1804, it having been up to that time a part of Davidson county, and when first organized, contained the larger portion of the better part of Cannon county, which it retained until the year 1835, when that county was organized. The first court was held at the Menefee place, near to and on a part of the field on which was fought the battle of Stone's River, in the late war between the States, and near the present location of the Federal cemetery. The next court was held at Simon Miller's, about three miles north-east of the first, and about five miles north of Murfreesboro, near the present residence of Mrs. Colonel Watkins, Mrs. Dr. Rucker, Major J. W. Quarles, and Dr. T. C. Black. In 1805, Jefferson, in the forks of Stone's River, was made the county seat, a good court-house was erected, town lots laid off and many buildings were put up; located in the midst of a beautiful and rich country of lands, and with the prospects of river navigation for small crafts, the inhabitants felt certain that they would soon have quite a gay city. Col. Thomas H. Benton, then a mere youth, but afterward so distinguished and deservedly famous in the the United States Congress, as a Senator from Missouri, located here to practice law, and was first sworn in as an attorney at the Jefferson court. Felix Grundy and Andrew Jackson (Old Hickory) attended this court. Samuel Wilson, a revolutionary soldier, planted, about the year 1800, the first corn in the forks of Stone's River that was ever cultivated in the county. Medford Coffey, who is still living here, was the first birth in Rutherford county after its settlement. In 1812 Murfreesboro was made the county seat, which was then a piece of woodland, owned by Captain William Lytle, and donated by him for the county seat. The town was laid off into lots, and named in honor of Col. Matthew Murfree. Rutherford county

took its name from General Rutherford, of North Carolina, famous in the American revolution, and who also distinguished himself in many Indian fights in Middle Tennessee, and no ground was darker and bloodier than that now within the confines of this county. The county was full of wild game of every description, its streams with fish, and here lived and died the renowned and bloody Black Fox Chief—here he won his last victory, here he met his last defeat, and here he fought his last battle. While pursued by the white braves, when his last man was killed, or captured, and death, or imprisonment at the hands of the white man stared him in the face, he plunged into a fathomless deep blue spring, which now bears his name, and was seen no more. The county seat having been permanently located in the center of the county, and within one mile of the center of the State, population came in very rapidly from the Old Dominion, as well as from the old mother State, until 1819, when the capitol of the State was removed to Murfreesboro. The Legislature met here until the year 1825, and among the distinguished men who have adorned our State, who assembled in her halls, were Judge Hugh L. White, Judge Roane, Felix Grundy, John Bell and others alike honored by their countrymen. The renowned David Crockett was a member of one session of the Legislature that assembled here, (the session not remembered), representing the wilds of some county in West Tennessee. Judge Mitchell, who was the first judge that occupied the bench at this town, was also a member of the same body with Col. Crockett. It was fashionable at that day and in that generation for gentlemen to wear large ruffles protruding from their shirt bosoms. On one occasion a controversy grew up in the House between these two gentlemen, when from some misapprehension of the judge, the courageous David flew at him, and in the scrimmage, tore off the judges ruffles. An explanation followed, and the two were soon friends again. At that time, and for many years afterward, this county was regarded as peculiarly the land of chivalry. A man who would try to impose on another of inferior physical strength, or who would resort to the pistol, or knife, or any other mode of fighting, save the "fisticuff," was regarded as a coward, and looked upon with scorn and contempt, and if he attempted to display the braggart and the bully toward any one, either high or low, he was just as certain to meet with the misfortune of a genteel thrashing. Such was the character of the heroic sons of old Rutherford, and she sent many of her sons to all of the Indian wars; hundreds of the them followed Jackson to New Orleans; several companies,

under Taylor and Scott, trod the sands of Mexico, and followed their colors to the halls of the Montezumas, while sons of noble sires took part in the war between the States. No population of the same size afforded a greater number of gallant and chivalrous men. When the capitol was permanently located at Nashville, the bill was first carried to locate it at Murfreesboro, but lost by a very close vote, on reconsidering the bill. We then had no railways, and the Cumberland River won the capitol. Up to the year 1860 Rutherford county furnished a large emigration to settle up the cheap lands of West Tennessee, and other points west, and indeed, wherever you travel you can find some of her enterprising sons and daughters. About one-fourth of the population of Gibson county sprung from Rutherford. In 1800 this county was included in Davidson, but the census table shows her population to have been as follows :

1810.....	10,265	1850.....	29,122
1820.....	19,552	1860.....	27,918
1830.....	26,134	1870.....	33,289
1840.....	24,280		

The last census showing only three counties (Shelby, Davidson and Maury) containing a larger population than Rutherford, in the State of Tennessee. And between the years 1830 and 1840 a large population was taken off to form Cannon county, and previous to 1860 a portion was taken off and added to adjoining counties.

*Towns.* Murfreesboro, the county seat, once, as above stated, the capitol of the State, is a pleasant little city of about 4,000 inhabitants, situated in a vast plain on the Nashville, Chattanooga and St. Louis Railway, thirty miles south-east of Nashville. The town is beautifully laid off, the streets are rectangular, wide, and well paved with stone and gravel, and drained by Murfree's Spring Branch and Lytle's Creek, the latter flowing into the west fork of Stone's River about one mile from the corporation. It is the commercial center of the trade and shipping of several counties, the shipments of corn, wheat and bacon, bulk meat and pickled pork being very large, while as to cotton, it ranks as the second place in Middle Tennessee, it being raised mostly within the limits of the county. The dry goods and grocery market is extensive, and her merchants rank among the first class in any city, their paper is seldom ever protested, and failures are almost unknown among them. Her ministers, lawyers, physicians and teachers are distinguished for eminent ability throughout the whole land and country. There are two national banks located here, while there is quite a

number of workshops conducted by business men, all doing a thriving business. The mechanics and artizans of this city, for skill, ingenuity and intelligence, will vie with those of any other town or city. Stone's River Utility Works, engaged in the manufacture of cedar buckets and hollow ware, is the only chartered organization at work in this city, but it is one of the most desirable locations for cotton spinning and the manufacture of farming implements, or other large establishments, throughout the whole South. There are houses of worship in this little city that will compare favorably with those of larger places.

The Christians, Primitive and Missionary Baptists, Presbyterians, Cumberland Presbyterians and Methodists all have commodious church edifices and many communicants. The Episcopalians have a church organization, besides there are several benevolent institutions common to all cities. Union University has sent forth many sons, who as ministers, lawyers, physicians, teachers, skilled artizans and engineers, rank among those of the most flourishing and foremost institutions of learning in the country. The noble founder of this institution, Joseph H. Eaton, LL. D., who lived and died a pure, good and great man, sleeps in a tomb erected by his devoted pupils on the college campus. Murfreesboro Female Institute, conducted by Professor James E. Scobey, a ripe scholar, an upright christian, and a teacher of distinguished reputation, and Soule Female College, under the supervision of the Tennessee Methodist Conference, have both for many years been very successful, and have received the highest approbation of their patrons. The free schools, both male and female, are taught by the most efficient teachers during the entire year. They are established on a permanent basis, and are well attended. General Wm. J. Lytle, deceased, was the first white boy born in this city. There are several villages in this county. Readyville, situated on the east fork of Stone's River, twelve miles east of Murfreesboro, on the line between this county and Cannon; Milton, five miles north-east of Readyville; Jefferson, twelve miles from Murfreesboro, in the forks of Stone's River, as before described; Smyrna, three miles south-east of Jefferson, on the Nashville, Chattanooga and St. Louis Railway; Lavergne, on the same railway, and on the line between this county and Davidson; Salem, five miles south-west of Murfreesboro; Versailles, twelve, and Eagleville, eighteen, near the lines between this county, Williamson, Bedford and Marshall; Middleton, fourteen miles south, on the line between this county and Bedford; Christiana, ten miles south, on the Nashville, Chattanooga and St. Louis Railway; Lesterville, three

miles further, on the same road, between this county and Bedford; and Big Springs, or Carlockville, fourteen miles south-east, all contain stores and shops, with a small population to each, some of them containing as many as 100 persons.

This county has three sulphur springs, one about four miles north of Murfreesboro, in early times called Blount's Lick, and two other of excellent water below Jefferson, on Stone's River; but there are a good many sulphur wells, some two or three in Murfreesboro, one of which, on the premises of Dr. Joseph W. Nelson, has been analyzed and found to be equal to that of some of our most noted watering places.

The prevailing rock of the county is limestone, although there is a great quantity of what is commonly known as "fire rock," used for the purpose of building fire-places and furnaces, and whatever mineral wealth may exist is yet undeveloped. Individuals claim to have discovered silver and lead three miles east of Murfreesboro, on and near the plantation of the late Benjamin Lillard, deceased, and also several miles further north-east. Very pretty specimens have been exhibited, bearing the appearance of galena, and the discoverers claim that capitalists could work mines to a great profit, but as yet, for the want of means, the explorations have not been sufficient to form a very accurate opinion concerning these discoveries.

Having given a brief history of the organization of the county, a description of minerals, and towns and villages of the county, with occasional incidents, we will proceed to give its

*Situation, Soil and Productions.* Rutherford county, situated in the center of the State, and in the Middle Division, is, as described by geologists, the center of the Central or Great Blue Limestone Basin of Tennessee. Take Murfreesboro as a point, and with a radius of about ten miles describe a circle, the included area will be a basin within the Great Central Basin. Indeed, if from Murfreesboro, the common center, the eye is turned in any direction, the blue hills will be seen in the distance, disclosing the fact that the county is bordered with a circular belt of hills, or rolling lands, while the area within the belt seems to the naked eye to be a level plain, and may be considered as an entire valley of about 500 square miles. The climate is mild and exceedingly healthy, and much warmer, one would sometimes think, than farther south. If proper attention is bestowed on pasturage, stock



are fed exclusively by grazing from March until November. It occasionally snows south of this county when not a single flake falls within her borders, and were the rim of the basin a little higher at some points, her inhabitants might bask in the sunshine of a Jalapa.

*Soil.* The soil is fertile, and seems to be almost inexhaustible. There are two general kinds, the black and brown colors, the latter predominating to a large extent in both quantity and quality. It is very fertile, and has a "clay" or subsoil base, containing salts to an average depth of six to ten feet, and will afford almost every production of general growth in the United States. Although we can find large bodies of land frequently exceeding 1,000 acres clear of surface stone of any character to obstruct the implements of husbandry, yet like all limestone valleys, "shales" are seen occasionally to crop out, and as a matter of course rocky ledges are more frequent on the borders among the circular belt of hills, or rolling lands above referred to; still only about one-fifth of the county is considered as waste lands. The average fertility of these lands, when properly cultivated, of general crops per acre, is, of corn, 30 bushels; cotton, 800 pounds; wheat, 20 bushels; potatoes, 100 bushels; millet and clover hay, 2 tons each; but there are lands in this county which have been in cultivation over sixty years, without subsoiling, that produce 1,500 pounds of cotton, or 75 bushels of corn per acre. Indeed, as to the subsoil plow, so far as its use is concerned, it is almost unknown to the farmers of this county, and it is to be deeply regretted that the neglect of this important implement of industry should reflect so deeply on them, when in no community can there be found a more thrifty and intelligent class of citizens. The surface and soil are so well drained that ditching is seldom ever necessary, or resorted to in the lowest bottoms, and yet, with deep plowing and pulverizing, droughts are better withstood than in almost any other section. All that is required to preserve the fertility of these lands is a change of crops, with the additional precaution of sowing red clover every ten to twenty years. The soil is of such a nature that it readily yields to culture, and when apparently worn out, can easily be restored by a two years' growth of clover, which grows so luxuriantly that it is about as profitable a crop as the farmer can raise, even for the hay market, but especially for stock feeding or grazing. The land is easily cultivated, and the turning plow, or old-fashioned Carey, has generally been, and is still, much used, but the latter is being gradually superseded by the best improved plows. As to the remark of its being easily cultivated, ought to be made this exception,

that like all first-class land, it produces weeds and grass as well as the most prolific agricultural crops, and the farmer has to keep moving to prevent them from getting a head of him.

*Productions.* The native growth is all kinds of oak, poplar, cedar, hickory, beech, buckeye, sycamore, black and honey locusts, ash, elm, walnut, hornbean, mulberry, cherry, dogwood, sassafras, pawpaw, cucumber tree, sugar tree, aspen, hackberry, linn, boxelder, coffee tree, black and sweet gum and chittim. It may be added that there are many other trees, such as the magnolia, etc., which grow, when transplanted, as large and beautiful as in their native forests. The prevailing timber is oak, hickory, cedar, poplar, walnut and beech. Of other growth, there are angelica, crab apple, ginger, ginseng, grape vines, black and red haw, red bud, sweet anise, spikenard, spicewood, Virginia and seneca snakeroot, wild hop and wild plum. At the early settlement of the county, the prairie portion was covered with buffalo grass, clover, pea vines, strawberries, black and white berries, raspberries, dew berries, wild oats and wild rye, and in many places canes grew more than twenty feet high, and stood so thick on the ground that no other plant could grow up among them. The forests are now in many places carpeted over with blue-grass and clover as soft as velvet, and there is a large variety of flowers that bloom from March until November, rendering the county, to the lovers of nature, a land of enchantment.

*Products and Crops.* The following are the products, including some other statistics of the county, as given in the Census report of 1870, under the head of "Selected Statistics of Agriculture:"

Improved land.....	181,447 Acres.
Value of farms.....	\$10,153,110
Total (estimated) value of all farm productions, including betterments and additions to stock.....	2,260,874
Value of all live stock.....	1,519,939
Number of horses.....	7,593
"    "    mules and asses.....	3,493
"    "    milch cows.....	5,862
"    "    working oxen.....	496
"    "    sheep.....	17,183
"    "    swine.....	33,687

PRODUCE.

Spring wheat.....	22,725 bush.
Winter wheat.....	152,020 "
Rye.....	13,746 "
Indian corn.....	867,443 "

Oats.....	63,514 bush.
Barley.....	2,496 "
Peas and Beans.....	595 "
Irish potatoes.....	22,141 "
Sweet potatoes.....	24,199 "
Cotton.....	8,412 bales.
Tobacco.....	1,300 pounds.
Wool.....	23,285 "
Honey.....	11,782 "
Butter.....	291,844 "
Cheese.....	170 "
Wine.....	391 gallons.
Sorghum molasses.....	14,969 "
Hay.....	2,410 tons.

Cotton, corn and small grain are the chief productions. Cotton is the principal crop, corn ranking next, and wheat standing third on the list. Up to the present time farmers have been taught to believe that cotton is the most profitable crop, and it will remain so until there is a change of laborers. A very small quantity of grass is grown, but during the last year ten times the amount formerly, principally German millet, all of which was mowed, and it made an abundant yield. About half of the grass is usually mowed, and the balance is grazed. The different varieties of grasses grow luxuriantly everywhere in the county, and within the last few years many persons have turned their attention to the hay field and the breeding of fine stock, and all have met with a success beyond their most sanguine expectations.

*The Garden, Orchard and Vineyard* have not received much attention heretofore in this county, but experiments have been made in each sufficiently large to fully assure all who wish to engage in either, that, with proper selections, no section of the American Union is superior to it in the production of the different selected varieties of fruit, vegetables and grasses, a great part of which is attributable to the mild climatic influence, as well as the rich and peculiar nature of the soil. Owing to the almost total destruction of all the personal property, among which was included live stock and farming implements, previous to the year 1865, and the impoverished condition of the people, farms are in a very bad condition as compared with their condition previous to 1862. The kind of stock used in making crops are horses and mules, the former doubling the latter, and the improved breeds of both are generally used, which are considered by every farmer of wide experience to be by far the most profitable, and in every respect superior to the scrub stock. The farms contain from 50 to 100 acres, although a good many large farms yet remain undivided, and about

one-half of the former are worked by the owners, and the balance by lessees and hired laborers. There were in 1870, 1,811 farms in the county. First class improved farming lands, without dwellings, can be purchased at from twenty-five to sixty dollars per acre, depending entirely on the location; with dwellings, add about one-half of the cost of building to this price. Unimproved lands are worth as much as the improved, on account of the value of the timber. There are a great many farms in this county now that can be purchased, as the tendency is to cut up large plantations into small farms by the owners, and all lands now sold under decrees of the Courts, for distribution of proceeds, are divided into lots, and it can be confidently affirmed that they are cheaper now than they will ever be again. They are generally rented at from three to four dollars per acre per annum, but about half are worked on shares, in the proportion of one-third of corn and cotton each to the landlord, the laborer furnishing himself with rations and everything else, except house rent and fuel. The county is densely populated and labor might be considered abundant for the open lands, although frequently there is a scarcity for short intervals on account of hands temporarily changing their field of labor to the cotton plantations of the south and west. Wages range from eight to twelve dollars per month, the employer furnishing rations and quarters, but the great irregularities in labor, caused by the too frequent changes of homes and employers by the employees, work very disadvantageously, causing a great desire on the part of landowners for emigrants, both as laborers and purchasers. Immigrants are treated with a great deal of hospitality by the citizens of this county. The morality of the people is of the highest character, and it matters not with them where a man is born or educated if he possesses, and in his demeanor shows the dignity, the refinement, or the instincts of a true gentleman, esteems himself, attends to his own business, declines to play the role of the demagogue, or to stir up strife between the races, he is gladly welcomed by them and treated kindly, socially, politically and religiously. After taking into consideration the advantages and disadvantages, price of land, yield of crops, market facilities, demand for labor and manufactories, climate, health, public finances, and the social qualities, the education and the higher christian virtues of the people, to the capitalist, the laborer, the farmer and the mechanic, there cannot be found a more inviting field for immigration in the whole civilized world.

*Sheep Raising* would be very profitable here, and more especially on

the waste lands and in the cedar brakes, were it not for the dogs. This could be easily remedied by local police regulations, but heretofore members of the Tennessee Legislature have been either opposed to good, healthy and nutritious mutton and cheap warm clothing for the poor, or they are afraid of the dogs and their masters. No shepherd objects to a faithful dog, but they do, in behalf of their innocent flocks, protest against the vile dog that sucks out their life blood. Let sheep-raising neighborhoods be laid off into districts, and let there be conferred on them municipal or police powers for the protection of live stock of every description, like those conferred on our towns and cities to abate nuisances, or to protect life and property, and it will afford all the power and authority necessary to resist the encroachments and inroads of the murderous canine tribe.

*Railways.* The Nashville, Chattanooga and St. Louis Railway passes through the county from north-west to south-east, entering near Lavergne and passing out near Fosterville, making above thirty miles of road. Many of her people subscribed liberally for the construction of this road, and when the stock was being made up for this gigantic, new enterprise, quite a number of amusing incidents occurred. The first time the subscription books were opened at Murfreesboro, ex-Gov. James C. Jones and Colonel V. K. Stevenson addressed the people, and Governor Jones made one of his happiest efforts, not only convincing the people of the importance of railway transportation, but that it would yield large dividends to the stockholders. The last proposition, also, struck with a great deal of force one of the Governor's old political friends, and as he concluded by requesting some friend of the enterprise to give them a good start, by a large and liberal subscription, his old friend Colonel W. N., now deceased, who then resided near Florence Station, cried out, "*put me down twenty thousand dollars.*" Governor Jones, knowing the amount would almost ruin his friend, and that it would be years before a dividend would be declared, quickly turned to Colonel Stevenson and said, "*we do not intend that a few men shall monopolize this enterprise, put down Colonel W. N., five thousand dollars,*" and he used this incident to induce others to freely subscribe, for no one then stood back. Governor Robert Y. Hayne, of South Carolina, who was distinguished throughout the whole country for his great debate with Daniel Webster, while engaged in perfecting some of the earliest roads of his own State, and who might well be regarded as the father of the Nashville and Chattanooga railroad, honored Murfreesboro with a visit, when *en route* for Nashville,

to address the State Legislature in behalf of his projected line. Although his stay was very brief, he was received warmly by the citizens, and hailed as the chief who would open up to them a way to the sea. On the 4th day of July, 1851, the first passenger coach arrived at the depot in Murfreesboro, the citizens gave a dinner, and the Mayor addressed an audience of several thousand people. The fare to Nashville was put down at one dollar, and freight in about the same proportion, since which both have traveled upward in the same proportion, until now passenger fare is one dollar and sixty cents. To show something tangible with regard to the business and wealth of this county in addition to the large amount transported by turnpike roads, we will proceed to copy some of the statistics from the annual report of the directors and other officers of this road, ending June 30, 1873, from each station within Rutherford county :

## FREIGHT EARNINGS,

	Freight Forwarded.	Freight Received.
Lavergne.....	\$292.60	\$283.25
Smyrna.....	1,804.81	1,454.81
Florence.....	540.81	767.80
Murfreesboro.....	32,525.33	17,733.28
Christiana.....	686.40	597.34
Fosterville.....	896.98	589.35
Total earnings.....	\$36,746.43	\$21,125.79

## STATEMENT OF PASSENGER BUSINESS,

	Passengers.	Amount.
Lavergne.....	829	\$716.45
Smyrna.....	1,333	1,347.70
Florence.....	551	658.50
Murfreesboro.....	6,365	10,114.20
Christiana.....	339	513.20
Fosterville.....	390	725.20
Total.....	\$9,807	\$13,075.25

The census report of 1870 is far behind the cotton raised in this county, which places the number at 8,112 bales, while the shipments over the railroad show 12,330 bales, very little of which is grown outside of Rutherford county, in fact there are twice as many bales shipped by turnpike grown here as there are bales shipped by rail grown in other counties. The year the census report was made out was a very short crop year.

*Streams and Water.* The east and west forks of Stone's River flow

through the county toward the north-west, forming a junction at Jefferson, and the main river continues northward toward the Cumberland, entering Davidson county about five miles from the junction. The east fork rises in the rim of the Basin in Cannon county, and enters Rutherford county at Readyville, running thence a little north of west through a rich section of lands. On this fork there are several flouring and saw-mills that run the whole year, and there is quite a number of other mill sites on it, waiting for capitalists, equally as good as those now in operation. Its first tributary after entering this county is Cripple Creek, which rises in the Dughollow hills, about fourteen miles south-east of Murfreesboro, near the corners of Rutherford, Cannon, and Coffee counties, running thence north-east, and emptying into the east fork seven miles from Murfreesboro. The next tributary is Bradley's Creek, which rises in the Cainesville hills near the Wilson county line, and flowing south, enters the east fork about three miles below the mouth of Cripple Creek. The water that gathers in the cedar-brake, about six miles east of Murfreesboro, forms a subterranean creek, and runs some three miles north-east of the city, where it breaks out, is called Bushnell's Creek, and after running thence about four miles north-ward empties into the east fork; Fall Creek heads on the west side of the Cainesville hills, and flows westward near the boundary line between Rutherford and Wilson counties, and empties into Stones River five miles below Jefferson. Spring Creek is about five miles long, and empties into the river about three hundred yards below the mouth of Fall Creek, and runs parallel with it. The east prong of the West Fork rises in Hoover's Gap, about fifteen miles south-east of Murfreesboro, near the Coffee county line, and flows west, forming a junction with the west prong two miles south of the city. It receives, as a tributary, about eight miles from Murfreesboro, Big Spring Creek, which flows from the place that gives a name to both the creek and village. Long Creek rises near the Bedford county line, in Liberty Gap, and flowing north-west, empties into the east prong of the West Fork just below the mouth of Big Creek. The west prong of the West Fork rises in the vicinity of Middleton, and runs north to the junction. The West Fork of Stone's River then receives, as a tributary, Lytle's Creek. This creek rises in the hills about ten miles a little south of east of Murfreesboro, flowing thence west until it reaches the south part of the city, when it turns to the north-west, and empties into the river one mile from the city. Overall's Creek rises in the hills about ten miles south-west of the city, and flows thence

north-east, emptying into the river about five miles north-west of the city. Stuart's Creek rises near the Williamson county line, about twelve miles west of Murfreesboro, and runs thence north-east, and empties into the river near old Jefferson. Hurricane Creek rises not far from Lavergne, passing which, it forms the boundary line between Davidson and Rutherford counties, and empties into the river below Jefferson. On all of these creeks there is the finest of bottom lands, and mill sites are of frequent occurrence; they afford sufficient water-power to turn mill machinery for from six to ten months in the year.

There are a great many subterranean lakes or lime sinks in the county, as well as springs, and ponds are very easily made, so that we have a bountiful supply of stock water. Wells can be dug, or bored at any place desired, at but little expense, and the purest of water obtained.

*Schools, Taxable Property and Tax.* The county is laid off into twenty-five school districts, and in many of these districts the best of free schools are taught during the entire year, besides several first-class academies; indeed the church and the school-house can be found every few miles in Rutherford county convenient for all, and moral and intellectual culture seems to be the leading and predominant idea among the people. To show how they can be sustained, we will add the value of taxable property and the municipal tax for the year 1873, with this remark, that the county is entirely out of debt.

379,700 $\frac{1}{2}$ acres of land, aggregate value.....	\$6,892,102 00
686 $\frac{3}{4}$ town lots, " " .....	1,025,264 00
Personal property.....	1,697,609 00
Total.....	\$9,614,975 00
State tax.....	\$ 43,446 89
County tax.....	14,422 47
School tax.....	29,024 45
Total.....	\$ 86,893 81
Number of white persons paying poll-tax.....	2,823
" " colored " " " .....	2,164
Total polls .....	4,987

The value of these lands will enhance in the future as the people will be abler each succeeding year to improve their farms, and bring



them up to the standard previous to the year 1862. As before stated, the present condition of them compared with their condition up to that time, is very bad, owing to the total destruction of the personal property.

*Market Facilities and Transportation.* Besides the Nashville, Chattanooga and St. Louis Railway, there are eleven turnpike roads centering at Murfreesboro, connecting all the villages of the county, as well as several towns and villages of adjoining counties, the citizens of which bring the principal part of their trade to this city. The people of this county not only have good home markets for all their produce, but have easy access to those of neighboring cities. The capital of this county has been generally invested in agriculture, and but little attention has been bestowed on manufactures. The census report for 1870 give the following manufactures by totals: Establishments, 64; steam-engines, 9; water-wheels, 17; all hands, 252; males above 16 years, 235; youth, 17; capital, \$187,250; wages, \$71,945; materials, \$466,188; products, \$796,370.

*Fairs, etc.* The Tennessee Central Agricultural and Mechanical Association holds two splendid fairs during the year, at which there are magnificent displays of live stock, of the mechanical and fine arts, the products of the field, the orchard, the garden and vineyard, together with all articles of domestic use. They are conducted with order and decorum, and they are equal to any fairs held in this State. But few of the people dry fruit, attend to the smaller industries, or make butter for market, although they make a sufficient amount of butter and raise enough of fowls to supply the demands of home consumption. In some parts of the county a good deal of attention is paid to wheat. The variety sowed is Reed, Boughton, and Mediterranean, which is grown very successfully. The people in this beautiful county, this Eden of the new world, that we have attempted to describe in our feeble way, are discontented, and many, as is natural, on account of discontentment are disposed to move away, although we think it neither wise nor philosophic. "Better bear the ills we have than to fly to those we know not of." There is a cause for this discontentment founded on the great "drawbacks" to farming in the United States, among which we may number the national banks, the ten per centum annual interest law, the credit system, the high tariff on all foreign articles of consumption, the unequal discriminations by the railroads, in terminal and intermediate rates and their high tariff on freights, the annual pay-

ment of one hundred and twenty millions of interest to United States bondholders, the union of the bankers and the speculators, and the insufficiency of currency to remove the crops, all of which can be traced to the national bank and bondholding monopoly fostered and protected by the Federal Government, and which will continue to exist until these bonds are paid off in new issues of legal tender notes, and the farmer ships his crop direct to the manufacturers and consumers to receive a fair remuneration for it, and purchases his supplies direct from the manufacturer, and from the tropics where they are grown. The high rate of interest begets credit, and this added to the interest on the national debt will utterly ruin an agricultural people, but more especially when every avenue to free trade is cut off, and they are burdened with a high protective tariff. The surplus money in the county, instead of going into agriculture and manufactures, is placed in national banks, and is used altogether in wild schemes of speculation. The banker is paid by the producer nearly six per cent. on his capital to commence his operations, and then he charges his customers for loans and discount, from one to two per cent. a month, and all this is finally paid by the farmer and mechanic. To meet these difficulties the farmers have organized Granges of Patrons of Husbandry all over the American Union, and Rutherford county now has a great many within her borders, and will soon have as many Grangers as the constitution of the order will allow. It is believed by every person of ordinary intelligence who has examined the subject that the order is designed and intended to be a great school of instruction, teaching the farmer the conflict between his interests and the interests of the bondholder, the banker, the protectionist, the speculator, and the monopolist. When we arrive at that period when all will thoroughly understand this conflict, bonds, usurious interest laws, high protective tariffs, banks and monopolies, will soon be numbered with the past, and will only be remembered to be execrated, and at the same time the Grange need not be an organized partisan political body, in fact it is far better not to enter the political arena, it would be too debasing, and would, from the contact with other partisan organizations, become contaminated and corrupt. Let it remain an unspotted, undefiled and pure school of instruction, in which will be thoroughly taught the idea that the genius of American institutions is against all monopolies.

B. F. LILLARD.

## SMITH COUNTY.

## COUNTY SEAT—CARTHAGE.

This county was organized in 1799, and then embraced the territory since taken off by Jackson and Overton counties, the greater portion of DeKalb, Macon and Putnam, and part of Trousdale. It contains about 300 square miles.

*Topography and Geology.* To one coming down the Cumberland River from Burksville, Kentucky, to Nashville, Smith is the first county fairly within the Central Basin. Though within this Basin it is rimmed on the north and east by the Highlands. As in Cannon county, many of the spurs run far in towards the center of the county, filling it with ridges, and giving it a very rough surface. This is especially true of the parts north of the Cumberland River and east of Caney Fork. South and west of these streams the ridges are not so high, but the surface is rolling and hilly. The county is remarkably well watered by the Cumberland and Caney Fork and their tributaries. Nearly all of these streams have wide and exceedingly fertile valleys.

The soils of Smith, with the exception of the caps of the ridges, rests everywhere upon limestones belonging to the Nashville and Lebanon formations, but principally the former. The tops of the ridges present the siliceous rocks of the Highlands, being the Subcarboniferous. Immediately below these siliceous rocks, and separating them from the limestone is the Black Shale Formation.

*Lands, Farms, Crops and Stock.* The county is divided in two parts by the Cumberland River flowing through it from north-east to south-west. It is navigable above Carthage for about six months in the year far into the State of Kentucky. The Caney Fork, a large stream that flows into the Cumberland, is navigable for small steamboats about forty miles above its mouth. Into these two streams run all the creeks that drain the county. The heavy produce of the county, such as corn, tobacco and bacon, is shipped in steamboats, mainly from warehouses erected at the mouths of these creeks. The soil of the bottoms along these creeks, and the hills between which they flow, is very fertile, nearly equal to the bottoms of the Cumberland and Caney Fork, so famed for their richness. There has been but very little immigration into this county since the war, either of northern people or foreigners,

and when seen passing these fertile lands, and on to the poor **Table Lands** of the Cumberland Mountain, those acquainted with the relative productiveness of the two sections express their astonishment. It is the cheapness of those lands that attracts them. A good Cumberland River farm, with moderate improvements, can usually be bought for about \$25 per acre, sometimes for less. Farms with no waste land on them, when well improved, command higher prices. The fine blue-grass farms in the south end of the county, though generally not so fertile as the river bottoms, are held at higher prices—a striking evidence of the value of improved methods of farming, and that stock-raising is the proper business for the farmers of this county. The soil has much lime in it, and of course produces blue-grass, the best of all grazing grasses, very luxuriantly, and also timothy, herds and other grasses for hay—not only in the bottoms, but on the hills. The bottoms are superior for corn, rye, hay and oats, and the hills for wheat, blue-grass and all culinary vegetables. What is known as the flat woods, or barrens, being the Rim of the great basin of Middle Tennessee, are not so fertile as the river and creek bottoms or the rolling hills; yet these flat woods are valuable, and produce the best tobacco, being of a finer texture and more delicately flavored. In 1872, the exports of this article amounted to 3,000,000 pounds; in 1873, 3,500,000 pounds.

Here fruits grow to greater perfection, and succeed much oftener than the orchards on the creeks and rivers. No cotton is now raised in the county, except small patches for home consumption. In times past, the farmers raised it in considerable quantities for market. But it is not claimed that this is a cotton region. Tobacco raising and stock and grain farming are the chief pursuits. Much improvement in the mode of farming and breeds of stock has been made in the last quarter of a century. This improvement is due in a great measure to the late Dr. F. H. Gordon, who about the year 1836, then a teacher in a literary institution, Clinton College, went to Kentucky and brought to the farm on which the college was situated a herd of the best breeds of Durham cattle, and began to sow blue-grass. These were no doubt the first of that superior stock ever brought to Smith county. The doctor was regarded as an enthusiast, and so it must be admitted he was. But he was a man of energy, a deep thinker, a clear writer, and struck out by reason and experiment many highly useful suggestions for the improvement of farming. Others, as is often the case, took hold of his ideas, and with more caution reduced them to valuable practical results. And now the farms of that section of the county

are covered with blue-grass and grasses for hay, and here may be seen the very finest short-horn cattle, Cotswold and Southdown sheep and Berkshire and Chester hogs. The example thus set has spread to other portions of the country, all directly or indirectly traceable to the examples and teachings of Dr. Gordon. There is still ample room for improvement on most of the farms. The soil is rich, and suited to a great variety of crops. There is much land yet in forest that should be in grass. Some years ago, the venerable Judge Keith, who graced the Circuit Court bench for about half a century, while riding up one of the large creeks, in company with another, looking at the rich bottoms and the tall hills, covered with forest timbers and wild grasses, said with much enthusiasm to his companion, "Sir, this is the finest poor man's country in the world. Here are the rich creek bottoms that produce in great abundance and perfection all the grains; and these bottoms are not in bodies large enough to induce the wealthy to want them for homes, and hence the poor can buy them at cheap rates; and here are the hills that afford abundant range for their stock, wild grasses in all seasons, and mast for their hogs in the winter."

Labor is comparatively scarce. Field hands are worth from \$8 to \$12 per month; house servants, from \$2 to \$4. Most of the farms are cultivated on shares.

*Curious Records.* In looking over the pages of an old record book now in the office of the County Court Clerk of Smith county, many things are met with that give an insight into the early history of Smith county and the customs of our fathers. From it we learn that the Court of Pleas and Quarter Sessions first met at the house of Tilmore Dixon, (where the village of Dixon's Springs now stands,) and organized on the 16th day of December, 1799, there being present and sworn as justices of the peace and members of the Court of Pleas and Quarter Sessions, Garrett Fitzgerald, William Alexander, James Given, Tilmore Dixon, Thomas Harmon, James Hibbetts, William Walton and Peter Turney. This last was the grandfather of the present member of our Supreme Court of the same name. Moses Fisk administered the necessary oaths to them, after which he was appointed clerk, *pro tem.*, and was sworn in turn by Garrett Fitzgerald. Amos Lacy was appointed constable.

The minutes of the court appear to have been kept with very brief notes of the business. The court exercised a very extensive jurisdiction. There was appointed at every quarter session a grand and traverse

jury, which, in addition to the usual powers of County Courts, took cognizance of pleas, civil and criminal. The court, on the first of August, made a number of orders for the laying out of roads in various directions on the north side of the river. At the March term, 1800, an order was made for laying out a road "from the mouth of Caney Fork to the Indian boundary." This road was the first one south of the Cumberland and west of Caney Fork, and would have to be about thirty miles long, as it was that distance to the Indian boundary. The north side of the river was first settled. S. M. Fite, to whom we are indebted for these notes, says: "I have often sat with rapt attention and heard my grandfather tell the history of the settlement of the south side of the river. He with his family, and two other men with their families, made the first settlements any distance from the south bank of the Cumberland and west of the Caney Fork. There being then no road save the paths of wild beasts, these pioneers struck out boldly into the great forest, encountering at every step canebrakes, that made progress very difficult and dangerous. They held a council to devise the best means of getting through these canebrakes, and because of the danger of the cane piercing their horses' legs if cut low, they determined to merely cut off the heavy, leafy tops, and then press their teams and wagons over them. Having reached their destination, fifteen miles south of the river, on the banks of a beautiful stream, Smith's Fork, they spread their tents and commenced throwing up log huts, and cutting down and burning the cane and timber to make a 'clearing,' where they could raise a little corn for bread. As for meat, the streams and forest were full of that—fat bear, deer, turkey and other game in great abundance. These hardy men, having followed the standard of Washington through the bloody scenes of the Revolution, now came to this fertile land to renew their labors and enlarge the area of civilization and Christianity. The first night after they had camped, my grandfather erected his family altar, and offered up his evening prayer—no doubt the first Christian worship ever offered in that vast region, extending thence southward for hundreds of miles; unless, perchance, some stalwart hunter, whilst resting from the chase of the day beneath the 'starry canopy,' inspired by the magnificent scenes of primitive nature around, 'looking through nature up to nature's God,' may have sent up a song of praise and thanksgiving, and breathed a prayer of adoration. Those vast canebrakes that have long since disappeared, afforded abundant food for horses and cattle during the year. And let me remark, by way of parenthesis, that with proper

care, we can again soon have cane for our cattle to live on in the winter, and it is a nutritious food for them. If we were to enclose our forest lands in Smith, or other counties with similar soil, and keep the stock from them during the spring and summer, they would soon be covered with cane. The destruction is caused by stock eating up the young, tender, sweet stalks that come up in the spring. But if this young cane is kept free from the depredations of stock until winter, it then becomes hard and the stock will only eat off the rich foliage, which puts out again next spring. This I know by experience. I have a small canebrake made in this way, and a neighbor has about one hundred acres cane raised in the same manner." Adverting again to the venerable old record of the Court of Pleas and Quarter Sessions, the first order levying a county tax for the year 1801 is given, and from it we may at least learn a lesson of economy: "Ordered, that there be a county tax of  $6\frac{1}{4}$  cents on each 100 acres of land,  $6\frac{1}{4}$  cents on each white poll,  $12\frac{1}{2}$  cents on each black poll, and 50 cents on each stud horse for the present year." Nor was the venerable Court of Pleas and Quarter Sessions afraid to pass ordinances to restrain men from extortion who undertook to carry on a business that was to be patronized by the public, as witness the following order made at its first term: "On motion of Tilmore Dixon, ordered that all tavern-keepers be allowed to sell spirituous liquors at the following rates, to-wit: good whisky and brandy,  $12\frac{1}{2}$  cents by the half-pint; for breakfast, dinner and supper, 25 cents; for corn and oats by the gallon,  $12\frac{1}{2}$  cents; for two bundles of fodder, 2 pence; for pasturage twenty-four hours,  $12\frac{1}{2}$  cents; for lodging,  $6\frac{1}{4}$  cents." And thereupon it was further ordered that Tilmore Dixon be allowed a license to keep tavern. The court seemed then to be omnipotent. No one was permitted to build a mill without an order from the court, and the toll fixed by the same authority. As a specimen of this exercise of power, the following quaint order, made at September term, 1800, is given: "Ordered, that William Saunders be allowed to build a saw and grist-mill on Dixon's Creek, about 200 yards below the Blue Spring, under the following restrictions, to-wit: the dam not to be more than twelve feet high, the water to be drawn off, if requested by Maj. Dixon, by the 15th of June in each year." So Mr. Saunders was obliged to keep on the good side of Maj. Dixon. The next exhibits the same care of the public and individual rights, made at June term, 1804: "Ordered, that Leonard Fite have the privilege of building a water grist-mill on Smith's fork of the Caney Fork, he being the owner of the lands on

both sides of the river, and that he be allowed the customary toll for grinding." Afterwards, on the same day, it was "ordered that Jacob Overall have leave to build a grist and saw mill, on Smith's fork of the Caney Fork, it being suggested that he owns the lands on both sides of the stream, but upon this express condition, that he does not dam up the water so as to injure the mill already granted to Leonard Fite, and that he be authorized to receive the customary toll." Fite's mill was built, and did good service till about the year 1840, when it was swept away by a high rise. This old court seems from its minutes to have been for the first four years ambulatory in its sittings, part of the time at the house of Maj. Dixon; then at Wm. Saunders', the place where Dr. J. L. Alexander now lives; then at Fort Blount; then at Col. Walton's, at the mouth of Caney Fork; then on Peyton's Creek, and alternating around at these places, till in 1804 the county site was fixed at the place where Carthage now stands, which was laid out on the lands of William Walton, one mile below the mouth of Caney Fork, on the north side of the Cumberland. Col. Wm. Walton had, at an early day, made a settlement on the north bank of the Cumberland, at the mouth of Caney Fork, and had erected houses of entertainment at convenient distances for travelers moving from Virginia and North Carolina, and had cut a road, yet called after his name, from the junction of the Cumberland and the Caney Fork eastward across the mountain. These houses he supplied with grain from his Cumberland farm, and with meat furnished by hunters whom he kept in his employ for this purpose. This was then, and is yet, a great highway for persons moving to what was then called the "Cumberland country."

The following letter from a practical farmer, and one familiar with the country, will give some additional information :

GORDONSVILLE, April 16, 1874.

*J. B. Killebrew, Secretary, Nashville, Tenn.:*

Cumberland River runs through the county from the east to the west, dividing it into two unequal parts, the larger one being on the south side. The surface is in hills and valleys, trending north or south according as they are on the one or the other side of the river. These valleys are remarkably fertile, and so are the hills to the tops, especially on their north, east and west sides. Caney Fork, the largest tributary the Cumberland has, enters the county at its south-east corner, and running nearly north, empties into the Cumberland one mile above Carthage, the county seat. Besides these two, the other streams of the county become nearly dry in summer, and consequently are of but little use in driving machinery. Corn, wheat, oats, rye, hay and tobacco are the principal crops cultivated, for all of which



the soil is well adapted. Timothy, herds-grass and clover are the chief hay grasses, though a number, especially of tobacco farmers, still persist in the folly of sowing annual grasses for hay. Blue-grass does well as a most valuable pasture grass, but notwithstanding it was introduced here forty years ago by the late Dr. F. H. Gordon, and has been a perfect success, still but few have their lands sodded, when all could have them so without expense and with but little labor. Every hill in the county might be covered with this beautiful and profitable grass. Orchard grass has done well in the few instances in which it has been tried. The most valuable timber is poplar, oak and black walnut. Poplar is most abundant, and is used for lumber and shingles, and in that form has been exported in considerable amounts. As to which is more profitable, raising stock or cultivating the money crops, there is a difference of opinion among the farmers in this county. My own opinion is, that with proper attention to grasses, hay, etc., with the cereals, taking into consideration the preservation of the soil, stock raising is greatly the more profitable. The small experiments in sheep husbandry have proved that, but for the dogs, that department of stock raising would be very profitable. If the time should ever come when we could have civilized legislation on this question, then the hills of Smith county would be covered with wealth-producing flocks. There are no nurseries of any importance in the county; only one or two on a very small scale, and limited to a few kinds of fruit. Orchards have been extensively planted in the last few years. Lands are too high here to invite agricultural immigrants. They range from ten to sixty dollars per acre, according to improvements. Our people would welcome sober, industrious immigrants of all classes. There is a good deal of emigration from the county to the West and South-west.

Very respectfully,

JOHN W. BOWEN.

*Towns.* Carthage, the county seat, situated on the Cumberland River, is fifty-one miles above Nashville. It has a population of 500. Among the business establishments are three dry-goods stores, one drug-store, a hotel and several groceries. It is a good shipping point. New Middleton, seven miles from Carthage, has a population of 250, three stores, one drug-store, two groceries and a woolen mill. Dixon Springs has about the same population as the latter, three stores, one grocery and a good school. Rome is an old, dilapidated town with two stores and a drug-store. Gordonsville, with a population of 100, has two stores. Chestnut Mound has a population of 100, two stores, two groceries and one hotel. Difficult and Grantville are small post villages.

*Schools.* The county is not so well provided with schools as is desirable. But few really good schools exist, and but little encouragement has been given to free schools.

*Social Status.* In no county is there more real honest worth among the masses than in Smith. Occasional feuds spring up between those occupying different sides of the river, but with this exception the coun-

ty is noted for the kindly intercourse that exists between its citizens. Honesty in the payment of debts is necessary to a man's social standing. The people, however, sadly need enterprise. They cling to the old ways, which, though highly conservative, are not suited to the habits and tendencies of the age. Railroads are greatly needed, and it is hardly possible to hope for a change for the better until more markets are made accessible by means of good railroads. The greatest stimulus which agriculture can receive is to have a ready market for all the products of the soil. Destitute of manufactories, the farmers are compelled to confine their attention to a few staple crops, and a large percentage of the value of these is absorbed in the delay and expense of getting to market.

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## STEWART COUNTY.

### COUNTY SEAT—DOVER.

Stewart county dates its organization from an early period in the present century, and but a few years after the State became a member of the Federal Union. The act erecting the county bears date November 1, 1803, and was passed while the Legislature was sitting at Knoxville. The act provides that "Montgomery county be divided by a line which shall commence in the Kentucky line, thirteen miles west of the meridian of Clarksville, and run south to the southern boundary of the State," and all the territory west of this line was "constituted a separate and distinct county, called and distinguished by the name of Stewart." It was named in honor of Duncan Stewart, an energetic and prosperous farmer. The county at that time embraced a vast domain, running westward as far as the Tennessee River and south to the Alabama line. It embraced the present counties of Houston, Humphreys, Perry, Wayne, and a part of Hardin and Lewis. Upon the extinguishment of the title of the Chickasaws in 1819 to the lands in the "Western District," as it was then called, now West Tennessee, the jurisdiction of the county extended to the Mississippi River, and covered over 1,200 square miles, or more than a fourth of the State. All deeds made for property in the Western District were recorded in Stewart, until the district was surveyed and organized into counties. November 7, 1821, thirteen new counties

were authorized by the Legislature to be established in the Chickasaw territory, and after that period Stewart county was shorn of much of its glory.

*Extent—Topography.* The last dismemberment of the territory of Stewart occurred in 1871, when Houston was formed. This reduced the limits of Stewart to about 425 square miles, or about 270,000 acres. The number of acres returned to the Comptroller in 1872 was 264,041, and in 1873, 257,042. The United States census, which is manifestly inaccurate, shows only 183,762 acres, or more than one-third less than the county assessor returned for taxation. Stewart county, like all the counties on the Highland Rim, has a high elevation above the sea, and is drained by frequent and rapid streams. The Cumberland River enters the south-eastern corner of the county and runs approximately in a north-westerly direction until it reaches a point beyond Dover, when it turns and runs nearly north, and parallel with the Tennessee river, which bounds the western side of the county. Between the Tennessee and the Cumberland is an elevated ridge, called the Tennessee Ridge. This is the water-shed between the two streams. Numerous subordinate ridges shoot out from this main one, more or less parallel with each other, between which numerous streams descend on the west to the Tennessee, and on the east to the Cumberland. The region between the rivers is much broken, and aside from the valleys bordering the streams, is of but small agricultural importance. On the north-east side of the Cumberland the country is more level, and some rich areas are found remote from the streams. The surface of the country grows more level as one travels back from the river, until in the north-eastern part of the county, it is prairie-like in its flatness, highly fertile, and unsurpassed by any portion of the Highland Rim in its attractions for the farmer and the advantages it offers to the industrious.

*Lands and Soils.* The lands may be divided into mineral and agricultural. The mineral or iron lands are found on both sides of the Cumberland, extending to the Tennessee on the west, and cover fully one-third of the county. For half a century Stewart county has been the center of the great iron interests of Middle Tennessee. Samuel and John Stacker, by their knowledge, skill and industry, reaped princely fortunes from the manufacture of iron in this county, and gave a character to Tennessee charcoal iron, which has made it famous everywhere. This added greatly to the character of Stewart county as a mineral region, and before the war there were in operation in the county, four-

teen furnaces, making nearly 20,000 tons of pig-iron annually. A large part of this pig-iron was made into sugar kettles and bar and boiler plate. The Stewart county metal produced kettles superior to those made in Scotland, and were pronounced by sugar planters to be the best in the world. Many of these lands have been stripped of timber, but sprouts shoot up very rapidly and would speedily supply a second growth suitable for coaling purposes, all over the denuded iron region, but for the fires. Some of this second growth around Dover Furnace is now being worked. Unlike the counties of Wayne and Lewis, the lands in the iron regions are not cursed with sterility, but are moderately productive, and all the low places eminently so. Around the Cumberland Iron Works there are some splendid farms, which in times past supplied all the provender consumed at the rolling mills. Some of these lands are thought to be well adapted to blue-grass, as experiments made a few years ago by Mr. George T. Lewis were entirely satisfactory, and it was his belief that blue-grass could be made as valuable to the farmers of the valley of the Cumberland, as it is to those in the blue grass region of Kentucky. But whether blue grass does well on these lands or not, it is known that timothy, herds-grass, clover and corn grow well and make the iron or mineral lands of Stewart of more than ordinary value. The old coaling lands sell for prices varying from one to three dollars, according to location and quantity wanted. Of the agricultural lands proper, there are several varieties, all having some peculiar excellences or aptitudes and deficient in others. Indeed variety is characteristic of the lands in Stewart. These lands may be classified thus: 1st. The high rolling lands between the rivers. 2d. The alluvial bottoms. 3d. The red lands. 4th. The flat lands. Taking them up in order, we shall find the largest proportion of rolling lands on the south and west side of the Cumberland River. The great Tennessee ridge, with its offshoots, comes within this classification. The tops of these ridges are sometimes wide and flat and afford good areas for cultivation. Moderately fertile and well adapted to fruit, they are gradually coming into cultivation. These ridges rise between 500 and 600 hundred feet above the Tennessee, and persons residing upon their summits are seldom attacked by malarial or miasmatic diseases. Well timbered with white and black oak, these lands are more valuable as supplying material for staves and boards than for agricultural purposes. These ridge lands sell from three to ten dollars per acre. The amount of bottom land in Stewart county is very considerable. The bottoms on both sides of

the Cumberland River and on one side of the Tennessee River, will of themselves, make an area of fifty square miles. And if to these, we add the low lands on the numerous creeks that are tributary to the rivers, it will be found that there are not less than seventy or eighty square miles of the richest alluvial lands. These bottoms are singularly productive of Indian corn and oats. Seventy-five bushels of the former per acre are not uncommon. Timothy, herdsgrass, clover, millet and indeed all the hay grasses revel in the abounding fertility of these bottoms. The morning fogs, too, charged with humidity, add to the wonderful growth, so that four tons of hay have in places been taken from an acre of this land. In the valleys, the wild growth indicates an exuberant fertility. The walnut, wild cherry, poplar and hickory abound with occasional groves of the sugar tree. The bottom lands, unimproved, on the streams south and west of the Cumberland, sell for ten to fifteen dollars per acre. Bottoms on the creeks north and east of the Cumberland sell higher by five dollars per acre. The bottoms on the Tennessee sell low; price from five to ten dollars. Cumberland River bottoms are about twice as high. The bottoms on Saline Creek sell higher than any others in the county. They are worth from ten to thirty dollars, but they are exceedingly beautiful, level and fertile, and are seldom injured by overflows, while numerous handsome building sites lie convenient. On the north side of the Cumberland, on the road leading from Dover to Lafayette, Kentucky, are to be seen some of the best lands in the State. They are limestone, and in all their characteristics resemble the lands of the Central Basin of the State. Ascending the hills on each side of the valley they change in character, and become identical with the cherty lands south of the county seat. A steep ridge intervenes between the head-spring of Dyer's Creek and that of Green Tree Grove or Dry Creek. The lands near the head of the latter creek are not fertile, being rather inclined to be marshy in winter and hard and dry in summer. Whitish in appearance, and upon the higher points rocky to such a degree as to render them unfit for any purposes but the growth of timber, they are not settled to any extent. Descending the course of the stream the lands improve in appearance and fertility. Indeed, it would be difficult in any State to find soils more kind, and vegetable growth more luxuriant, than are to be found upon this stream. The bottoms are wide, extending sometimes for miles with scarcely a rise that might be called a second bank, gradually changing character from bottom lands to "barren plains." It

must not, however, be understood that the "barren plains" are destitute of fertility. On the contrary, they are by many preferred to the low lands on the streams, especially for the cultivation of tobacco, wheat and fruit. The red lands in the north-eastern corner of the county are by far the best. They are a continuation of that body of lands so remarkable for their fertility, which embraces all the southern parts of Christian, Todd and Logan counties, in Kentucky, and the northern part of Montgomery in Tennessee. They are peculiar in having no stone or gravel, and the limestone rock lies at a great depth beneath the surface. As tobacco lands, this body of land has no equal in Middle Tennessee, if in the Mississippi Valley. It has a gently rolling surface, small and indifferent timber, mostly black-jack and hickory, with an undergrowth of hazel and gum, and in the early history of the State were regarded with indifference on account of the scarcity of wood and water. Wood is now abundant, but during the summer months the stock suffers for good fresh water. The reliance of many farmers in this locality for stock water in the summer is the pools along the bed of Dry Creek, which is rightly named, inasmuch as it invariably goes dry in the summer. Farmers are sometimes obliged to send their stock several miles. Yet notwithstanding this inconvenience, the red land portion of the county is by far the most desirable. The soil is generous in the extreme. Thirty bushels of wheat, seventy-five of corn, are not unusual. Tobacco often yields 1,500 pounds per acre, and of a quality so rich, yet so fine, so strong, tough and elastic and so abounding in the essential oils of tobacco as to command the very best prices. These red lands cover an area of thirty square miles, and are worth from thirty to sixty dollars per acre, though far removed from market or facilities for transportation.

The fourth and last variety which we have adopted are the flat lands. These are immediately south of the red lands, and are called "barrens," because once barren of timber. They resemble very much the lands last described, and will probably in the course of nature become of the same character. They have, indeed, undergone a great change during the past thirty years. It was a custom with the early settlers to burn off these lands every spring, in order that the barren grass, a strong, coarse, but nutritious herbage, might spring up and supply summer grazing for their cattle. During spring and summer, the chimes of a hundred bells might have been heard as the cattle browsed over the natural meadows. There were but few trees, and those of an inferior kind for timber, being scrubby black jack, which, owing to the

thickness of the bark, is able to resist the prairie fires. There was no undergrowth, and the strawberry vines laden with fruit in the spring filled the air with delightful odors. The wild honeysuckle, lady slipper and wild pink contributed their fragrance and their flowers to the landscape. The soil, however, was poor. A cold, clammy, whitish soil, with here and there a marshy spot covered with large water oaks, which were protected from the fires by the dampness of their place of growth, was characteristic of the land in winter. A few settlers built houses along the margins of the wet weather streams and cleared a few acres. In order to protect their fences, fires were interdicted. A rank undergrowth of gum, hazel, hickory and red oak sprung up. The barren grass disappeared. Black jacks died out. Red oaks, post oaks and hickories shot up into the upper air. Several generations of leaves fell to the earth and rotted. The soil blackened. The roots of the trees penetrated the subsoil, admitted the air and gave to it porosity. A good drainage supervened. Marshy places dried up, and the land became productive. A region of country south of Lafayette, Kentucky, and lying on both sides of the old Skinner's Ferry road, that was once regarded as of no value whatever, except as a range for cattle, is now in great demand as farming land. Thirty years ago a cow or horse could be seen for miles, there being no undergrowth or timber to obstruct the view. It is impossible now to ride on horseback through the woods. Impenetrable thickets have sprung up, and all the features which distinguished the landscape thirty years ago, nearly all the characteristics of the country at that time, have disappeared. These lands are worth from \$6 to \$10 per acre. They grow tobacco, wheat, corn and clover, but not in such quantities as the land which they adjoin on the north.

*Streams and Water-power.* Stewart, like Perry, has its water-shed between two rivers, and a perfect system of drainage. Beginning at the point where the Cumberland River enters the county, and noting first the streams on the left, we find first of all Elk Creek, which has a constant supply of water. It is a valuable milling stream—one of the best in the county. The bottoms are not so wide as some others. It rises on the Tennessee Ridge and enters the Cumberland nearly opposite the Checkered House. South Cross Creek, upon which is situated Dover Furnace, has the same starting ridge and the same destination. It has good stable banks and a constant supply of water. Long Creek, parallel with the last, affords plenty of water for milling purposes. It already drives two saw-mills. The bottoms are very good. Lick

Creek heads in Tennessee Ridge and enters the Cumberland near Dover. This is also a milling stream, and once propelled a good mill. The bottoms on this creek are rather narrow. Hickman Creek enters the Cumberland a mile below Dover. It has one good mill. The soils are good but bottoms narrow. Bear Creek empties into the Cumberland near Gatling Shoals. This stream is swallowed up during the summer by the sand and debris, and is utterly worthless as a water-power. There are some wide bottoms and good farms on it. Barrett's Creek enters the Cumberland two miles below the mouth of Bear Creek. It has a good flouring mill upon it. Its bottoms are wide. Neville's Creek is short, the Tennessee Ridge here approaching nearer to the river. There are some excellent farms on this stream. Prior's Creek is the only remaining one between Tennessee Ridge and the Cumberland. It runs nearly north. There are some excellent tobacco lands in this part of the county. Large quantities are raised and sent to Clarksville. Returning again to the point where the Cumberland enters the county, and taking the streams on the right bank, we first notice Bullpasture Creek, which is worthless as a water-power. It has wide fertile bottoms upon it. North Cross Creek heads in the "barrens," and empties into the Cumberland opposite South Cross Creek. There are good mills, good farms and good timber on this creek. Cub Creek rises also in the "barrens," runs south-west, and empties into the Cumberland three miles below North Cross Creek. It is a poor water-power. Some good farms lie upon it. Dyer's Creek heads in the northern part of the county, flows south-west, and empties into the Cumberland opposite Dover. We have already spoken of the lands on this creek. It is worthless as a water-power. Banks low and changeable. Saline Creek, of whose lands mention has also been made, rises in the "barrens," and running west, empties into the Cumberland one mile above Tobacco Port. It has one good flouring mill, and furnishes several excellent sites for others. It is said that more and better tobacco is raised on the bottoms of this stream than on any others in the county. There are some tasteful farm houses and good improvements in the way of stables and out-houses on this stream. The creeks named are all tributaries of the Cumberland River. These creeks have an average distance of about four miles between them, and it is thus seen that the larger part of Stewart county is a succession of ridges and valleys, running out at right angles to the river on the south-west side, as far as the Tennessee Ridge, and on the north-east side as far as the level lands of Kentucky. On the west side of



the Tennessee Ridge, and tributary to the Tennessee River, are Leatherwood, Standing Rock, Panther Creek, Birds Creek and Rushings Creek. The first is considered the best water-power, and upon it are situated Clarke and LaGrange Furnaces. The farms on Leatherwood are very fine, and grow corn in great abundance.

*Leases, Rents, Stock and Labor.* Where land is generally so abundant as in Stewart county, leases are very rare. Some few places are leased for a term of years, in which the tenant agrees to keep the farm in repair and give one-third of the crop. For clearing heavily timbered land \$10 per acre are paid, and this does not include fencing. Much clearing is done for the timber, the latter being sold to steamboats and furnaces. Land rents for one-third of the crops. Tobacco lands, from \$6 to \$8; wheat lands, one-third the net yield. When the landlord furnishes tools and teams, and feeds the latter, one-half is given. Good farm hands are scarce. They hire very readily for \$15 to \$20 per month and feed during the summer. Cooks are also scarce and hard to get.

Much fine stock is being carried to the county. The admirable pasture lands that border the streams make the county well suited to raising fine cattle. Dairy farming could be made a profitable business, and many of the Swiss immigrants have directed their attention to this branch of husbandry. Durhams are the favorite cattle in the county. The Cotswold, Leicester and Southdown sheep are all being tried. Sheep raisers are greatly discouraged by the dogs, ten per cent. being killed annually.

*Iron Interests.* Iron ore, the most valuable and the most abundant, is found in the county. The species of ore here met with is the limonite or brown hematite. It occurs in various forms, such as pipe, honey-comb, bog, compact, pot, etc. On Long Creek, one and a half miles from the Cumberland River, a rich deposit of pipe iron ore has recently been found, which yields from the furnace about forty-nine per cent. of pig metal. The ore is dug and delivered at \$2.00 per ton. The banks at Bear Spring Furnace, on Bear Spring Creek, are very rich and apparently inexhaustible. At Lagrange Furnace an ore bank has been opened on Leatherwood Creek, two miles from the Tennessee River, which presents a face 100 feet wide and thirty feet high. The ore is so compact that gunpowder is necessary to raise it. The richness of this bank may be inferred from the fact that seventeen hands only are required to supply the furnace with ore. In regard to this furnace, Clarke and Eclipse, Mr. J. C. Garrett, the president, writes :

The "LaGrange Iron Works" property, of Stewart county, Tennessee, consists of about 40,000 acres of mineral and farming lands, on which are located three blast furnaces, viz., LaGrange, Clark and Eclipse. LaGrange Furnace has a brick stack, thirty-five feet high and nine feet across the bosh, horizontal engine, steam cylinder, sixteen inches in diameter and five foot stroke, with two blast cylinders thirty-eight inches diameter and four foot stroke; hot blast of six small rings and cross pipes under the boilers, heating the blast 800 to 900°; makes iron from thirteen to sixteen tons of iron per day with one tuyer; uses charcoal for fuel, and 133 to 140 bushels coal to ton of iron; uses brown hematite ores, yielding in the furnace forty-eight to fifty-five per cent of iron. Clark furnace has stone stack, thirty-six feet high, ten feet across the bosh; upright engine, steam cylinder thirty-two inches in diameter, four foot stroke; one blast cylinder, seventy inches diameter and four foot stroke; hot blast of thirty-two upright pipes with twenty-seven cross pipes under the boilers, heating the blast about 1,000°, using two tuyers, and now making seventeen to eighteen tons of iron per day; uses charcoal and the brown hematite ore, about 140 bushels coal to ton of iron, the ore yielding about same as at LaGrange Furnace. The Eclipse Furnace has stone stack thirty-five feet high and nine and a half feet across the bosh. No machinery there; it was destroyed during the war, and has never been refitted. The ores at Eclipse same as about Lagrange and Clark Furnaces. The timber on the company's lands yields forty to fifty cords to acre. The ores are inexhaustible, the present owners working banks from thirty to sixty feet of ore, and in no case have they found the bottom or gone through the ores. These ores are valuable for shipping purposes; lying near the Tennessee River, they can be mined and shipped to Pittsburgh even, and make iron at a less cost than using Missouri or the lake ores. Below is the analysis of ores by Prof. E. S. Wayne, of Cincinnati, from one selected piece of ore:

Peroxide of iron.....	95.34
Phosphorus .....	trace.
Sulphur.....	trace.
Potash.....	trace.
Lime.....	.21
Silica.....	3.71
Loss.....	.74

Equal to 65.75\* of pure iron. The ore is very free from sulphur and phosphorus, mere traces being found.

(Signed).

E. S. WAYNE.

The following is a copy of the analysis of numerous small pieces of ore "average samples" by J. Blodgett Britton, of Philadelphia.

Water.....	9.10
Insoluble silica.....	1.40
Pure iron in form of sesquioxide.....	52.97
Oxygen with the iron.....	23.41
Alumina.....	1.36
Lime.....	.40
Sulphur.....	.03
Phosphorus.....	.06

99.34

\* There must be some error in this analysis. The amount of pure iron is too great for limonite.

Double Furnace Assay yielded 56.10 in reduced metal or cast iron. The reduction was complete, buttons flattened under the hammer, fracture ragged, color dark gray, rather close grained; iron soft, but tough, not natural.

(Signed).

J. BLODGETT BRITTON.  
Philadelphia.

*Rough and Ready Furnace* is about four miles from the Checkered House on Cumberland River. The company owns about 16,000 acres of land. Brick and stone stack, twenty-eight feet high, nine feet bosh; horizontal engine, seventeen inch steam cylinder, six foot stroke; two blast cylinders, forty inches diameter, four and a half foot stroke; two tuyers; hot blast; 150 bushels coal to ton iron; pipe and fine honey-comb ore, yields thirty-five per cent. iron; makes about ten tons per day.

*Cumberland Iron Works.* Dover Furnace stone stack is 34 ft. 8 in. high; one tuyer; steam power; cold blast; boilers heated on top of stack with waste gas from furnace; horizontal engine; three tubs; blast usually about  $1\frac{3}{4}$  lbs. pressure; product about ten tons per day; uses about 170 bushels charcoal and two tons ore to the ton of metal; coal costs about eight cents per bushel delivered; ore about \$2.50 per ton delivered; wages depend entirely on the efficiency of the hand; most of the work is done by the job or task.

*Bear Spring Furnace.* Re-built in 1873; out of blast since 1854; stone stack 38 ft. 11 in.; two tuyers; steam power; cold blast; boilers heated on top of stack with waste gas from furnace; horizontal engine; three tubs; will blow about two pounds per inch; expected to make twelve to fifteen tons per day, with about the same yield of material as Dover Furnace; coal will cost one cent per bushel less, and ore fifty cents per ton less than at Dover Furnace. Wages about same as at Dover Furnace. The property embraces sixty-three thousand acres of land, with an inexhaustible supply of ore and timber. Cumberland River divides the property with a river frontage of eight miles. It is well supplied with running water and springs, and has better roads than are usual in this section. Near Dover Furnace is a deposit of fire-clay of good quality. It is used for making the lining of the furnaces, and was extensively employed before the war at the rolling-mill.

Hon. J. C. W. Steger forwarded to this Bureau specimens of ore that would average fully fifty-five per cent. These specimens were obtained from Long Creek branch and Bear Spring. In his letter, Mr. Steger says:

CUMBERLAND IRON WORKS, February 23, 1874.

*J. B. Killebrew, Secretary:*

DEAR SIR—I send specimens of ore from the old Bear Spring bank, and also from the new bank on Long Creek. I have just visited the latter bank and find they have commenced at the base of a high ridge, quarter of a mile from where the Clarksville and Dover road crosses Long Creek, and a little above the level of a small branch near it, and have gone in 150 feet, extending out from fifty to one hundred feet. The ore presents a face of from five to fifteen feet of such as I send. They have run a race seventy-five yards up the ridge, and find the same quality of ore within three feet of the surface all the way up. They are now stripping about seven feet, and the only rock about the bank is found just on the top of the ore. The sandstone is from three to six inches thick. I consider this the best ore in Stewart county. The specimens I send from Long Creek bank were taken out of the bottom of the bank, showing the pipe, honey-comb, and the two mixed within three feet of each other. At present the working is carried no lower than the branch, for want of means to keep the water out.

## LIST OF FURNACES IN STEWART COUNTY.

<i>Names.</i>	<i>Owners.</i>	<i>Daily Production.</i>
Dover Furnace.....	Woods, Yeatman & Co.....	10 tons.
Bear Spring.....	“ “ “ .....	12 “
LaGrange .....	J. C. Garrett, President.....	13 “
Clark .....	“ “ “ .....	18 “
Rough and Ready.....	Theobald Gurkenhammer & Co.....	10 “

Connected with Dover and Bear Spring furnaces is an extensive farm, where nearly all the necessary supplies are made. This firm hires by the year, and employs negroes almost entirely. The three last employ white labor by the job. About two or three hundred Northern men have settled around these last since the war. The only fuel used is charcoal.

Dover, Rough and Ready, and Bear Spring furnaces ship by the Cumberland River and the Memphis and Louisville Railroad, the remaining two ship by the Tennessee River. Fire-clay, of an excellent quality, is found within a mile of Dover Furnace, on the property of the Cumberland Iron Works. Upon the first introduction of the manufacture of iron in the county, fire-bricks were brought from England at an enormous expense, and the discovery by the Messrs. Stacker of this deposit of clay, led to a new source of wealth. Much of it is shipped to other points. Good building rock is found in nearly every portion of the county, except the north-east corner. A valuable variety of sandstone is found on Dyer's Creek and Barrett's Creek, which is extensively used for furnace hearths.

*Timber.* In the lowlands oak, poplar, ash, sugartree and elm pre-

vail. On the Tennessee Ridge white oak and red oak are the principal growth. More than 200,000 staves are annually shipped down the Cumberland and Tennessee for the European markets. Large quantities of yellow poplar lumber are sent in rafts to New Orleans and other points. Working in timber is the occupation of a large proportion of the people. The wood-choppers, stave-makers, sawyers, and shingle-makers are especially numerous between the rivers.

*Colonies and Social Condition.* On the southern limits of the "barren" lands there has settled a thrifty colony of Swiss. They have bought a considerable quantity of land, and make dairy farming a specialty. The thrift of this colony is proverbial, and a mere inspection of their farms will convince the most skeptical that they are prosperous and thrifty. Every place about them is utilized. Even the fence corners are seeded to grass. Their houses are workshops. Neatness, order and economy are everywhere displayed. Their cheese cellar is a model of neatness. One gallon of milk is consumed in making one pound of cheese. Mr. Ulric Buhler, the founder of the colony, is well pleased with his profits, and the only dissatisfaction expressed is the want of railroad facilities and of educational and religious advantages. Mr. Buhler thinks if these were supplied, there would be no difficulty in settling all the unoccupied lands in the State in a short while, with an industrious, hardy, enterprising and intelligent population. Their method of culture is well suited to the character of land they work. Their land is usually flat and not well drained. The top soil is of a pale yellowish hue, with a subsoil of angular gravel of a dingy yellow color. It will not, with the usual cultivation, produce the cereals well, nor tobacco, owing to the stiffness of the soil. Oats do very well, and so does clover, the latter penetrating with its long tap roots the tenacious soil down to the gravel. Deep culture is required to secure good drainage, and to get good crops. The Swiss have good plows, and they believe in deep culture. They make, according to the testimony of old citizens, the best crops of corn that ever grew on that soil. They sow clover largely and suffer no spot to run to waste. They are careful in saving manure and applying it in such places and in such manner as will do the largest amount of good. They brought many seeds with them from Switzerland, among others, the *Esparzetta*-grass, a favorite hay and herbage crop in Switzerland, but found the soil unsuited to it here. The *Esparzetta*-grass grows somewhat like clover, with a leaf like that of the sensitive plant, and a bunch of small, red papilionaceous blooms arranged in clusters

around and at the end of the stem. It will, upon suitable soils, bear cutting three times a year, and is said to be very nutritious and much relished by stock. The improvements made by the colony show the practical nature of their minds. Their gates, stables, garden, cheese-house, indeed everything about the premises have a neat, durable, but economical appearance. Whatever work can accomplish they perform. They sell as much as possible, and buy as little as possible. What they buy is of the best. By the neighbors they are much respected. They make good citizens. They pay but little attention to visitors during the week days, but are very hospitable on Sunday. They are hopeful of having good return from their dairy so soon as the character of cheese they make is known to the market and their number of milk stock is increased. They are all working people, and will doubtless do well. At the old Peytona Furnace between the rivers, a colony of Germans have settled, and are giving their attention to grapes and nurseries. They are well pleased, and are prospering. There is another colony of Northern men on Saline Creek, occupying a portion of the lands of Lewis Irwin & Co. A few years ago, Mr. George Platte, of Ohio, bought two hundred acres of land, and since he bought, many of his old neighbors have followed him. They are hard working, quiet, industrious citizens, attend to their own business, and are willing to work. These men, with Mr. Platte, are highly respected, and are doing much by their industry to restore prosperity to the county. It may be said of Stewart county what can be said of but few other counties in Middle Tennessee, that the white men have become self-reliant. They labor in the fields, in the shops, and in their houses. The women of the family do housework, and suffer no annoyance from trusting to unreliable servants. The condition of society in Stewart makes it peculiarly attractive to immigrants. All work, men and women. No idle croakers, dreaming of past glories and obscuring the brightness of the present by comparison with the past, dishearten the industrious. Hospitality abounds, and there is a general desire to make the most of the present without unmanly repinings of the past.

*Fair Grounds.* During the year 1873 stock was subscribed to build Fair Grounds. The buildings were erected during the summer, and the first fair was held in October of the same year. It was a grand success, and will no doubt stimulate the farmers to a further introduction of fine stock.

*School and other Statistics.* The school sentiment is growing. The

County Court levied twenty cents on the \$100 additional for school purposes, and it is believed that a good system of schools can be carried on at least five months in the year.

Scholastic population, white.....	2,804
"          "          colored.....	659
Total.....	4,563

No. acres land returned to Comptroller in 1873, 257,042; value \$1,180,415; number town lots 102; value \$42,519; value of mills, factories, &c., \$56,720; live stock \$48,421, which with other taxables, such as watches, ferry-boats, &c., make the total valuation of property in the county amount to \$1,524,379.

State tax 40 cents.....	\$6,097.51
County tax.....	3,048.75
State school tax.....	1,524.37
County school tax.....	3,049.14
Polls.....	

*Towns.* Dover, the county seat, is situated on the south bank of the Cumberland, and is the oldest town in the county. It was located in 1803 by James Elder, Amos Bird, James Huling, Henry Small and John Blair, commissioners appointed by the Legislature to select a permanent seat of justice. It was as late as October 17, 1811, before the courts were permanently held there. The act provided that this seat of justice should be on the Cumberland River, twelve and one-half miles west of the eastern boundary of the county. Dover has several commercial establishments and a newspaper, the Dover Record, which does much to encourage immigration. Dover was almost destroyed during the war. The battle of Fort Donelson having been fought in the suburbs, all the houses were used for military purposes and ultimately destroyed with the exception of three. The court-house was burned and private dwellings torn down, and out of the rubbish shanties were constructed for the accommodation of the soldiers. At the termination of the war the owners of property returned, and have since rebuilt their houses, so that new Dover, rising upon the ashes of the old, presents from the river, enthroned upon her twenty hills, a very sightly appearance. It has a fresh, tidy look, and some 500 inhabitants, and is a place of considerable business. The country on the north side of the town is exceedingly hilly, some of the hills swelling to the height of two or three hundred feet with deep ravines between. The roads are execrable, scarcely passable. They often-times follow the beds of wet winter streams, which, gathering a huge

volume of water from the steep hill-sides, after heavy rains, rush with great force through the narrow defiles, filling them with *debris* and washing the road beds into deep holes so as to render them impassable for wheel vehicles. Tobacco Port and Line Port, on the Cumberland, are shipping points. Indian Mound and Big Rock, are small villages on the north side of the river, and are situated in a rich agricultural region and do a considerable business in dry-goods.

*Transportation Facilities.* Cumberland and Tennessee rivers furnish the only means of public transportation. Some products are hauled to and from Stewart's Station, on the Louisville & Memphis Railroad, but the country roads are so bad as to make hauling an expensive job. Stewart county stands greatly in need of railroads. One running from Hopkinsville, Kentucky, through Lafayette, by Big Rock, down Dyer's Creek Valley, crossing near Dover, intersecting the Memphis, Clarksville and Louisville Railroad somewhere between Stewart Station and Tennessee River, then passing through the counties of Humphreys, Perry and Wayne down to Florence, Alabama, would open up one of the richest sections, whether viewed in an agricultural or mineral point of view, to be found on the continent. It would be the most direct route from Chicago to Mobile, connecting, as it would, by the Memphis and Charleston Railroad with the North and South road at Decatur. With such a railroad passing through the county from north-east to south-west, and the placid Cumberland sweeping diagonally from south-east to north-west, Stewart county would be abundantly supplied with commercial facilities and rush forward on the course of material prosperity at a speed that would astonish her own citizens. Nature has done much for the county. Her citizens have but to will it to be wealthy. Some sacrifices will be demanded at the outset; prejudice will have to be broken down; new ideas will have to be propagated; fresher activities will have to be brought into play. Stewart county is fortunate in having the minds of her leading men full of progressive thought. Let the truth be realized that "old things have passed away," and a new energy will nerve the hearts and fill the minds of her people. They will enter upon a new life, bright with fresh hopes, instinct with intelligence and arched by the rainbow of bright prospects, that will induct them into the paths of pleasantness, peace and prosperity.



## SUMNER COUNTY.

COUNTY SEAT—GALLATIN.

There are but few counties in the State more desirable as a place of residence than Sumner. The rich beauty of the green sward that clothes the rolling surface of more than half the county, the dark green foliage of the maple forests, the perennial streams that flash and sparkle through verdant meadows, the herds of fine stock that browse upon the rich herbage, the stylish dwellings and splendid roads and stone-arched bridges, and above all, the elegance and refinement of the citizens, make Sumner county one of the most delightful to be found anywhere. It is one of the oldest counties in the State, having been established in 1786. It then embraced the territory now included in Macon, Trousdale and portions of Jackson and Smith. In 1799, it was reduced to 625 square miles. Since then, the counties of Macon and Trousdale have been formed, each taking a portion of the territory of Sumner, so that it now has but little over 500 square miles. It was named in honor of Colonel Jethro Sumner, a brave pioneer. The county is bounded on the north by Kentucky, on the east by the counties of Macon and Trousdale, on the south by Cumberland River, which separates it from Wilson, on the south-west by Mansker's Creek, which is the line between Sumner and Davidson counties, and on the west by Robertson county.

*Topography and Geology.* The northern half of Sumner lies upon the Highland Rim and the southern half within the Central Basin. This is a fundamental fact, and will explain the great contrast there is between the two portions. The northern half is a high plateau country, having an elevation of 800 to 900 feet above the sea, the most elevated portions reaching 1,000 feet. The southern half lies several hundred feet below this, and presents a most fertile region, one of the best in Tennessee, in a high state of cultivation, and greatly in contrast with the wooded flat lands of the other portion. The escarpment of the high lands runs pretty nearly east and west through the county. The highest portion of the Rim lands is at the summit of this escarpment, and is universally known as "the Ridge." From this the waters flow northward with very little slope into the Barren River in Kentucky, and into the head branches of Red River in Robertson county. South of "the Ridge" the creeks taking their rise at the base of the escarp-

ment flow southerly with considerable fall into the Cumberland River, which bounds the county on the south. The valleys of these creeks are generally separated by ridges, which are finger projections from "the Ridge," or Highlands. Near their origin, these dividing ridges are high and rough, but as they approach the river, they break away into low hills and not unfrequently into a nearly level country. The rocks of the plateau portion are Lower Carboniferous, and are siliceo-calcareous, often with much flint. Within the Basin and forming the fertile country, the blue Nashville limestone very generally abounds. Between the two and outcropping on the slopes of the Highlands are the Black Shale and thin limestones and shales of the Niagara formation, but the latter formations contribute very little to the agricultural area of the county. In the immediate valley of the Cumberland River the Lebanon limestones, lying below the Nashville, are reached and are presented in the bluffs and on the hill-sides facing the river.

*Districts, Soils, Crops and Timber.* For a minute description of these, as well as for many other matters pertaining to the county, we can do no better than to insert at length the following letter from J. A. Nimmo, Esq., who is intimately acquainted with every farm in the county, and whose information may be relied upon as being entirely correct. Says Mr. Nimmo :

The county is divided into twenty-five civil districts (to go into effect as the periods for which the magistrates are elected under the old division expire).

*District No. 1.* The north-east corner of the county is traversed by Garrett's Creek and Little Trammel Creek, branches of Big Trammel, a tributary of Barren River, Kentucky. The valleys of these creeks are narrow and rocky, but generally productive. The rocks are flinty and contain many organic remains. A quality of coarse, hard limestone, good fire-rock, is found toward the Kentucky line. The north hill-sides are generally "poplar lands," and produce corn, wheat and tobacco. The south hill-sides are "white oak" lands, and are less productive. The tops of the hills, or Table Lands, are capped with a siliceous rock, and upon them grow much valuable chestnut and tan-bark (chestnut oak) timber. There are two steam saw-mills and one water-power saw-mill in this district; also, one good flouring-mill attached to one of the steam mills. The lumber is sold principally to the farmers on Bledsoe's Creek and in Gallatin. There are several good schools in the district, well attended. The religious denomina-

tions are represented by three churches—two Methodist and one "Union" church. There is also a Masonic Hall and Lodge, and one Good Templars' Lodge. The Scottsville Turnpike divides the district nearly equally, and the Cumberland and Ohio Railroad, in course of construction, runs near the pike through the district. Apples, peaches, pears, cherries and plums grow well, and produce abundantly where cultivated, and wild grapes of two varieties grow spontaneously in the woods everywhere. This district contains about twenty-one square miles, not over twenty per cent. in actual cultivation, and the remainder has an abundance of the most valuable white oak, black oak and poplar timber. The white oak is in greatest quantity, and when the railroad is completed, wagon timber and barrel timber can be shipped extensively. The farmers here are hard-working, economical citizens, and the ladies manufacture nearly all the goods used for everyday wear from the wool of sheep raised here. Sheep do well in the woods, and are less troubled with dogs than in the more thickly settled districts. In cultivating the new grounds the farmers use a "jumping coulter," and afterwards "bull-tongues" and "shovels." When the ground is clear of stumps, they use east turning plows for breaking. Herds-grass, orchard-grass and clover grow almost anywhere here, herds-grass taking hold even on the chestnut ridges. Tobacco is the best paying crop raised in this district, as it grows of a finer quality than it does south of the ridge. Cotton is only raised by a few for domestic use. There is but little hired labor, except at saw-mills, where wages range from fifteen to twenty-five dollars per month, with board. Horses and oxen are generally used for plowing and draft purposes. A few mules, however, are raised and sold. There is but one family of negroes located in the district (railroad employes excepted), and they own land and are making an independent living. Lands sell here at from two to six dollars, unimproved, and from five to fifteen dollars for improved lands. Several farms could be bought, and much of the unimproved lands are in market. The greatest drawback to farming in this district is the labor necessary to clear the heavy timber from the soil, which will be obviated to some extent by the railroad, which will furnish a market for the timber.

*District No. 2* is traversed by "East Fork" and "Middle Fork" of Drake's Creek, and is in general features similar to No. 1. It has free schools, three churches, and one water-power grist-mill.

*District No. 3* has more level land and is more thickly inhabited. The limestone rock crops out toward the Kentucky line, and the price

of land, improved, varies from ten to thirty dollars. Corn, tobacco and wheat are the principal productions, and blue-grass grows well in some spots. There are three churches and three or four schools, with good attendance.

*District No. 4* is bounded west by Robertson county, and is traversed by Drake's Creek (there are two Drake's creeks in the county), which rises at the south tunnel on the Louisville and Nashville Railroad, and runs northward to the Kentucky line. It is a tributary of Barren River. The creek bottoms of this district are rich alluvial lands, and productive, the uplands generally lying well. East of the creek black oak is the predominating timber, with limestone cropping out. This land produces fine wheat, corn and tobacco. West of the creek are black-jack lands, much of which have good red clay subsoil, and are fine wheat and tobacco lands. Mitchellville Station and Richland Station, on the Louisville and Nashville Railroad, which runs through the district, are flourishing villages, the former being the largest tobacco market in the county, shipping for the year ending June 30, 1873, 331 hogsheads. There are several good schools and churches, the latter being Cumberland Presbyterian, Methodist and Christian. Several families of negroes live in this district, and have a school and church of their own. Many of them own lands. The lands of this district rate at from ten to forty dollars per acre, according to improvement, locality, etc.

*District No. 5*, south of No. 4, and joining Robertson county, is similar in many respects to No. 4, but is watered by the head branches of Red River, a tributary of the Cumberland. Much fine wheat and tobacco are raised, though in both Districts Nos. 4 and 5 there are several tracts of land considered exhausted, which can be recuperated by skillful farming, as is being demonstrated by several families of Pennsylvanians and some of our native farmers, who are making fine crops from land considered worn out.

*District No. 6* contains Fountain Head Station, a village with several business houses, and a considerable shipping point for tobacco. Much railroad timber, cross-ties and heavy bridge timber, etc., are shipped from this point. The general features are similar to the last mentioned district, and the waters of both Red River and Drake's Creek run through portions of it. Lands range from five to thirty-five dollars per acre. It is comparatively thickly settled. In this district are a Masonic Lodge, an Odd Fellows' Lodge, and Methodist and Baptist churches.

*District No. 7*, east of No. 6, is a small district, has two churches and two school-houses. The lands are a little more elevated, finely watered, and timbered with white oak, but are cheaper. For fruits the lands are excellent.

*District No. 8* is similar to No. 7; has the waters of "Caney Fork" of Drake's Creek running through it. There is a good sulphur spring in this district, and some of the finest orchards in the county. Fruit trees are raised to some extent, and are sold principally in this and adjoining counties. There are good schools, with large attendance, and several churches, the Baptists predominating. The chestnut lands here are better than the average chestnut lands, and produce, under the careful cultivation given them, fine wheat, corn and tobacco. Herd-grass grows abundantly. Several good farms are situated on the chestnut lands. Lands unimproved are valued from two to six dollars, and improved from five to twenty.

*District No. 9* embraces lands on both sides of the Ridge, and is rather broken. The northern portion, however, lies better, and has much valuable white oak timber and chestnut. Coatstown is in this district, and the Scottsville pike and Fort Blount road give good outlets for produce. The "Rock House," an old tavern stand, is on the south side of the district. Some good schools and churches are on both sides of the Ridge. Bledsoe's Creek heads in this district. There are two tan-yards in it, where some good leather is manufactured. There is a quality of marble found near the Rock House, which is susceptible of fine polish, and will, when the Cumberland and Ohio Railroad is completed, be easy of access for transportation, and will probably be in demand for building purposes. A cave occurs near the Rock House of considerable extent, containing some of the usual stactite formations, and is said to have furnished material for making saltpetre for the pioneers of the country. The hill-sides south of the Ridge are generally covered with briers and undergrowth. Blue-grass will grow on any of these hills with proper attention.

*Districts Nos. 10 and 11*, embracing a portion of the Bledsoe's Creek valley, including Bethpage, have some of the best lands in the county, producing heavy yields of corn, hay, etc., and the hill lands for the most part are blue-grass lands. The valley lands are all in cultivation, and prices of best lands would probably run up to forty and fifty dollars. The hills are cheaper, but much of the hill lands are owned by the farmers in the valley, and are valued for the timber. Rogue's

Fork and Brushy Fork of Bledsoe's Creek empty into the main stream in the tenth district. There are good schools and competent teachers, and there are churches of various denominations.

*Districts Nos. 12 and 13* embrace land on both sides of the Ridge, and are similar in contour to No. 8. The Louisville and Nashville Railroad runs through No. 12, passing through a tunnel cut through the Ridge. Timber is the chief article of trade on the line of the railroad, though there are several energetic farmers around the tunnel on the north side. The valleys on the south side are narrow, but there are some very good farms in these districts, and prices range from twenty to forty dollars for some of them; others sell cheaper. The timber south of the Ridge in these districts is being hauled to Gallatin for fuel, and used for rails, boards, etc. Churches and schools are convenient.

*District No. 14* adjoins Robertson county, and is wholly north of the Ridge. There is some good poplar land in it, and the farmers raise the usual products in the ordinary quantity and quality. Lands range from three to twelve dollars per acre. The general character of the people in all the districts named is similar. The men do their own work, and the women attend to their household duties generally without help, many of them making their coarser cloths at home by hand, and in some cases there are strong prejudices existing between this class of people and other classes who dress better and work less.

The remaining eleven districts lie south of the Ridge, the spurs from which project into some of them. The valley lands were originally of the very best alluvial soils, and are still very productive. The lands south of the Ridge may be classed in three qualities: bottom lands, creek and river; second bottoms or higher lands, generally with chocolate-colored sub-soil, and mulatto lands, the latter generally having limestone rock cropping out, and are seriously affected by drought. Corn, cotton, wheat and hay are the general products, the cotton being principally raised in the south-western portion of the county. Broom-corn is cultivated successfully by several men, who claim that it is a paying crop. Irish and sweet potatoes are raised in abundance for home consumption, and many men raise them for exportation. The prices of lands vary from twenty to sixty dollars per acre, according to locality, improvements, etc. The condition of farms at present contrasts badly with what they were before the war, especially in point of good fences and improvements, many of the best farms

having been entirely stripped of fences during the war. There is probably fifteen per cent. of waste land south of the Ridge (lands that have been cleared and exhausted), much of which can be recuperated by judicious management. Its exhaustion is owing generally to bad cultivation, gullies being allowed to wash, the result of shallow plowing. The want of rotation of crops is another cause of this exhaustion. Farms range in size from one hundred to five or six hundred acres. Raising stock is more profitable south of the Ridge, but north of the Ridge, tobacco is the best paying crop, after raising family supplies.

Timothy is regarded as the best grass for hay, and blue-grass for grazing. Orchard-grass and herds-grass both grow well, and some farmers think that orchard-grass on the chocolate-colored or mulatto soils will stand more grazing than either of the others. Hungarian grass and German millet are both raised for hay, and there are different opinions as to which is the better. Both are good. Clover is universally acknowledged to be the best renovator, but many act injudiciously in grazing too closely to get its full benefits as a fertilizer. Turning plows, steel and cast, are used for breaking up, one-horse turning plows and double shovels and riding plows are all used south of the Ridge for cultivating.

Labor is not abundant—that is, reliable labor. There are many negroes who lounge around for job work at extra prices, who will not undertake to make regular crop hands. Hands hired by the year generally get from \$10 to \$12 per month and board, equivalent to from \$15 to \$17 per month. Renters pay one-third of the crop sometimes, but more generally give about ten bushels of sound corn per acre. When the land-holder furnishes teams and tools he gets two-thirds.

The produce of the county goes to Louisville and Nashville over the Louisville and Nashville Railroad, or is shipped to Nashville by the Cumberland River. When the Cumberland and Ohio Railroad is completed, the Cincinnati market will be open to the farmer.

Blood horses are numerous. Short-horn, Devon and Jersey cattle, and Berkshire hogs are raised extensively in the southern part of the county. There are some other varieties of hogs, but none better than the Berkshire. There are also Merino, Southdown and Cotswold sheep, and many of the farmers are doing well by raising improved breeds of different animals. Sheep are much annoyed by dogs, and at least fifteen per cent. of them are killed every year in that way.

*Manufactories.* There is one woolen factory at Gallatin, one agricultural implement factory, and a large cotton factory in course of construction. There is another woolen factory six miles north-east of Gallatin. Two carriage and buggy factories, and probably a dozen manufacturers of wagons, are in the county. There is no domestic manufacture south of the Ridge, but a considerable amount north. The manufacturers probably make a greater per cent. on investment than farmers. The exact per cent. a farmer makes is hard to ascertain, from the want of system. Want of reliable labor and aversion upon the part of the young men to study the science of agriculture are the greatest drawbacks to farming. Most families make enough butter for family use, and many persons dry fruit. Bee culture has not attracted much attention south of the Ridge. Several parties living north of the Ridge are engaged in it, with reasonable success. Fruit trees in the Basin are generally short lived, except upon gravelly soil, on which there are apple trees two feet in diameter. Grapes are raised by many for family use, but none for market. There is but one nursery of any consequence in the county. Rabbits are very destructive to young trees in winter, unless protected.

Timber is abundant, the most valuable varieties being white oak, chestnut and poplar. There is some good black walnut in places, and valuable hickory for buggy timber, but no shipments of either have been made. Sugar-tree, beech and black locust abound. It is thought machinery for getting out hubs and spokes, and wagon timbers generally, also barrel staves and hoop poles, would pay in localities on the Cumberland and Ohio Railroad. Sweet gum and maple are plentiful in some places on the Ridge, both of which are valuable timbers for certain styles of furniture.

Immigrants of good character are always well received by the citizens, and all working classes are desired. Good mechanics get good wages. Journeymen carpenters receive from \$2 to \$4 per day, and brick masons about the same. Farm labor is cheaper. There is some disposition on the part of large land-holders to sell their farms and invest in something else. They cannot control labor under the present condition of things. Other parties have sold on account of indebtedness, and a few others desire to sell to invest in lands in new States or Territories, where land is cheaper. Farmers accustomed to attend personally to their farms before the war, are generally better contented than those who depended entirely upon slave labor.



There are many Granges organized in the county, and much interest is being manifested by the farmers, who look to the gathering of statistics, and other information obtained through this organization, as of vital importance. There is an agricultural and mechanical association, which has been well attended since the war, and much interest is taken in their annual meetings.

The county debt is as follows: \$15,000 in bonds for the Louisville and Nashville Railroad, with sufficient assets to pay them off; about \$30,000 for building jail and establishing poor-house, due in 1877. There is a sinking fund tax of ten cents on the \$100, besides a levied tax of about \$10,000 for county purposes, which will more than meet contingent expenses. The surplus will be applied to the payment of the bonds as required. The poor-house property is a farm worth \$10,000. Not more than thirty paupers are on the county.

There are three academies in the county, besides the high school at Gallatin, which has over 250 students. One of these is at Hendersonville, one at Gallatin, and one at Pleasant Grove, in the first district. There is a library belonging to the members of the Gallatin bar, left them by one of their revered predecessors, John J. White. Each high school has a library.

There are many good mills in the county. There is no section of the county that is not moderately convenient to good mills. There are nine turnpikes converging into Gallatin, but the dirt roads are not generally kept in good condition. The county bridges are of stone, and are built in the most substantial manner.

*Towns.* Gallatin is situated three miles north of the Cumberland River, on the Louisville and Nashville Railroad, about the longitudinal center of the county. It occupies the center of an elliptical basin, and has a rich country surrounding it. Its population is about 3,000. Prior to the war, Gallatin improved slowly, but since that period its growth has been rapid. More houses have been erected during the past five years than in the thirty years previous. The people are distinguished for their hospitality and refinement. Singularly free from a clannish disposition, they look more to the sterling qualities of individuals than to any accident of birth. For forty years the people of Sumner county have been noted for their love of fine stock. Some of the horses raised in this county have borne away prizes in trials on the turf with the most celebrated in the land. It was the horses of Sumner county that General Jackson in his sporting days feared most.

The records of the turf for forty years are filled with the performances of Sumner county horses. At one period three race-courses were kept up within the county. At these races men from every portion of the United States would assemble, and the associations thus brought about have served to liberalize the minds of the people. The fair grounds are elegant and the fairs well attended. Gallatin has a number of excellent business houses. The dry goods trade is carried on in ten houses. There are also three drug stores, ten family groceries, and thirteen drinking saloons. The place supports two newspapers, the *Examiner* and *Tennessean*, both fearless and independent journals, working with might and main to advance the interests of the county. The manufacturing interests are considerable. There are two flouring-mills, one planing-mill, a carriage factory, a hub and spoke factory, one foundry, a woolen factory, where linseys, jeans and other goods of domestic wear are manufactured. But the greatest enterprise is the magnificent cotton factory. For years an establishment for the manufacture of cotton goods has been in operation, giving employment to a large class of persons. It was erected in 1850, and destroyed by fire during the year 1873, but upon its ruins is being erected one of more magnificent proportions. The establishment will have 4,096 spindles, and 80 looms. There are five churches in Gallatin, viz.: Methodist, Baptist, Catholic, Christian and Presbyterian, besides one Methodist and one Baptist belonging to the colored people. The latter have also two schools which are well attended. A large hotel has recently been erected. The court-house is one of the most convenient in the State. Saundersville, eight miles from Gallatin on the Nashville turnpike, is a flourishing village. Hendersonville, two miles southwest of Saundersville, is also a thriving village, with railroad depot. Cairo, a very old town, five miles south-east of Gallatin, on the Cumberland River, was once the center of a large trade, and was a great shipping point, but is not much used now, and is considerably dilapidated. Castalian Springs, also called Bledsoe's Lick, is a flourishing village, in a beautiful and fertile section of country, has several stores and other business houses. It is noted for the mineral water, and is much resorted to by invalids and pleasure-seekers. Near it are interesting antiquities. It has a Masonic lodge. Bethpage, ten miles north-east of Gallatin, on the Scottsville pike, a noted church, with store and blacksmith shop near it, is famous as being one of the places at which the religious revivals of seventy years ago were held. Beech Camp-ground, on or near Drake's Creek, has a Presbyterian church, a Masonic

hall, and two or three business houses near it. It was also one of the points where a great revival took place in early times. Cotton Town, on one branch of Station Camp, is about seven miles north-west from Gallatin, on the Red River pike, and is in a good section of country.

*Statistics.* The following were the productions of Sumner county in 1870, according to the census report. The part of Trousdale recently cut off was included in Sumner when the census was taken :

Winter wheat.....	163,074 bushels.
Spring wheat.....	40 "
Rye .....	7,222 "
Indian corn.....	1,155,914 "
Oats.....	233,837 "
Barley.....	40,047 "
Tobacco.....	909,568 pounds.
Wool.....	38,860 "
Cotton.....	170 bales.
Irish Potatoes.....	35,253 bushels.
Sweet Potatoes.....	25,074 "
Wine.....	363 gallons.
Butter.....	224,295 pounds.
Cheese.....	715 "
Hay.....	4,921 tons.
Sorghum molasses.....	38,563 gallons.
Wax.....	920 pounds.
Honey.....	1,5668 "
Hemp.....	150 tons.
Flax.....	75 pounds.

Sumner was the second county in the production of oats, Knox being the first, producing 259,047 bushels. This county was second also in Irish potatoes, the first being Davidson, which yielded 66,243 bushels. The population of the county in 1870 was 23,711, of which 7,777 were colored. Number of voters in 1871, 4,013, of whom 1,033 were colored. The number of acres of land assessed in 1873 was 308,399, valued at \$3,697,504; total value of taxable property, \$5,185,727.

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## TROUSDALE COUNTY.

COUNTY SEAT—HARTSVILLE.

This county was organized in 1870, under a special provision of the new Constitution, from fractions of Sumner, Macon, Smith and Wilson counties, and named in honor of the late Governor Trousdale. In

territorial extent, it is by far the smallest county in Middle Tennessee, containing only about 110 square miles. The assessed number of acres, exclusive of town lots, is 66,874, valued at \$888,119, or \$13.28 per acre. Compared with the adjoining county of Wilson, it contains less than one-fifth the area. It has a voting population of 1,351, of which 346 are colored. The population, estimated from the number of voters, is about 6,700, of which 2,000 are colored. The entire assessed value of property is \$1,152,904, from which it will appear that in proportion to extent of territory it is one of the wealthiest counties in the State.

*Topography and Geology.* This county, with the exception of its south-eastern corner, lies, in the main, between the Highlands, (so widespread in Macon and in the northern part of Sumner,) and the Cumberland River. It is thus within the Central Basin, a fact accounting for its fertile character. The part excepted lies south of the river. The area of the county, outside of the lower lands and bottoms of the Cumberland, is made up of valleys separated by ridges; whose slopes, like the valleys, are rich and productive. The ridges are the southerly prolongations of the spurs of the Highlands, which become broken and generally lower as they approach the Cumberland. The Nashville group of limestones is the prevailing formation, though near the river the country is cut down to the Lebanon rocks. The ridges, especially in the more northern portion, are often capped with the siliceous rocks of the Highlands. Immediately below these the Black Shale is always met with cropping out on the hill-sides. A short distance from Hartsville, near the top of a ridge, is a bed of mill-stone grit, which has supplied Middle Tennessee with many pairs of stones. The bed is six or eight feet thick in its heaviest part. The rock is the top layer of the Nashville group and is principally a mass of silicified shells, mixed with more or less limestone matter. The best portions are those from which the calcareous part has been leached.

*Soils and Timber.* The soils of the county are such as pertain universally to the rocks underlying them. They are mellow and therefore easily worked, producing in good seasons, corn, wheat, tobacco and the other crops of this latitude in luxuriance. A large proportion of the timbered lands has been cleared of the underbrush and sowed to blue-grass freely, and supplies good pasturage through many months in the year. It is among the best blue-grass counties of Middle Tennessee and promises to become pre-eminently a stock-growing county. The timber consists of poplar, white oak, walnut, sugar-tree,

and indeed, almost all the varieties found growing in the Central Basin, but it is by no means abundant, many of the farmers drawing their supplies from the surrounding counties.

*Farms, Crops, Labor, &c.* The farms are usually small and in a high state of cultivation. The very best implements are employed in the cultivation of crops, and many of the farms are highly improved. The price of improved farms varies from twenty-five to sixty dollars, and the same phenomenon is here presented as in Cannon county, of lands keeping fully up to former prices, though the means of transportation are wanting in a great measure. The Cumberland River, which is navigable only about six months in the year, being the only outlet other than turapike roads for the produce of the county. The staple crops are corn, wheat, tobacco and hay. The latter is mostly made of the annual grasses, such as Hungarian-grass and German millet. The average yield of tobacco, on the best soils, is near a 1,000 pounds per acre; of corn, forty bushels; of wheat, fifteen bushels. The crops are greatly injured by droughts, much more so than in some of the adjoining counties. The land, by reason of its steepness, is often furrowed by gullies, and it is estimated that fifteen per cent. of the arable land has been permanently ruined by improper culture. The size of farms varies from 100 to 500 or 600 acres. Stock-raising is very profitable, but tobacco brings the largest amount of money into the county. It is indeed the money crop. Clover is used both as a renovator and for the hay, which is saved for winter use. Several varieties of plows are used, steel and cast turning plows for breaking, and one-horse turning plows, bull-tongues, shovels, harrows and double-shovels for cultivating. Horses, mules and oxen are used on the farms, the mules probably predominating in lowlands, and oxen on steeper lands. Labor is moderately plentiful, but the negro here as elsewhere, is not disposed to fasten himself by the year, but prefers job-work. From twelve to fifteen dollars per month is given for good hands by the year, but some work for part of the crop. No general rule has been established. Mechanics, such as blacksmiths, carpenters brick-masons, &c., get from two to five dollars per day for journeyman's work. House servants hire for from four to ten dollars per month. Land rents for one-third of the crop, or from three to five dollars per acre, owing to the crop to be raised—more being given for land to be cultivated in corn or tobacco than for small grain. Some good farms can be bought at reasonable prices, or within the limits above specified.

As has been already said, the general features of the county are greatly diversified. It is traversed by East, West and Big Goose Creeks. The bottoms on which are unsurpassed in fertility, and the intervening hills are rich for the most part to their very summits, and where too steep and rocky for cultivation, are covered with a natural growth of cane, or where the cane has been subdued, by the best blue-grass. There are good mill sites on every stream and many fine flouring mills. A small portion of the county lies south of the Cumberland. Boats run up the river to this point over half the year, and of a wet season, much longer. The portion south of the Cumberland River is less broken and contains some splendid farms. The people in this portion are all engaged in agricultural pursuits, and like their countymen across the river, are proverbial for hospitality.

*Transportation.* Produce is shipped by the Cumberland River to Nashville, Louisville and New Orleans. The Gallatin and Carthage Turnpike runs through and three other pikes converge at Hartsville. The country roads are not kept in first-rate order, as the nature of the ground is such as to cut to pieces by travel. Rock being plentiful, roads can be made very cheaply.

*Stock.* Some of the finest cattle and hogs in Middle Tennessee are raised here. Also some thorough-bred horses. Sheep are easily and cheaply raised. Dogs destroy probably twenty per cent. annually, besides deterring farmers from trying to raise more. It is hard to give the percentage realized on capital invested in farms, but as a class, the farmers are working men and live bountifully, and are not troubled much by hard times. The greatest drawback to farming is the large size of the farms and want of transportation. In some of the rich cane-brake hills milk-sick, or milk sickness prevails, often proving fatal to cattle, and sometimes to persons using the milk of cows affected with it. The origin or cause of this malady is wrapt in mystery. Various theories have been formed in relation to it, but none satisfactory. It ceases whenever the land is cleared and cultivated. It never occurs except in the fall.

*Smaller Industries.* Much attention is paid to the drying of fruit, and almost every family puts up canned fruit. There are no nurseries, but fruit trees do moderately well, the higher lands being better adapted to fruits. The trees, however, are not generally long-lived, particularly peach trees. Bees are very healthy, and some persons are engaging extensively in the making of honey, though but a very small quantity is exported.

*Towns.* The principal town is Hartsville, the county seat, situated on the west prong of Goose Creek, about one mile from its junction with the Cumberland River. The town contains five stores, four family groceries, two drug stores, four practicing physicians and five or six lawyers. Population 700. Much tobacco is prized and shipped from Hartsville every year. One newspaper, the Hartsville Sentinel, is published at this place, and has a good circulation among the thrifty farmers. There are two academies or high schools in the place, male and female. The latter is under the direction of the Masonic fraternity. Efforts are being made to build up manufactories in the town, which would give it an activity heretofore unknown. The social condition of the place is good, and its healthfulness undoubted. This town was established in 1817, and in 1834 had as many business houses as at present. It is eighteen miles from Gallatin, the nearest point to a railroad. Dixon Springs, on the Cumberland River, thirteen miles from Lebanon, the county seat of Wilson, is a place with eight or ten business houses. It was originally in Smith county. Enon College is a post village, eleven miles from Gallatin. It has two stores, a wagon-maker's and blacksmith shop. There are many interesting features about Trousdale county, but as in its agriculture and general appearance it so much resembles Lincoln, a description of the one may well apply to the description of the other, by substituting tobacco, which is raised in Trousdale, for cotton, which is the staple crop of Lincoln. Schools and churches are numerous in every part of the county. Immigrants of a good class would be heartily received.

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## VAN BUREN COUNTY.

### COUNTY SEAT—SPENCER.

Van Buren county was organized by act of the General Assembly, and the first court was held at Spencer, April 6, 1840. The territory now comprising the county, originally formed parts of the counties of White, Warren and Bledsoe, about equal parts in value and area having been taken from the two former. Nine civil districts was the original number, but since the war the number has been reduced to eight.

*Topography.* The county, lying partly on the Cumberland Table Land, and partly on the mountain slopes and in the valleys, presents great diversity in surface, soil and productions. The Table Land part embraces the south-eastern half of the county. The surface is generally level or gently undulating, except where the larger streams have cut deep gorges, or "gulfs," as they are locally called. These gulfs are generally narrow, rugged, and hemmed in on both sides by lofty cliffs of sandstone or conglomerate. The plateau on top of the mountain, has an elevation of about nine hundred to twelve hundred feet above the lower hills and valleys in the northern and western parts of the county. The slopes on the sides of the Table Land, and its spurs and outlying ridges, are an important feature, and occupy a considerable part of the area of the county. The escarpment is generally marked by perpendicular and sometimes overhanging cliffs, from the salient angles of which extensive views may be seen stretching far to the north and west. From the base of this line of bluffs, a steep declivity sets in, rugged with large masses of sandstone and conglomerate fallen from the cliffs above, and cut in places by deep ravines. These higher slopes usually terminate in a terrace varying in breadth from half a mile to a few yards, and sometimes disappearing altogether. This terrace is usually at about half the height of the mountain. At the outer margin of the terrace, the lower slopes commence and extend to the base of the mountain. In places where there is no terrace, the upper and lower slopes are continuous. The surface in this part is generally more broken with ravines, but not so rocky as above. Sinkholes and caves are numerous here, and most of the small streams loose themselves in the labyrinth of underground channels with which the mountain limestone is honey-combed. The base of the mountain is not well defined. Spurs of greater or less magnitude extend outward at irregular distances apart, sometimes enclosing valleys or coves of considerable size, in some of which the best lands in the county are found. Beyond the range of these spurs are the red clay lands, extending north to the Caney Fork and west to Rocky River. The surface is generally broken or undulating. All of the streams, except the larger creeks, are underground. Bordering Caney Fork and Rocky River, which form the boundary of the county on the north and on the west, are bold bluffs of limestone extending down to the water's edge. It is worthy of remark that there are no bottom lands in the county, except in the coves.

*Soils.* There is so much diversity in the soils in different parts of county that we must treat of them under three heads:



1. The Table Land, or as it is commonly called, "the top of the mountain." We cannot undertake the defense of the agricultural capabilities of these lands, for they are and must always remain poor. In most places there is little or no humus, and the porous yellow subsoil is so hungry that no quantity of fertilizers will fill its insatiate maw. To such an extent is it leachy that the effects of manure can scarcely be seen after the second, or at farthest, the third year, and grain-growing can never be made profitable. But for pasturage and meadows, they are scarcely surpassed. There is a coarse nutritious grass, well known in this part of the State as "mountain grass," which is indigenous to the soil, and affords rich and abundant pasturage to hundreds of cattle, sheep, and other animals. In many places are tracts similar to the "oak openings" of the west, where the trees stand wide apart, or in graceful groups with broad vistas opening up on every hand, some of which extend far into the distance, while others are terminated suddenly by the tangled undergrowth which borders the banks of mountain streams. Here and there little sunny glades or miniature prairies, appear in the distance like cultivated fields. The level lands along the streams are naturally sour, but can be easily reclaimed by drainage and the liberal use of alkalis, and rendered very valuable for the production of the cultivated grasses. We believe the yield of herds-grass and timothy produced on these lands is equal to that grown in any other part of the State. All garden vegetables, particularly roots, can be grown successfully on land that has been "cow-penned" or otherwise manured. The quality of roots grown in sandy soils is well known to be superior to that of the same varieties produced in clay lands, and the mealiness and fine flavor of the mountain potatoes is becoming extensively known. All manner of fruits common to this latitude can be produced in perfection. It is a conceded fact that fruits grow on a sandy soil possess more saccharine matter than the same varieties on alluvial or clay soils. The purity and dryness of the atmosphere on this elevated plain has a highly beneficial influence on the keeping qualities of apples and pears. Owing to the same cause, fruit crops are seldom, and in some localities, never killed by late frosts in spring. The mountain slopes are generally too rugged for cultivation, and perhaps four-fifths of this part of the county can never be made available for anything within the range of agriculture. Their chief value consists in the heavy forests of timber which they bear. In some places on the terrace, there is a sufficient extent of level land to furnish sites for small farms. Orchards do even better

here than on the Table Land, and in many places there has never been a total failure of the fruit crop. The mountain limestone, which crops out above the terraces, is a continued source of fertility to these lands, which, from their exposed situation, would otherwise become barren. The soil is a mellow loam, so tender that where there is much slope it washes away. It is naturally rich, producing good crops of corn, wheat, and other cereals. The coves have the richest soils of all the lands in the county. It is generally alluvial, very rich in humus, and sufficiently sandy to render its cultivation easy and pleasant. There are appearances which indicate that at a remote period some of these coves were the beds of small lakes. In some of them the soil overlying the clay subsoil is ten feet deep. Very heavy crops of the cereals are taken from them year after year without any diminution of their productive powers. In the valleys of the Caney Fork and Rocky River the soil is a dark rich loam, resting on a subsoil of strong clay, and with good tillage it is inexhaustable. This red land is of the same quality as that found in other counties in this part of the State and in Robertson and Montgomery and other counties west of Nashville. In places, especially on the hill-sides, there are scattered loosely over the surface masses of ferruginous chert, which, by its gradual disintegration, continually adds fertility to the soil. Some fields where these stones abound have been cultivated for half a century or more, without any apparent loss of productiveness.

*Valleys.* From the base of the mountain above Cane Creek to Rock Island is about ten miles in a direct line, and from the base of the mountain to the Caney Fork River, the average distance is about two miles. This may be described as a part of the valley of the Caney Fork. The surface is generally undulating, and the soil a good loam on a clay subsoil. Some of the best farms in the county are in this valley. The valley of Rocky River extends upward in a southerly direction from Rock Island for a distance of about fifteen miles. It is narrow at the upper end, but lower down the average distance from the base of the mountain to the river is about four miles. The part of the valley west of the river is in Warren county. In all of its features it resembles the valley of Caney Fork, but it extends from south to north instead of from east to west. The gulf of Cane Creek extends from south to north, in the eastern part of the county, forming a valley of eleven miles in length, with an average breadth of about one mile. The surface is generally level, and the soil a sandy loam, which produces well. But Laurel Cove, embraced by projecting spurs on the

western side of the mountain, is the finest body of land in the county. It contains, besides some timber, about six hundred acres in cultivation, nearly all of which is as level as a floor. There are several smaller coves, all of which contain good lands.

*Productions.* The field crops at present cultivated, in the order of their importance, are corn, wheat, rye, oats, sorghum, cotton, tobacco, potatoes and turnips. Cabbages, beets, sweet potatoes, parsnips, tomatoes, squashes, melons, etc., are cultivated in gardens. Fruit culture is one of the leading industries; apples, peaches, pears, cherries, plums, grapes and small fruits are all easily grown and very productive. It is estimated that 50,000 bushels of apples are sometimes produced in a single year, and the quantity would be greatly increased with better facilities for transportation. Herds-grass, clover, timothy and several varieties of millet are cultivated for mowing, and to some extent for pasture. Orchard-grass, which has been more recently introduced, is growing quite popular for pasture. Clover and the weeds that grow spontaneously are used for green manures. Farmers now seem inclined to increase the acreage of wheat at the expense of the corn crop. The Walker wheat has been for a number of years the most popular variety. Some prefer the Mediterranean, or some of the white varieties.

*The Smaller Industries,* such as drying fruit, making butter and cheese and rearing poultry receive considerable attention. Bee-keeping is made a specialty by some of the farmers, and a hundred or more colonies are sometimes owned by a single proprietor. The Table Land is covered by forests of chestnut trees, the fruit of which is gathered for exportation, and is quite a valuable article of trade. Ginseng abounds on the mountain slopes, and some persons find profitable employment in digging and marketing the roots. An industrious boy, armed with a "sang hoe," can easily make a dollar a day. Maple sugar is another article of home production which deserves especial mention.

*The Present Condition of the Farming Interests.* The county has an area of about 211 square miles, with a population, in 1870, of 2,725, being an average of nearly thirteen to each square mile. One-half of the area may still be regarded as waste land. The total value of taxable property, as assessed for the past year, is \$259,493. The size of farms varies from 50 to 600 acres, but small farms are more common than large. As a general thing, the farmers and their boys do the outdoor work, while house-work is left to the female members of the fam-

ily. A very small proportion of the cultivated lands are let, one-third of the crop to the land-owners being the general rule. Money rents are almost unknown, but in a few instances five dollars per acre have been paid for the best lands. Hired labor is employed to a limited extent by the larger farmers. The wages range generally from ten to fifteen dollars per month, though a No. 1 hand sometimes commands more. There are but few negroes in the county. Native white laborers are sufficiently numerous to supply the existing demand. The present condition of the farms is scarcely up to the standard of order and good management in the ante-bellum days. During the war fences were burned, live stock destroyed and farm buildings left to take care of themselves. But much has already been done to regain what was lost, and we look for greater improvements in the future. The limited means of the farmers is a great obstacle in the way of the progress of agriculture, but we are glad to see a desire manifested to take advantage of improved machinery. Two-horse turning plows are in common use for breaking land. A few three or four-horse plows have been recently introduced. We are not aware that subsoiling is ever practiced. The old-fashioned narrow shovel, or bull-tongue, is in common use for plowing small grain and cultivating corn and other crops. One or two of the best farmers have commenced the use of double-shovels, and they are likely to become popular. Horses are more popular for farm work than mules. Oxen are sometimes used for breaking land.

*What is Most Profitable.* Fruit-growing, we believe, would take the lead of all branches of agricultural industry, if the facilities for transportation were better. All varieties common to this latitude grow in perfection on the Table Land, the mountain sides and in the valleys, and the day will come when the songs of the vintage will wake the sleeping echoes in the sequestered glens where the wild deer now finds a safe retreat. It is not uncommon for apples to sell at ten cents per bushel. Tobacco is receiving increased attention of late years, and is found to yield a better return for labor than grain crops. But the heavy taxes and oppressive restrictions imposed by the Government upon this staple operate injuriously upon its producers. Under existing circumstances, the rearing of live stock is almost the only reliance for bringing money into the county. Besides the cultivated grasses already spoken of, the natural meadows of the Table Land afford rich and abundant pasturage, over which large herds of native cattle roam at will, and find a bountiful living for at least half the

year. There are in places on the mountain sides extensive tracts of wild land, too rugged for tillage, but which are covered in spring by a luxuriant growth of wild pea vine and "lamb's tongue," which are eagerly sought after by both cattle and sheep, and in the fall the herds grow fat on a weed called "beggar lice." Sheep would be even more profitable than cattle, if they were afforded the protection of the law; but as it is, few are willing to invest money in them. We think it safe to estimate that the annual destruction amounts to one-half the number produced. A wholesome dog law is the only remedy. Very little improved stock of any kind has been introduced. A few of the cattle have an infusion of short-horn blood, but it has been accidental rather than from any systematic effort to improve them. There are some very good Berkshire hogs, but they have as yet made but little impression on the common stock. It would undoubtedly be more profitable to rear the improved breeds, and for this purpose we would recommend Devon or Ayrshire cattle, Southdown sheep, and Berkshire hogs. In some localities where the pastures are most luxuriant, Short-horns would, perhaps, prove most satisfactory.

In response to the question, are the farmers contented? we would say that, as compared with those elsewhere, they are. They feel, however, that the burden of taxation is not impartially distributed, and that they are made to bear too large a share of the expenses. They act wisely, however, in choosing rather to bear the ills they have than fly to others that they know not of. There is but little emigration.

*Farmers' Organizations.* There has never been a fair held in the county, and until recently no organization of any kind. A number of enterprising farmers from the North, who have immigrated to the eastern part of the county, with the assistance of others in Bledsoe county, have organized a farmer's club, which meets monthly, and is in good working order. Several Granges have been organized.

*Schools.* Burrirt College, a chartered institution, located at Spencer, has been open, except during the war, for about twenty years. There are four large brick buildings, erected at a cost of about \$10,000, and commodious enough to accommodate 250 students. There is also at Spencer a county academy, which is usually well attended. Good private schools have been sustained in almost every neighborhood, and the people will not suffer by comparison with those in other parts of the State. Under the new school law, there are fifteen public schools. The entire scholastic population, including all between the ages of six

and eighteen years, is 904. About eighty per cent. of these are enrolled, and the average attendance is about one-half the enrollment.

*Immigrants.* As already stated, there has already been considerable immigration from the North since the war. Among these are some of the most enterprising and valuable citizens. Those with whom we have conversed, express themselves as highly gratified with the reception that has been extended to them. Lands are cheap, and all who are willing to work will meet with a cordial welcome. Good improved lands in the valleys can be bought at fair prices, ranging generally from \$5 to \$20 per acre, though some of the cove lands have recently sold as high as \$50 per acre. Unimproved valley lands range from \$5 to \$10 per acre. Improved mountain farms can be bought at from \$1 to \$10 per acre. Unimproved lands sometimes sell as low as ten cents per acre, never above \$1.

*Minerals.* All of the Table Land part of the county belongs to the great Cumberland Coal field, and there are outcrops varying in thickness from a few inches up to several feet everywhere below the escarpment. In some places, however, they are covered by debris. The most valuable bank that has yet been opened is on the lands of Herman Walling, eleven miles south of Spencer. The thickness of the coal is not known, but it has been worked to a depth of more than three feet. It is very near the surface, and wagons can be loaded from the place where it is dug. At the head of Camp's Cove, eight miles east of Spencer, is a bank that is known to be more than five feet thick. Mooneyham's bank is in the same neighborhood, but more conveniently situated. It is three and a half feet at the outcrop. At Denney's Mill is a bank four feet thick. The same stratum has been worked at another place three miles south-east of Spencer. Coal has been worked to a limited extent in many other places. Iron was manufactured before the war at a bloomery on Rocky River, two miles above Rock Island, but most of the ore was obtained from White county. Good ores of the brown hematite are found all along the northern border of the county, and we have observed one place in particular, on the farm of George Plumlee, five miles north of Spencer, where it exists in great abundance. Several wagon loads were taken from this place to the Rock River Forge, but the distance was so great that it was abandoned.

Some of the caves in the county are inhabited by immense numbers of bats, the excrement of which has been accumulating for ages,

and formed valuable deposits of a kind of guano, which has proved to be a valuable fertilizer, and has been exported to some extent.

During the war, large quantities of saltpetre were obtained from the caves. There are probably other valuable minerals in the county, but they have not been developed.

*Mineral Springs.* Chalybeate springs are numerous on the Table Land, and many of them are of excellent quality. There are no well improved watering places, but several of them have been resorted to by invalids from the surrounding country for a number of years. Mr. Mulloy, one mile south of Spencer, has a very fine spring, and during the summer he often has boarders. The McBride Springs, two in number, are three miles from the county seat, on the north-western brow of the mountain. The place commands an extensive view of the lower country to the north and west.

*Manufactures.* Caney Fork, bounding the county on the north, is a noble stream for manufactures, but as most of the sites for machinery are on the north bank, it will be described in connection with White county. Rocky River, separated from Warren county on the west, rises on the Table Land, about twenty miles south-west of Spencer, and flows in a general northerly direction into the Caney Fork at Rock Island. It is a bold stream, and has fall sufficient in every half mile or mile throughout its entire course to drive large machinery. It now has three or four mills. Cane Creek is a stream of considerable size, and has plenty of fall, but along the greater part of it the banks are low and the bottoms wide, so that dams cannot be constructed. There is a very fine power half a mile above its mouth. A large factory might be built where there is now only a third-rate mill. From the top of the dam to the bottom of the fall below the descent is more than fifteen feet. Laurel Creek, a tributary of Rocky River, is a short stream, but large enough to propel several good mills. On the Table Land there are several of the tributaries of Cane Creek, which in winter are strong enough to furnish good powers, but the sandy soil drinks up most or all of their water in summer.

*Timber.* The Table Land, as a general rule, is thinly wooded, but it has much valuable timber, chiefly oaks and chestnuts. The mountain sides, gulfs and ravines are very heavily timbered with chestnut, poplar, ash, maple, walnut, buckeye, cherry, linden, beech and other varieties. In the coves and valleys there are still large quantities of

very fine timber, which is almost valueless for want of transportation. There is a poplar on the farm of William Worthington, in Laurel Cove, which is more than ten feet in diameter.

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## WARREN COUNTY.

### COUNTY SEAT—McMINNVILLE.

Warren county occupies a position nearly midway between the northern and southern boundaries of the State, and lies for the most part at the western base of the Cumberland Table Land. Small portions of the county have a high elevation on the Table Land, but the most of it is from 900 to 1,000 feet above the sea, making a part of the Highlands, which lie west of the Table Land, between the latter and the Central Basin. This height is still several hundred feet above Nashville and the counties of the Basin. Warren, situated thus, enjoys the salubrity and freshness of the mountain air, with the fertility of the valleys. Ben Lomond, a prominent point within a few miles of McMinnville, is the end of one of the spurs included within the county.

*Organization and Extent.* The county of Warren was organized in the year 1807 from a portion of White. From the time of its organization until 1810 the courts were held half a mile south of Barren Fork, on the hill above the old tanyard, in a log court-house. About six or eight hundred yards from the old court-house was the celebrated Poplar Tavern, where Kentuckians and others intending to settle on Elk River, usually put up. Here they often stopped for several days, and had rare sport hunting and fishing. Among the first settlers of the county were General W. C. Smartt, Elisha Pepper, Aaron Higginbotham, Harry J. A. Hill, William Rock Martin, James Cope, James Forest, John England and Johnny Martin. All these came to the county in 1805, of whom Johnny Martin was living in 1872; and was 107 years old.

*Geology and Geological Products.* Most of the county is based on the Lithostrotion bed of the Lower Carboniferous. This is a series of impure limestones which often contain flinty masses, and occasionally a large petrified coral bearing the formidable name of Lithostrotion, whence the name of the bed. These limestones yield by disintegration a strong clayey subsoil, often containing flinty fragments, and



usually presenting a reddish color, due to the oxide of iron out of the decomposing flints. On the slopes of the Table Land, including its spurs and outliers, the upper great division of the Lower Carboniferous, the Mountain Limestone, out-crops in full force. At many points, especially on the northern slopes, it is covered with a rich soil. Capping the Table Land and its flat-topped spurs is the uppermost formation of the county, the Coal Measures—a group made up of sandstones and shales without limestone. It includes two or three thin strata of coal, but they are not of much value. In the Lithostrotion bed are a number of layers of impure limestones, which, when burned, yield an hydraulic lime or cement. A considerable amount of cement has been manufactured at McMinnville from these rocks. Quite a number of wells have been bored in Warren for petroleum, but with poor success. Some little petroleum has been met with, but none of commercial importance. Salt-water was found in many of the wells, but it has not been utilized so far as we know.

*Topography.* In speaking of the situation of the county, its topography has been referred to. Excluding the mountain portion, the county may be said to be flat highland, but sufficiently cut by streams, with tolerably deep valleys, to give contrast and variety to the surface. The eastern portion is made rough by the spurs and outliers of the Table Land, and supplies many mountain valleys, coves, and often wild picturesque gorges, precipices and water-falls. The chief of these spurs is Ben Lomand, an arm of the Table Land, embracing the valley of Collins River. It branches out from the Table Land near the southern boundary, and extends northward for about twelve miles, terminating in a bold peak, which commands one of the finest of the many extended and beautiful views that may be seen from many points on the escarpment of the Table Land. The south-eastern part of the county lies on the Cumberland plateau, and has the elevation, soil and physical features which pertain to that region. For a more detailed account of the soil of this portion, the reader is referred to description of Cumberland county.

*Streams.* The streams of Warren county are various and useful, and many of them abound in fish. Taking its rise from a large spring in Grundy county, Collins River, which may be called the main artery of the county, runs in a northerly direction, in a deeply cut valley of the Table Land, near McMinnville, the county seat, receiving just below the town the waters of Burren Fork, and finally discharges itself into Caney Fork. There are numerous mills on this stream, some of

them with excellent machinery for the manufacture of flour, and the banks are well suited for the erection of dams and mill houses. Below its junction with Barren Fork there are no mills, the volume of water being too great. Collins River is not a reliable stream. Barren Fork, in connection with Collins River, into which it empties, almost encircles McMinnville. It is a beautiful stream, and can be made a very useful one. Its average fall for the first fifteen miles, is ten feet per mile. It has good banks and a rock bottom. Rocky River rises on the Table Land, in the western part of Sequatchie county, and descends through a deep gulf, emerging from which it flows northward between Warren and Van Buren counties, into Caney Fork at Rock Island. It is a bold rapid stream, hemmed in by high rocky banks, and affords many valuable water-powers. Hickory Creek, a branch of Barren Fork, runs from the south-eastern part of the county, and drives many fine mills. Charles Creek rises near Woodbury, in Cannon county, runs east and empties into Collins River. This stream has many valuable water privileges. The supply of water is constant, and for the first five miles the stream has a fall of 100 feet. Four miles north of this is Mountain Creek, which heads in Short Mountain, runs east and empties into Collins River. It very much resembles Charles Creek and is a valuable stream. The Great Falls of Caney Fork occur on the line between White and Warren counties. There is not such a volume of water as the Merrimac, at Lowell, Massachusetts, has, but there is a greater fall, being seventy-five feet within the distance of a mile, while the Merrimac has but thirty-two. There is no county in Middle Tennessee that has more valuable water privileges than Warren, and it is destined to play an important part in the future manufacturing interests of the State.

*Lands, Soils and Crops.* The lands for the most part being situated on the Lithostrotion bed, have the characteristic chocolate color, and are naturally very fertile, but slovenly cultivation has allowed many gullies and washes to form, which have carried away whole acres of soil. In some respects these lands are to be preferred to the rich black lands of the Central Basin. They have the capacity of resisting a drought much longer. There is usually a foot or two beneath the surface of those red lands a bed of chert and argillaceous rocks, generally about a foot in thickness, which supplies an admirable natural drainage, yet retains a sufficient amount of humidity to enable vegetation to successfully resist the most severe droughts. The elevations and undulations of this character of land protect the wheat crop from the

damages of rust, while the underlying flinty mass supplies to the wheat a sufficient quantity of siliceous matter to insure a vigorous growth of the stalk.

There is another advantage connected with these lands that has not been sufficiently spoken of or appreciated. They are practically inexhaustible. Though denuded of the primitive soil, the imperviousness of the clay enables them to retain all the fertilizing elements placed upon them, and when galled or lean spots occur they can be reclaimed by plowing deep and subsoiling, sowing with clover and applying gypsum or land plaster at the rate of one barrel to the acre on the clover after it has come up. This continued for a year or two will reclaim the most sterile spots. These spots may also be restored by setting out blackberry bushes, which not only act as a subsoiler, but quickly and cheaply enrich the land.

Three-fourths of Warren county are red lands. The remainder of the lands is mountainous, but some of the best soils in the county are to be found in the coves. These are usually very productive, and yield from six to ten barrels of corn per acre, while for fruit they are considered unequalled, especially for the apple. Wild grasses grow with great luxuriance on the mountain sides and make the finest flavored beef. No other meat has the same juiciness and richness of flavor, and strangers visiting the mountains for the first time always notice the excellence of mountain-fed beef. The north sides of the mountain spurs are usually of great fertility. Climbing up Ben Lomond on the north side, we observed, among other trees, the ash, yellow poplar, linn, buckeye, sugar tree, hickory, every species of oak, black walnut, wild cherry, dogwood and black locust. Most of these trees are unerring indications of the best quality of land. The timber on the south face of the mountains differs only in the prevalence of cedar and the comparative scarcity of black walnut. Corn, wheat, rye and barley all grow well on the mountain sides and summits, but the summits are especially adapted to Irish potatoes, turnips, and all rooted vegetables. Most of the lands on the Table-Land may be bought unimproved for one dollar per acre, but there are notable exceptions. Occasionally at the foot of the mountains is found a strip of land that is very sterile. It is generally known by a fine water-worn gravel intermixed with sand. On such places greenbriers, persimmon and sourwood prevail. Unusually, however, the first bench is the most fertile, as it receives the washings from the limestone rock that forms the lower escarpment of

the mountains. One of the poor gravelly spots occurs between the foot of Ben Lomond and McMinnville. The top of the mountains has generally a sandstone soil, the character of which is given in the account of Cumberland county. The finest freestone springs are found near the crests of the mountains from which the purest of water bubbles out from golden sands. These springs are not much affected by dry weather or wet, but keep their even flow throughout the year. Mineral springs of different kinds are found in the county, sometimes on a mountain side, sometimes on the banks of a river at low water level, and occasionally near the highest mountain summits. The richest lands, and those most highly improved, are to be found on Hickory Creek, a tributary of Barren Fork. Very fertile and desirable farms lie between Barren Fork and Charles Creek. By many they are accounted the best in the county. The best lands, improved, are worth from thirty to fifty dollars per acre. Between Mountain Creek and Charles Creek, both of which streams empty into Collins River, the soil is thin, and the lands unproductive. We may say, generally, that all the lands north of Charles Creek, with the exception of bottoms, to the county line, are poor. On the east side of Collins River, however, though the lands are more mountainous and broken, the soil is of better quality than in the northern portion of the west side of Collins River. Some very excellent lands in the county are exceedingly stony, containing flinty fragments, which are often highly fossiliferous. Lands of this character never fail to bring good crops, whether the season be dry or wet; and they may be enriched by every act of cultivation. The people have but little reason to complain, however, of the natural fertility of the lands in any portion of the county. They are of the same character as some of the best lands in the State, and with proper attention would become as valuable as the lands in any portion of Middle Tennessee. Let the farmers, for the good name of their county, as well as for their own emolument, plow deeper, sow more clover, cultivate the grasses, and take those steps for the preservation of their lands which experience shows to be necessary. We are glad to know that there are some public spirited farmers, who are, by a proper attention to the soil, raising the yield of wheat from four bushels per acre to twenty. We have seen wheat of extraordinary promise growing on land that had almost been abandoned because of its sterility. Deep plowing, manuring, clover, and a high system of tillage, would double the products of Warren. More grass has been sown during the past five years than in the fifty years previous.

*Fruit.* In proportion to area no county in the State produces so much fruit, and especially the apple. Peach trees are said not to do well, being subject to disease and blight. Prior to the building of the railroad this county was not convenient to any market, and her exportations consisted chiefly of hogs, which could be driven, and apple brandy. This last article was manufactured in large quantities, and transported by wagons to Nashville and points on the Cumberland River. It was one of the principal articles of traffic, and nearly every farmer devoted a large portion of his land to apple orchards in those places of the county where the apple bore well. It is no uncommon thing to see orchards of one hundred acres or more, the apples from which, after first being made into cider, are distilled into brandy. In consequence of their enlarged experience in the culture of the apple, the people generally have a better knowledge of the varieties of apples suited to our soil and climate than the people in any other county in the State. At the risk of being tedious, we shall condense the information we have obtained from the largest cultivators in relation to this valuable fruit. The best location in the county for the apple is what is called the upper bench on the mountain sides, where the limestone and sandstone meet. In such a situation they are never frosted, and are not liable to the rot. On the cove lands—that is, those lands which lie near the foot of the mountains, on the first rise and under the shadow of the mountain—the northern winter kinds rot badly, and are almost always killed by late frosts in spring. The almost universal favorites, Rawle's Jennett, Meeklenberg and Nickajack, will not bear on the cove land, but bear very well in the "barrens," where the land is level and high. They also do well just under the tops of the mountains. The following kinds, well known in other portions of the State, are failures on cove lands, either elevated or flat: French Pippins, Newton Pippin, Rhode Island, Greening, Swaar, Æsopus, Spitzenburg, and the celebrated Porter apple, brought to the county in 1849, though grafted on thrifty seedling stock, planted and well cultivated. The Baldwin bears occasionally, but may be classed among the failures. The failures do not arise from a want of vigor in the trees, for nowhere can be found more vigorous growers. The most certain bearers are the Early Harvest and Maiden's Blush, which, until a year or two past, grew vigorously and yielded bountifully, but have failed to some extent since; American Summer Pearmain, which for all uses is the best of its season, ripening between the June and Horse apple. Belle Bonne, next to the Pearmain, is considered best; Yellow

Baugh is a sweet apple, nice bearer and matures well a little after the Early Harvest. The Rambo bears well, but has the spot, after a few times bearing, in the coves. Smoky Twig, or Winter Pearmain, bears early, does well, is very sound, and not liable to spot. It is not so rich as many others, but is much liked as an eating and dessert apple. It ripens for late fall and early winter. The Red Limber Twig is relied on mainly for winter apples. The Wine Sap bears and matures well, but is liable to the speck after long bearing. It is a choice winter variety. The Stoner Apple is a beautiful, deep red apple, and highly flavored, very showy and large, and has, wherever tried in the county, done well. The Bouldin Apple, a native of the county, is a fine bearer, matures well on mountain situations where the limestone terminates. On all elevations it does well, but rots on low or flat lands. Ben Davis does well in particular localities, especially on Rocky River. Rome Beauty, when grown on alluvial soil, or on cove lands, keeps better than any other apple grown in the county. The Cooper, grown on the same situations, is a better apple, but takes the speck. It is a late summer variety, and the best dessert apple of the season. Kentucky Queen, a large, red autumn apple, bears well and is sound. Hall's Seedling, Horse Apple, and a great many native varieties do well. There are 7,000 acres in orchards in the county, and a large number of trees are planted every year. Grapes have been tried with varying success. The wild muscadine grows luxuriantly and yields an abundant harvest. Plums and pears are generally sure crops.

*Farm Statistics.* In the census report of 1870, Warren is stated to have 1,372 farms, which are thus classified:

Farms having 3 and under 10 acres.....	57
“ “ 10 “ 20 “ .....	154
“ “ 20 “ 50 “ .....	499
“ “ 50 “ 100 “ .....	377
“ “ 100 “ 500 “ .....	284
“ “ 500 “ 1000 “ .....	1

Farms are here understood to “include all considerable nurseries, orchards and market-gardens, which are owned by separate parties, are cultivated for pecuniary profit, and employ as much as the labor of one able-bodied workman during the year.” What is owned, or leased for one year, requiring the exclusive labor of one man for the time, is called a farm. The value of the farms is placed at \$2,454,308.

*Crops, Dairy Products, etc.* Corn is the leading crop; then come, in the order of their importance, wheat, oats fruit, sorghum, sweet and

Irish potatoes, tobacco, cotton, grass seed, rye and hay. The following are the quantities respectively of corn, wheat, oats, etc., produced in 1870, according to the census report, the table including also wool dairy products, honey, sugar, etc.:

Corn.....	329,950	bushels.
Wheat, spring.....	1,111	
Wheat, winter.....	72,280—	73,391 “
Oats.....	56,348	“
Orchard products, value of.....	35,031	dollars.
Sorghum Molasses.....	22,443	gallons.
Potatoes, sweet.....	17,152	bushels.
Potatoes, Irish.....	16,918	“
Tobacco.....	27,446	pounds.
Cotton.....	104	bales.
Grass seed.....	1,289	bushels.
Clover.....	52	“
Peas and beans.....	1,156	“
Rye.....	1,072	“
Hay.....	735	tons.
Flax.....	181	pounds.
Flax seed.....	7	bushels.
Hops.....	7	pounds.
Butter.....	134,499	“
Cheese.....	490	“
Milk sold.....	6,515	gallons.
Maple Sugar.....	1,670	pounds.
Maple Molasses.....	23	gallons.
Honey.....	16,569	pounds.

Warren was in 1870 the banner county as to the number of bushels of grass seed. In leading crops it was much behind the rich counties of the Central Basin, Giles, for example, producing six times as much corn, and Wilson more than three times as much wheat. In value of orchard products, Warren was third, Davidson and Obion being ahead, the latter, however, by a very little, the figures being for Obion \$35,087, and Warren \$35,031. This speaks well for the fruit-producing capacity of Warren.

*Live Stock.* Warren ought to be a great stock county. Its mountain slopes and summits are the very places for sheep and cattle. It is by no means a difficult matter to make clover and grasses grow upon its strong soils, and thus to supply an abundant area for grazing. Some improved cattle and hogs have been brought into the county, and earnest efforts are being made to raise the grade of both. We gather the following statistics in regard to the live stock from the census reports:

Horses, number of.....	3,218
Mules and Asses.....	666
Milch Cows.....	2,781
Working Oxen.....	906
Other Cattle.....	3,658
Sheep.....	12,814
Swine.....	13,814

Value of all Live Stock..... \$ 570,221

Value of all animals slaughtered or sold for slaughter.....\$ 165,683

*Manufactures.* For many years Warren county has been noted for some of the most successful manufacturing establishments in the State. The Central Cotton Factory, two and a half miles from McMinnville, was started in 1847, with 720 spindles, and manufactures cotton yarns for the hand loom. It has been in successful operation ever since. It employs seventeen hands, four men and thirteen girls, and makes 600 dozen per day. It is driven by the waters of Charles Creek. A short distance from this factory are the Charles Creek Woolen Mills, which manufacture about 300 yards of jeans and linseys per day. These mills have four cards, one jack of 300 spindles and eight looms, and give employment to eight girls and three men. The machinery is propelled by a thirty-inch Faulkner turbine water-wheel, under a nine foot head. It is, perhaps, one of the most powerful water motors known. The Annie's Factory, at McMinnville, has 2,016 spindles and sixty looms. It makes 2,500 yards of 4-4 sheeting per day. It is driven by the waters of Barren Fork, with one of Leffel's turbine wheels. These mills are a great advantage to the county, not only in supplying at cheap rates their fabrics to the community, but in stimulating production, and in giving employment to a worthy class of citizens. Mr. Faulkner, the owner, states that at his two cotton factories, and at his gin, he has bought of the crop raised in the county for 1873, 550,000 pounds of seed cotton, besides a considerable quantity of picked cotton that came in from other counties, some of it from Overton, Jackson, Putnam, Van Buren and White, nearly all of which was grown in small patches by white labor. The Annie's Mills employ about 54 hands, mostly native orphan girls, who are paid well and are comfortably provided for. These girls are thus made useful members of society instead of being a drag and a tax upon it. Warren county has five tanneries in operation, which manufacture about 60,000 pounds of leather annually. Tan-bark is abundant and cheap. There are six good flouring mills in the county.



*Towns.* McMinnville, the county seat, was laid out on the 4th day of August, 1810. The land for the site was bought of Robert Cowan, Joseph Colville and John A. Wilson, of Warren county, by James Taylor, Thomas Matthews, Benjamin Lockheart, John Armstrong and James English, who were appointed commissioners by the Court to select a suitable situation. They paid \$100 for forty-one acres, and after dividing it up, and selling out the lots, they put out a contract for the first permanent court-house in 1810, and it was finished the following year. This structure was used up to 1858, when a new one was erected at a cost of \$12,000. The population of McMinnville is 1,167; with the suburbs, 1,700. There are six churches in McMinnville, many of them excellent buildings, one having been erected at a cost of \$10,000. This is an exceedingly neat structure, and speaks well for the morals, taste and liberality of the citizens. There are two colleges, two common schools, two hotels, eleven dry goods stores, seven grocery stores, two drug stores, two hardware, one variety, two stove and tin stores, one hat, shoe and clothing store, two millinery shops, two watch-makers, one carriage shop, one flouring mill, one cotton factory. The New Era is a first-class country paper, and is edited with marked ability. The McMinnville and Manchester Railroad, the only one in the county, terminates here. It has been graded from McMinnville to Sparta, in White county. The scenery around McMinnville deserves a passing notice. Situated upon an elevated peninsula formed by Barren Fork, it stands 1,000 feet above the level of the sea, and is encircled on two sides by mountain spurs and peaks, rearing their crests majestically 1,000 feet above the town. On the south looms up Ben Lomond, densely covered with trees, with only here and there a diminutive field, that looks like a dark shadow resting upon a sea of emerald, where some mountaineer, loving the upper air, is exacting contributions from its fertile sides. To the south-east appears a succession of spurs varying in height, without definite names, but reminding one of videttes placed on the outskirts of the main army of summits that stretch away as far as the eye can reach. To the left of these, and on the east side of McMinnville, within five miles of the place, is seen Cardwell Mountain, a beautiful conical peak with its crest denuded of timber. The land on this mountain is said to be as fertile as any in the county. The ascent to the top is easy. But few rocks are met with in going up. A smaller mountain to the left, and further north, is also called Cardwell—the two peaks being owned by two brothers of that name. A fine view may be seen from the top

of Ben Lomond. From a point near the Mountain House, McMinnville appears sleeping amidst groves and streams like a thing of beauty, while beyond it, stretching away to the north, is a seemingly level expanse, dotted with farms and orchards and thick woods, from which at intervals the curling wreaths of smoke, that point out the location of farm houses, are seen ascending until their form and color are dissipated in the pure ether above. Rising up boldly to the north-west, appears Short Mountain, which consists of several trunated and flattened conical protuberances, from which emanate Mountain Creek, that glides and winds like a silvery serpent through the unbroken green of the landscape. The difference in the atmosphere on reaching the top of Ben Lomond is quite perceptible.

There are a number of small villages in Warren. Viola is a small village on Hickory Creek, in the south-western part of the county. It has three stores and a blacksmith shop, and is situated in the garden spot of the county, eleven miles from McMinnville, on the Winchester road. It is a post town. Verville is another small post town, nine miles from McMinnville, on the west branch of Hickory Creek, not far from the junction of the east and west branches. It has two or three stores, a good school and two churches. Morrison, on the Manchester and McMinnville Railroad, and ten miles distant from the latter place, is a flourishing little railroad town, with three stores. Other post towns are Increase, Mountain Creek, Pine Bluff and Clairmont, each with one or more stores.

*Social Status.* Though having given more space to this county than our limits will justify, we cannot refrain from referring to the social aspects of the county. The people are mostly descendants from North Carolinians, and were early nurtured in the habits of economy and frugality. They fear debt, and prefer to wear their own domestic manufactured goods to more extravagant dress, for which they would have to pinch themselves in their households. Their tables are usually well supplied with good, wholesome mountain beef, in the excellence of which they take pride. Their houses are comfortable, and though not aping the aristocratic style of the city, are more conducive to happiness than more palatial residences without the means to keep them up.

*Statistics.* The population of the county in 1870 was 12,714, of which 1,955 were colored. Number of voters in 1871, 2,743, of whom 367 were colored. The number of acres of land assessed for taxation in 1873, exclusive of town lots, was 247,070, valued at \$1,800,862.

Total value of taxable property, \$2,535,768. Schools are not so numerous through the county as they should be, but more attention than formerly is being given to the subject of education.

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## WAYNE COUNTY.

COUNTY SEAT—WAYNESBORO.

The act establishing Wayne county was passed November 24, 1817. More than half of the present county of Hardin was originally embraced within the territory of Wayne. By the creation of Hardin, Wayne was shorn of its most fertile lands; its river front being reduced to about ten or twelve miles.

*Topography, Extent, etc.* Wayne county is situated on the extreme western side of the Highland Rim, with its north-western corner projecting into the western valley of the Tennessee. It contains about 700 square miles. The county is bounded on the north by Perry and Lewis, on the east by Lewis and Lawrence, on the south by the State of Alabama, and on the west by Hardin county and the Tennessee River. It is a high elevated plateau, between eight hundred and a thousand feet above the sea, furrowed by deep winding ravines or "hollows," with intervenient high rolling ridges, cut transversely in places by other ravines, which give the surface of the county the appearance of what sailors call a "chopped sea." Generally, however, these ridges radiate from the center of the county in every direction, except toward the east, in which direction the lands are flat, level and barren.

*Streams.* As might be inferred from the broken surface of the county, the number of water courses is very great, and the high elevation of the county above the Tennessee River gives to them a rapid fall. After heavy rains these creeks rise with startling rapidity, and run down almost as rapidly as they rise. Indian Creek, noted for its wide bottoms and good farming lands, rises in the eastern part of the county, and runs west, passes through Hardin, and empties into the Tennessee River below Saltillo. This creek has numerous tributaries which branch out as one ascends the stream until they resemble the numerous limbs of a pictured tree. Many good mill sites are found upon these branches, though the quantity of water is variable, and cannot be re-

lied upon throughout the year. Hardin Creek rises in the south-east part of the county, and running west, empties into the Tennessee River, a short distance above Clifton. It has two or three good unimproved mill sites upon it. Mill Creek, a tributary of the last, is an excellent stream for milling purposes. The stream, in many places, has cut down through a solid ledge of rocks, so that the banks are firm and durable. Butler's Creek, a tributary of Shoal Creek, runs south-east through a rich portion of the county. This stream has a rapid fall, good limestone banks and a fine lay of land upon the banks for the building of mills and factories. Big Cypress, Middle Cypress and Little Cypress all rise in the south-eastern portion of the county, run south, and after their confluence, empty into Shoal. There are already erected several good mills on these streams. Second Creek rises in the south-east corner of the county, runs south-west, and empties into the Tennessee River at Waterloo. This stream could be readily utilized as a water-power. Factory's Fork rises in the eastern part of the county, runs south-east and empties into Shoal Creek. It is a good water-power. Forty-eight Creek rises in the north-eastern part of the county, runs north-west and empties into Buffalo River. It is a good stream for mills, and upon its banks before the war there was a forge of the same name. Green River rises in the south-eastern part of the county, runs north and empties into Buffalo. It is very rapid in its fall, and has some good mill sites. Moccasin Creek, a tributary of Buffalo, rises in the northern part of the county, and runs north. It is a short, swift stream, but is constant in its supply of water, and is an admirable milling stream. Buffalo River enters the county from the north-east, and after running west half way across the county, makes a right angle and passes out north through Perry county. It is a tributary of Duck River; is very rapid in its fall, but the banks are not usually good for the erection of mills and factories. It is bountifully stocked with game fish. Rock House rises in Lewis county, and running a short distance through the north-east corner of Wayne, empties into Buffalo. It has no great excellencies. Opossum is a small stream that rises in Lewis county and empties into Buffalo. It has an excellent mill site. Mill Creek, a tributary of Buffalo, rises in Lewis county. It has good substantial banks, a rapid descent, and has much available water-power. Chapel Creek, also a tributary of Buffalo, enters that stream near Flatwoods. It drives an excellent flouring-mill, also gin and saw-mill. The supply of water is small during the summer. Beech Creek rises two miles west of Waynes-

borough, runs west and empties into the Tennessee River. It has one mill and several good mill sites. Eagle Creek rises six miles west of Waynesboro, runs west and empties into Hardin's Creek, three miles from Clifton. It is worthless as a water-power, the banks being low, changeable, and the supply of water very variable. The low bottoms supply many convenient sites for tanyards, of which there are several on this stream.

*Lands and Soils.* The lands in Wayne county may be divided into three classes, viz: mineral, agricultural and grazing. Of the first class there are more than 200 square miles, lying in the eastern and south-eastern parts of the county. These lands usually have a rolling surface, are well supplied with timber, except in those spots where it has been consumed in the manufacture of charcoal. The soil upon these mineral lands is exceedingly sterile. The humus is a thin wafer that is lost when brought into tillage by the superabundance of gravel and yellowish clay. The gravel upon the highest hills is often water-worn, sometimes angular, but always indicative of an unproductive and stingy soil. The characteristic growth, besides the timber, is greenbrier, persimmon bushes and a grayish moss, upon which the wild deer subsist during the winter. This rolling land is sometimes deeply cut by streams, upon the banks of which are found exposed limestone, siliceous and black shale, and occasionally hydraulic rock. The agricultural lands are mostly confined to the river and creek bottoms. They are heavily charged with a black, flinty, angular rock; soil alluvial and highly productive of wheat, corn, cotton, peanuts, sorghum and hay. The best bottom lands will make per acre thirty bushels of corn, twenty bushels of wheat, 1,200 pounds of seed cotton, fifty bushels of peanuts, and from two to three tons of hay. Instances are given where four tons of German millet have been raised to the acre. Clover would grow with an abounding luxuriance upon the bottom lands, but the habit of sowing clover has not yet been adopted by many of the farmers. The objection to raising the perennial grasses is, that the broomsedge soon destroys the meadows, and it has been found in practice impossible to keep it out. These lands command very high prices, ranging from \$20 to \$50 per acre, according to improvement and location. Scarcity, too, makes this quality of land in demand. It may be stated that the fertility of the soil adjoining these bottoms reaches high up on the hills on the south side of the streams, and but for the tendency of such hill-sides to wash, they would be almost as valuable as the bottoms themselves. The south sides of the

ridges are poor. It would be a mistake to infer that the north sides of all the ridges are fertile. The fertility is only confined to such ridges as bound the water courses. Away from these and on the south sides of the dry "hollows," the soil is almost as thin as on the north sides. On the waters of Buffalo River, Indian Creek, and a portion of Beech Creek, the bottoms are wide, the farms good, the improvements respectable, while on Hardin's Creek, Butler's Creek, Second Creek, Factory's Creek, Forty-eight Creek, Green River, Moccasin, Opossum, Chapel and Eagle Creeks, the bottoms are narrow, farms small and improvements common. On the Cypress the bottoms attain a width of half a mile, and many productive farms are found upon that stream. It is estimated that the lowlands of the county will cover 70 square miles, or 44,800 acres. The third class of land, which is put down as grazing land, is flat and open, covered during the summer with a rank wild grass, which supplies nearly all the food for the stock (other than work stock) in the county for eight and ten months in the year. The usual practice with farmers is to begin to feed about the middle of December, and to stop the first of April, or so soon as the buds and young grass begin to appear. But little of this flat land is cleared for the purpose of cultivation. Here and there a spot with a rich red clay subsoil may be found that will yield remunerative crops, but wherever the subsoil is white or bluish in color, the land is cold and unprofitable for general cultivation. Fruits, however, yield abundantly on such lands, and the trees are long-lived, hardy and not subject to disease. Old, abandoned homesteads on such lands, of which there are many on the road leading from Waynesboro to Columbia, show the fruit trees vigorous and healthful. Some of these trees, peach and apple, are known to have been set out fifty years ago, and they are still fruitful. The high elevation of this barren land, its healthfulness and cheapness, may cause it in time to become one of the great fruit-growing regions of the State. The people of the county are turning their attention to fruit-growing, many orchards of choice fruit having been set out during the past two years.

*Stock.* Sheep husbandry could be made a profitable business but for the grand army of curs that roam over the country. Twenty-five per cent. of sheep killed annually is the least estimate put down by any one. Many are deterred from sheep and wool-growing on this account. The wild, savannah-like surfaces that cover a large portion of the county, the sheltering hills and the genial climate, all point to Wayne as being well adapted to sheep-growing. A few fine Berkshires introduced by

some enterprising citizens several years since, have greatly improved the breed of hogs. But little pains are taken with the hog. Subsisted in the woods upon the mast from September to June, and then upon the wild grasses, this animal is scarcely domesticated. Pork enough is raised to supply the demands of the county, but very little for export. The cattle are principally "scrub." Some of them make good milkers. A few Short-horns are being introduced, and the quality of the cattle is gradually improving. Before the war mules were raised for the southern markets, but the destruction of the breeding animals was so great during the period of hostilities that the farmers have only been able since to raise enough for the home demand.

*Timber.* Very few counties in the State are more abundantly supplied with timber. The southern part is covered with a dense forest of yellow pine, which has scarcely been touched. On the ridges, white oak, black oak, chestnut, poplar and chestnut oak prevail. Cedar timber of a good quality formerly covered the glady hills near Clifton, but most of it has been cut down. The white oak timber is largely consumed in the manufacture of pipe staves for the French and Spanish markets, and near the Tennessee River it is growing scarce and dear. Seventy-five thousand staves are annually shipped from the county, and as the demand continues to increase, the vast white oak forests of the interior will be rapidly consumed in meeting this demand. The tanbark from the chestnut oak is largely used in the various tanneries, and is found in practice to be the best for tanning purposes. It makes by far the best leather, which brings at least ten cents per pound more than the hemlock or oak-tanned. In the iron regions, the timber is very valuable. Charcoal, of which forty bushels are made from a cord of wood, is the fuel used for smelting purposes. In the neighborhood of Wayne Furnace, timber is consumed at the rate of 700 acres annually. With proper protection by law, the great extent of land denuded of timber could be made to yield a new growth, but the annual burnings destroy all the young sprouts as fast as they appear, so that the old coaling lands are a dreary waste, covered with broomsedge and green briars, and worthless to the owners.

*Minerals.* Hydraulic rock of an excellent quality has been found near Clifton, underlying a reddish limestone. This red limestone is classed as a marble, and though not equalling the variegated beauty of the East Tennessee Marble, yet some of it makes quite a handsome and durable building stone. But by far the most valuable mineral in

Wayne county is the iron ore. This is found in large local deposits called banks, and the quality of the ore is very variable, some of it being so intermixed with gravel and siliceous and argillaceous material as to be nearly worthless. The best banks yet found are two miles south-east of Wayne Furnace. The ore lies in wave-like masses, running mostly parallel with the surface. But these masses sometimes approach and run into each other and then separate, leaving between large masses of clay and flint. The ore has been dug to the depth of thirty feet with no apparent diminution of quantity. Outcrops of iron ore occur upon nearly every hill around the furnace, and these indications extend at places down to the beds of the streams. The gravel overlying the ore is sometimes white and water-worn, but generally of a pale yellowish appearance. Practical iron men consider the quantity of ore inexhaustible. The ore is a brown hematite, and yields from the furnace 44 per cent. Near Clifton is a bed of anhydrous red oxide of iron that is very valuable. A shaft has been sunk in this bed to the depth of twenty-five feet without reaching the bottom of the ore. Much of this ore is very soft and can easily be reduced to powder and used as a pigment.

*Wayne Furnace.* Thirty-five years ago, two furnaces were erected upon the same ground where Wayne Furnace now stands. One of them was discontinued and the other was kept in blast for many years. Six years ago, the Gaylord Iron and Pipe Company, of Kentucky, bought the property for \$40,000, inclusive of 21,000 acres of land, and set to work to repair it. They introduced the hot blast, erected new stacks, and began operations on a scale much more extensive than ever before. The capacity of the furnace was increased to twenty-four tons per day, but it rarely makes above eighteen. The iron manufactured is cold short, and is unfit for boiler plate, car wheels or wrought iron. It is mostly consumed in the foundry owned by the same company in making iron pipe. One hundred and fifty bushels of charcoal are consumed in making one ton of pig iron. The estimated cost of coal at present is six cents per bushels. The cost of green ore delivered at the furnace, \$2 per ton, of which two and one-third tons are used to one ton of iron; cost of limestone per ton of iron, fifty cents; labor and salaries, \$6.44; incidentals, such as sand, hearth, interest, etc., \$1.33; making present cost of a ton of iron \$21.97. It costs \$5 per ton to get to Clifton, on the Tennessee River, and \$3.62 from that point to Cincinnati, making its present (January, 1874,) cost in Cincinnati \$29.59. It must be remembered, however, that much of this



labor is paid for in goods, upon which a profit of from thirty to fifty per cent. is made.

About 200 hands are kept in constant employment, and nearly all the work is done by contract. Sixty cents per cord is paid for cutting wood; \$2 per ton for digging and delivering ore; daily laborers, \$1.20 per day; skilled laborers, \$1.60. The furnace force consumes annually 20,000 bushels of corn, 30,000 pounds of bacon, 600 barrels of flour, 1,200 bushels of corn meal, and 360 tons of hay. It may be stated as a significant fact that all the hay and most of the bacon are brought from Indiana and Kentucky. This furnace furnishes the best market in the county.

The height of the stack of Wayne Furnace is forty-two feet; width across boshes, eleven feet; hot blast, the blast being heated by the waste heat from the trundle head. It is driven in through two tuyers. Capacity of furnace, 5,800 tons annually.

*Tanneries.* Previous to the war, Wayne county was noted for the number and excellence of its tanneries. More than a dozen were then in operation, manufacturing annually 200,000 pounds of superior leather. Many of them were abandoned or destroyed during the war, and now the number is reduced to four. These manufacture 100,000 pounds of leather annually. The hides are obtained in the St. Louis and New Orleans markets. The leather is mostly shipped to St. Louis. With the abundance of streams that thread the county, and the almost exhaustless quantities of tan-bark, the manufacture of leather will doubtless become in the future one of the leading industries of its citizens. Bark is sometimes shipped, though not in large quantities.

*Towns and Villages.* Waynesboro, the county seat, was located by commissioners appointed by an act of the Legislature November 5, 1821. The courts were removed to that point in the fall of 1823, and since that period, it has been the seat of justice. It is situated on a level plateau on Green River, and has many high hills encircling it. Population 300; dry goods stores 4; saloons 3; hotels 1; churches 2, one of which is a colored church, the other Cumberland Presbyterian. It has also a large tannery, and a school averaging eighty scholars.

Clifton is a flourishing little town of five or six hundred inhabitants, situated on the Tennessee River. It has five dry goods stores, two drug stores, two saloons, one saddler's shop, one hotel, one foundry, one church, Presbyterian, a Masonic school that contains about sixty stu-

dents, male and female. There are annually shipped from Clifton; 1,200 bales of cotton, 6,000 tons of iron, 3,000 bushels of wheat, 100,000 pounds of leather, 50,000 staves, 7,000 bushels of peanuts, 500 bushels of dried fruit, besides considerable quantities of feathers and lumber. The latter article, delivered on the river bank, is worth from \$14 to \$15 per thousand feet. Ashland, on Buffalo, has three stores, one grocery, blacksmith shop, and two churches, Southern Methodist and Cumberland Presbyterian. Flatwood, on Buffalo, has two stores, one church, Protestant Methodist. Wayne Furnace has a store, blacksmith shop and two churches. Martin's Mill has a store, saw-mill, grist-mill, woolen mill, tanyard, and one church, Cumberland Presbyterian. Parker's store, on Indian Creek, has two stores, cotton gin, blacksmith shop and tanyard.

*The Agricultural and Mechanical Association* has erected handsome buildings upon a lot near Waynesboro. The first fair was held 1872, and another in the fall of 1873. Both were eminently successful. The Association is out of debt, and the people of the county flock in droves to the annual exhibition.

*School Statistics.* There were enrolled in 1873, between the ages of six and eighteen years, whites, 1,270; colored, 69; total, 1,339. Between the ages of eighteen and twenty-one years, white, 64; colored, 5; total scholastic population, 1,408.

There are employed in the public schools thirty-nine teachers; average salary paid teachers \$31.37. Owing to the failure of the magistrates to levy an additional tax for school purposes, the free schools were only kept up for a period of two months and a half.

*Statistics.* The population of the county in 1870 was as follows: whites, 9,316; colored, 893; total, 10,209. Number acres of land assessed for taxation in 1873, 422,267; value, \$1,243,009; number of town lots, 178; value, \$70,901; value of mills, manufactures, etc., \$70,238; value of personal property, \$278,433; total valuation, \$1,664,494. Number polls, 1,452. Amount State tax, \$6,650.32; amount county tax, \$3,325.16; total tax, \$9,975.48.

*Health.* There is no healthier county in the State, as the experience of physicians show. Being well drained, and but a small portion lying in the Tennessee Valley, there is little or no malaria in Wayne county. Its elevation above the sea gives it a mild and pleasant climate and makes it peculiarly pleasant in the summer.

*Immigrants.* While the citizens greatly desire to see their county populated with an industrious class of immigrants, they have been unable as yet to attract but few from other States. The want of transportation, schools and public spirit has deterred many from making Wayne county a permanent home. There are no railroads in the county, and while the citizens would hail with delight any external movement to open up their resources to the world by rail, they are yet averse, many of them, to a levy by the county for that purpose. The word tax has a sound to their ears as ominous as the roar that precedes the whirlwind. Taxes, to their minds, are destructive of the best interests of society. It is the taking of something for which nothing is given. In consequence of this erroneous idea, schools have been neglected, public buildings have been suffered to fall into dilapidation, roads are mean, and at times well nigh impassable, bridges are scarce and out of repair, and, indeed, all the great public interests which society for its own convenience and safety has been accustomed to look after have been neglected. While the county greatly needs immigrants, its citizens still hesitate to take the very steps necessary to secure that immigration, which to them, in their sparsely settled county, means wealth, intelligence, comfort and independence.

The Waynesboro Citizen, the only newspaper in the county, will doubtless awaken a more zealous interest in public affairs.

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## WHITE COUNTY.

### COUNTY SEAT—SPARTA.

*Organization and Early History.* White county was originally a part of Smith. Smith county was laid off October 26, 1799, embracing all the territory east of Sumner to the Cherokee boundary, which was the east side of Cumberland Mountain, and from the Kentucky line south to Caney Fork River. White county was organized by an act of the Tennessee Legislature, passed at Knoxville in 1806, just ten years after Tennessee was admitted into the Union. It embraced at that time all the territory east of Smith to Walden's Ridge, and south to Elk River. The first Court was held at Rock Island on the 15th of October, 1806. Although originally so large, White county has been roughly handled

and whittled down, giving off territory for new counties, until now it is below the average in area and population in the State. The boundaries at present are Cumberland county on the east, Putnam on the north, DeKalb on the west, and Caney Fork River separating from Warren and Van Buren, on the south. The county, as at present constituted, contains twelve civil districts.

*Towns.* Sparta, the county seat, is beautifully situated on the left bank of the Calf Killer, in the midst of the romantic valley of that river. It has a population of about 500, nearly all white; one weekly newspaper, two good hotels, one good school, five cabinet shops, ten resident lawyers, two churches, two shoe and boot shops, two saddle shops, and one large tannery. Yankeetown, five miles up the river from Sparta, has a fine water-power. Bunker Hill is the center of the earthenware interest. There are several stores and shops at Stone Fort, twelve miles from Sparta, on the McMinnville road.

*Topography.* In its topographical features the county is naturally divided into three parts. The Table Land or mountain, the valleys and coves, and the barrens. These three divisions give great diversity of elevation, soil and productions. We will consider them in turn. The eastern side of the county, comprising about one-fifth of its area, lies on the Cumberland Table Land, and has all characteristics of this natural division of the State, viz: an elevation of about 2,000 feet above the sea; a level or gently rolling surface, cut in places by deep gorges or gulfs; pure mountain air, delicious water and beautiful and sublime scenery. The mountain slopes on the face of the Table Land and its spurs and outlying ridges occupy a considerable part of the area of the county. The surface on these slopes is for the most part broken and rugged, with many bold cliffs and deep ravines. The escarpment of the Table Land is marked by a line of hard sandstone and Conglomerate cliffs, in many places towering high above the tall trees on the slopes below. From the salient angles of these cliffs may be seen extensive and beautiful views of the lower outlying ridges with their intervening valleys and the broad flat and wooded country beyond, extending as far as the eye can reach. At about half the height of the Table Land is the terrace or "bench." This terrace has the same elevation as the tables or tops of most of the little mountains or outliers. It affords sites for some beautiful farms and orchards, where all varieties of fruit common to the country are produced. The valley of Lost Creek, cut off and completely encompassed by Pine Mountain, an arm of the Cumberland, is on a level with the terrace. This ter-

race was doubtless originally much more extensive than at present, and there are evidences that it covered more than half the area of the county, including the whole valley of the Calf Killer River and all the smaller valleys and coves in the county, and also the range of smaller mountains to the west. By far the greater part has been removed by the agency of water, but the spurs and outliers are left to tell the tale of its former extent. The escarpment of the terrace, as it now is, is very much scalloped by coves, and processes of large size extend outward, forming spurs, some of which spread out into plateaux, separated by coves and valleys. Some of these spurs are cut off by gaps, forming separate mountains; but all, with two exceptions, have a common elevation. The two exceptions are Pine Mountain, between Lost Creek and Hickory Valley, and Milksick Mountain, west of Hickory Valley, both of which are equal in height to the Cumberland Table Land. A belt of these little mountains, averaging three miles wide, extends all along the western base of the Table Land. Interspersed among them are many coves and small valleys. Separated from these by the broad valley of Calf Killer, there is a distinct range broken into three parts by large gaps. This range begins with a spur of Cumberland Mountain in Putnam County, which extends first westward and then south-west around the head of Calf Killer River. The extremity of this spur is in White county. In a line with it the range of small mountains extends south-west entirely across White county, terminating near Rock Island in the Caney Fork. This range is cut off from the spur by the valley of Cherry Creek. It is divided by three gaps into four separate mountains, each of which has a distinctive name. These gaps are on a level with the valleys and all of them are large enough to contain farms. They give easy means of outlet to the open country north and west. The valley of the Calf Killer lies between the belt of little mountains along the base of the Cumberland, and the range last described. Its head is in the south-east corner of Putnam county. Narrow at first, it grows wider as it extends toward the south-west occupying a belt across the center of the county, and reaching from one extremity to the opposite. It is twenty-five miles long, and has an average breadth of about four miles. The surface is generally rolling, and there are no bottoms along the river. An interesting topographical feature is presented by the sink-holes, which are very numerous in this valley. These hopper shaped cavities vary in size from ten to one hundred yards in diameter. Their presence indicates the existence of underground caverns, through

many of which flow subterranean streams. In all this region there is no running water on the surface, except the rivers and large creeks; all of the springs being swallowed up by the caves. In many of sink-holes the opening at the bottom has become closed by stiff clay or some other obstruction, and in such cases a little lake or pond is formed. There are many of these in all parts of this valley, and they are a convenience to the farmers, enabling them with ease to have water in every pasture. Hickory Valley lies between Pine and Milksick Mountains in the southern part of the county. It is five miles long with an average breadth of one mile. Its characteristics are similar to those of the Calf Killer Valley, with which it is connected by two gaps at the upper or northern end. Cherry Creek Valley opens into that of Calf Killer above Yanketown. It is seven miles long and three-quarters to one mile wide. The elevated valley of Lost Creek has already been mentioned. In it are a number of beautiful farms, where the people dwell retired and caring little for the changes that agitate the world abroad. The waters of the creek linger lovingly in this Arcadian retreat, protracting their stay by many graceful meanders, and then steal away through an underground channel beneath the mountain into the Caney Fork. There are many beautiful little coves snugly ensconced among the smaller mountains, generally having one or more outlets into the valleys. Beyond the range of mountains which bounds the Calf Killer Valley on the west, are the barrens. Most of the surface is level or gently undulating, and all the streams of water are here on the surface.

*Rocks, Soils and Timber.* The rocks on the Table Land are sandstone, and consequently this division has a light, sandy soil, well adapted to the production of wild grasses, fruits and garden vegetables, but too thin for grain; tracts of boggy land along the streams, which, when drained, make beautiful meadows; small trees of the hardier kinds, of which post-oak and black-jack are most abundant. This part of the county is sparsely populated, and is now regarded as of little value, except as a summer range for cattle. Most of the farmers in the valleys own tracts of the mountain lands, in some cases amounting to thousands of acres, where they have ranches or "cow-pens." The woods are burnt off in February or March, leaving the surface smooth and clean for the growth of the grass, which then springs up beautifully, and after a few warm days, the whole mountain presents the appearance of an unbounded meadow. Wild flowers grow in great profusion and bedeck with gay colors the emerald sea. Thither the cat-

tle are driven from the farms in the valleys, and attended by herds-  
men, who allow them to range at will and graze on the rich herbage  
during the day, but pen them at night. The Mountain Limestone crops  
out on the slopes above the terrace, and yields, by disintegration, the  
elements of fertility to the soils in its vicinity. These terrace or  
"bench" lands are especially valuable for fruit farms. Some of the  
orchards never fail to produce good crops. They are peculiarly ex-  
empt from injury by frost. The tables of the outliers have a cap  
rock of sandstone, and a soil in all respects similar to that of the Cum-  
berland Table Land. Limestone appears again on the lower slopes,  
and prevails to the base of the mountain. Too rugged for cultivation,  
these slopes are nevertheless valuable for the great forests of timber  
they bear. Sugar-maple, beech, ash, walnut, buckeye, linden, wild  
cherry, and immense yellow poplars are abundant in the forests. In  
the valleys the soil is generally good, being a dark brown loam,  
on a subsoil of strong clay, which lies on a bed of Lithostrotion  
limestone. The subsoil is of a peculiar red color, made so by  
oxide of iron liberated in the decomposition of masses of ferru-  
ginous chert. In some places these cherty masses are scattered  
loosely over the surface, in nodules or irregular concretions from the  
size of a pebble to several hundred pounds in weight. These rocks  
are troublesome in tillage and wearing on implements, but by gradual  
disintegration they continually add fertilizing elements to the soil.  
Most of them are highly fossiliferous, and among them it is common  
to meet with a large coral of a prismoidal form, known to geologists  
as the *Lithostrotion Canadense*. The richest lands in the county are  
in the smaller valleys or coves, some of which appear to have been, at  
a remote period, the beds of small lakes, from which the water  
has escaped, leaving a deep, rich alluvium, well mixed with sand from  
the surrounding heights. With good tillage the soil is inexhaustible, and  
it is very easy of cultivation. When the country was settled, the coves  
were covered with a very heavy growth of beech, sugar-maple, buck-  
eye and yellow poplar, while an undergrowth of cane-brakes rendered  
the surveying of the lands a work of great difficulty. In the barrens  
much of the soil is thin and deficient in lime. Sandstone prevails,  
valuable for building, but imparting no fertilizing quality to the soil.  
Much of the surface is level or gently undulating, and thinly wooded.  
Post-oak, suitable for cross-ties, is abundant. At several places, how-  
ever, red clay and limestone appear, and furnish sites for a number of  
good grain and fruit farms, and the less fertile portions furnish a fine  
range for sheep and cattle.

*Farms.* Nearly half the land in the county is at present yielding nothing, but there is little naturally so poor or so rugged that it cannot be made profitable, so that there is scarcely any really waste land. There is no farm of less than fifty acres, and none, properly so-called, larger than one thousand acres. Two hundred acres is about an average. The owners do most of the work on the small farms, while hired labor is employed more or less on the larger. The supply of labor is scarcely equal to the demand. Most of the negroes have gone elsewhere, and there has been but little immigration of farm laborers. Wages are too low to attract good labor from abroad. Fifty cents per day is considered good wages, but skilled workmen and extra good hands can do better than this. It is rare, however, that more than one dollar per day is paid for farm work. Renters pay one-third of the crop for ordinary, and one-half for the best lands. Money rents are almost unknown. There is a wide range in the price of lands. Fifty cents to one dollar per acre would buy most of the mountain lands; but of the farming lands in the valleys, there are none rated lower than five dollars, and some as high as forty dollars per acre. The lands in the vicinity of Sparta are considerably higher priced than in any other part of the county. Farms are not generally in as good condition as before the war. There are many honorable exceptions, however, and a commendable spirit of improvement is now manifesting itself in many ways, chief among which we may mention the adoption and use of improved machinery and implements to a greater extent than heretofore. Good turning plows are now found on almost every farm. Most of these are two-horse, but there are some of larger size. Subsoiling is sometimes done with a scooter or narrow shovel, and there are a few subsoil plows in use. We know of no hill-side plows. Double-shovels have generally been adopted as a labor-saving appliance. For farm work horses are generally preferred to mules on account of their docility. Oxen are used for carting and heavy plowing.

*Crops.* The principal crops, in the order of their value, are corn, wheat, cotton, oats, sweet potatoes, Irish potatoes, rye, turnips and tobacco. The amount of land devoted to grass will average about one-tenth of all cultivated. It is generally meadow. Clover fields are often used for pasture, and grass is sometimes sown for this purpose. In such cases it is considered best to mix it with clover. Herds-grass and timothy are the kinds generally used. Hungarian grass and millet are not uncommon. Clover fields and meadows are usually al-



lowed to stand several years, and are then turned over, but there is no regular system of manuring with green crops. The wheat crop has increased steadily since the war, while there has been a falling off in corn. The Walker wheat and the Mediterranean are the leading kinds. Of the white varieties, the Tappahannock has not given general satisfaction; but there is another kind, the name of which is not known, that is cultivated extensively. It is called simply "the white wheat." Cotton is becoming a very important crop. A few years ago it was confined to "truck patches," and was manufactured only in families; but now there are fields of considerable size on many of the farms. For the last season the total value of the cotton crop was greater than that of any other except corn.

*Live Stock.* For the rearing of live stock the county possesses unusual advantages, and there is no other agricultural pursuit that will bring such sure and liberal returns. The "range" of the mountains and barrens furnishes ample pasturage for more than half the year, and many of the rich limestone hill-sides produce blue-grass and orchard-grass almost equal to the best lands in the Central Basin. Corn fodder is still chiefly relied on for winter forage, but it might be replaced by increasing the hay crop. A great saving of labor and food might also be effected by providing good barns and sheds for cattle and sheep. With few exceptions, the best shelter that the poor animals have from the chilling winds and pelting storms, is the leeward side of a straw stack. Hogs find more comfortable quarters in hollow trees, and sometimes in rock-houses. Good stables are generally provided for horses. Most of the stock of all kinds is scrub. There are four blooded stallions which have done much to improve the stock. There are also four jacks bred from imported animals, and the mules raised are generally good. The only blooded cattle in the county are Short-horns. Six bulls have been brought in since the war, and there are now a considerable number of grades. We think, however, that the Devons would be found more profitable than any other kind, except on some of the farms where pastures are unusually luxuriant. Berkshire hogs are scattered over the county in considerable numbers, and there are also a few Chester Whites, Essex and Poland China. The Berkshires are by odds the best. Except on the mountain, there are now but few hogs that have not a cross of the Berkshire. Sheep-breeding is a perilous business, and very few are willing to invest in it. Not less than one-third of the whole number are destroyed annually by dogs. The majority of the farmers would be in favor of any

lawful means or measure that would secure to them protection, but the irresponsible dog-owners and sympathizers are sufficiently numerous and influential to prevent the passage of any law on the subject by the County Court. The Legislature ought to afford protection to this species of property. Nevertheless, there are several small flocks of Cotswolds and grades.

*Smaller Industries.* Orchards are numerous, and dried fruit is an important article of trade. Butter is made in almost every family sufficient for home use and some for market. Butter and eggs very frequently buy the family supplies of sugar and coffee. Mr. Mowbry, who came into the county from Ohio several years ago, has established a cheese dairy on the Table Land. The peculiar aromatic flavor of milk, butter and cheese from cattle pastured on the mountain range, has been noticed and spoken of in terms of praise by many summer visitors. Honey is of superior quality, especially on the Table Lands, but is not as abundant as it should be. Articles of home manufacture include jeans, linsey, blankets, carpets, matting, cotton and woolen socks, cotton cloth, flax linen, baskets, shuck collars and ropes.

*Transportation, Markets, etc.* Caney Fork River is navigable for small steamers through the winter and spring months to Frank's Ferry, eleven miles south-west of Sparta. McMinnville, now the nearest railroad station, is twenty-six miles distant. The Southwestern Railroad, designed to be an extension of the McMinnville and Manchester in the direction of Cincinnati, is partly graded to within nine miles of Sparta. More than four hundred thousand dollars have been expended upon it between McMinnville and that point. The piers of the bridge across the Caney Fork at Rock Island are nearly complete, and the superstructure is to be of iron. The roadbed between McMinnville and this point is nearly ready for laying the track. Two of the surveys for the Tennessee and Pacific Railway, connecting Nashville and Knoxville, pass through White county, one by Sparta and the other through England's Cove, above Yankeetown. The latter route is reported to be the best. The road, when completed, will be a link in the great Southern Trans-continental Chain. During most of the year, carrying is done by wagons to Nashville. The distance is ninety miles. This, of course, is a very slow and unsatisfactory means of transportation; and the completion of the railroad is anxiously desired by the citizens.

*Streams and Water-power.* Caney Fork, bounding the county on

the south, is the largest river in this part of the State. It takes its rise on the Table Land, about eighteen miles east of Sparta. Running southward, and then west, it descends through a deep, narrow gorge, hemmed in by beetling cliffs, and characterized by wild scenery. Emerging into the valley, it passes westward, by many devious windings among the romantic hills to the Big Falls below Rock Island, where it plunges down into a long, winding and narrow valley leading out into the great Central Basin of Middle Tennessee. It is safe to assert that no stream in the State offers more abundant water-power, easily applied, than Caney Fork. Throughout the entire length of its course, from the mountains to the base of the falls, is a continuous succession of rapids, affording many sites for the largest machinery. The Southwestern Railroad crosses on a bridge half a mile above the falls, near Rock Island, and from this point the impetuous river plunges down one fall after another, descending ninety-four feet within two miles. The top of the falls at low water is  $391\frac{1}{2}$  feet above low water of the Cumberland at Nashville. The Calf Killer River is next in importance. It rises in the eastern part of Putnam county, twenty miles north-east of Sparta, and flows south-westwardly through the middle of the central valley of White county into the Caney Fork, at a point eight miles south-west of Sparta, and four miles above Rock Island. Its length, in a direct line, is about twenty-eight miles, but more than twice that distance by the course of the stream. Its current is rapid throughout, and it is so hemmed in by high rock-bound banks, that a dam of any required height will not cause an overflow on any part of its course. Fallingwater, a tributary of the Caney Fork, near the northern boundary of the county, is a fine stream, having an ample and constant supply of water for machinery, scarcely any of which has yet been utilized. The smaller streams are Cherry Creek, Plum Creek, Wildcat Creek, Town Creek, Post Oak Creek, and Fancher's Creek, all of which are available to a greater or less extent for manufacturing.

*Manufactories.* On the Calf Killer River, one mile below Sparta, is a large cotton factory, which was in successful operation before the war. The fall at this place is about fifteen feet, and a dam could be raised above to any necessary height. This, with the ample water of the river, would give almost unlimited power. The building is of brick, with a solid stone basement, sixty by one hundred feet, and four stories high. Attached to it are one hundred and twenty acres of land, with a good brick dwelling, and all necessary tenement houses.

The machinery of the factory was shipped south during the war, and it has not been restocked since. The county is well supplied with lumber and flouring mills, all except two of which are run by water-power. Some enterprising gentlemen from the north have recently erected a steam saw and flouring-mill at Sparta. In the north-western angle of the county there is a fine quality of potter's clay, from which large quantities of earthenware have been manufactured. There are now a number of kilns in successful operation, and employment is furnished to large number of men. So great has been the number of wagons engaged in the "creek trade," that some persons in other counties have jocularly remarked that there can be nothing left of White county but a hole in the ground.

*Minerals.* The Table Land, or mountain part of the county, belongs to the great Cumberland coal field, and three distinct strata, and at some places four, are recognized in this part, two of which are important. At Scarborough's mill, on Caney Fork near the head of the Gulf, the upper stratum has been worked to a limited extent at a point where it averages five feet thick. It is equal in quality to the well known Sewanee, and is supposed to belong to the same stratum. Coal occurs at many points beneath the brow of the Table Land, facing the valleys of the Caney Fork and Calf Killer. There are generally three or four seams which frequently are too thin to work, but in a few places swell out to three, four or five, and rarely to seven or eight feet thick. Little's Bank, six miles north-east of Sparta, has been open for many years, the coal being used at Sparta. The thickness is about three feet at the outcrop, but further in it grows to four feet at the point where it is now worked, and probably will prove to be very valuable. Officer's Bank is a little further north, and has afforded considerable coal. Several fine outcrops are reported in the head of England's Cove, still further north. Captain M. C. Dibbrell has recently opened a bank seven miles east of Sparta, on Clifty Creek, and there is another owned by Captain Dibbrell, but worked by Mr. Milton Fisk, seven miles north-east of Sparta. Each of these is about four feet thick. Within half a mile of Bon Air, General G. G. Dibbrell is working a vein which averages two feet, in the hope that a richer deposit will be found. On Pine Mountain, eight miles south of Sparta, there is coal, averaging four thick feet near the surface, and consequently very easily mined. In Sparta coal is used almost exclusively for fuel. Twelve and a half cents per bushel is the price when delivered. The stimulus of a railroad is needed to develop the rich deposits of coal

and other minerals in this region. There is an old salt-well on the Calf Killer, three and a half miles north-east of Sparta, and it is said that about fifty years ago, salt was manufactured at the rate of fifty bushels per day. Sulphur water, with small quantities of petroleum, now flows from the well. Persons amuse themselves sometimes by setting fire to the petroleum as it spreads out on the surface of the river. Frequently the flames run entirely across the stream. The upper part of the Mountain Limestone, near Bon Air, affords a clouded white marble, from which a few tombstones have been made. Hydraulic limestones, gypsum, copperas, galenite and other minerals of value are found. Many years ago iron was successfully manufactured at a bloomery on the site now occupied by the Sparta factory, and at another on Fallingwater. The ore in the valley is limonite, and occurs in considerable quantity. The most extensive bed is eight miles south-west of Sparta, on the McMinnville road. Besides that used at the bloomery near Sparta, it also supplied one on Rock River, in Van Buren county. Its precise limits are not known, but there is no doubt that it covers an area of several square miles. Above Sparta, on the west side of the Calf Killer, there is another bed of considerable size which has never been worked. There are many beds of shales in the Coal Measures of the Table Land which contain clay iron-stones. This variety of ore is quite different in appearance and composition from any worked at present within Tennessee, but it is extensively used in England. A number of mineral springs, possessing valuable medicinal properties, are found in this county, among which may be mentioned Bon Air, on the brow of the Table Land, immediately above Sparta. The view from this point is one of the finest, and possesses great variety. The water is chalybeate and freestone. The buildings were burned during the war, and have not been rebuilt. Clarktown is a summer village, ten miles out on the Table Land, where are a number of elegant, airy cottages to which the owners, who reside in various parts of the country, some of them in New Orleans, retreat from the hot sun and cares of business to the invigorating breezes and delightful groves of the mountains. There is, at this place, a noble chalybeate spring, and a good quality of black sulphur.

*Miscellaneous.* There were assessed in White county 217,101 acres of land for 1873, valued at \$1,140,836; population 9,375, of which 1,080 are colored. The scholastic population is 3,264, of which there are enrolled in the public schools 2,491. There were, in 1873, forty-seven public

schools and forty-eight public school teachers; besides, a seminary at Sparta, which is generally well attended. There are five permanent private schools in different parts of the county. Churches of the various denominations of Christians are numerous, and the moral tone of the citizens is good. Intelligent and enterprising immigrants are kindly received, and there are now in the county a large number of new-comers from the north, and from Europe. Repeated disappointments in securing the completion of the railroad have tended to discourage the farmers and produce some dissatisfaction with their situation, and some have been influenced by this and other causes to move away. But nothing like general discontent prevails. Many of the larger farmers are preparing to sell a part or all of their farms, not generally with a view to leaving the county, but for the purpose of reducing the size of the farms that they have, or purchasing smaller farms. We believe that the greatest hindrance to agricultural prosperity is the attempt to cultivate too much land. There was, before the war, a flourishing agricultural and mechanical association, but it has not been revived, and the old fair grounds remain unimproved. The Sparta Index, published weekly, is a sprightly country paper, edited with ability, and does much to attract attention to the various resources of the county.

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## WILLIAMSON COUNTY.

COUNTY SEAT—FRANKLIN.

We are indebted to Dr. W. M. Clarke for the following interesting account of this county:

Williamson is situated in the great Basin of Middle Tennessee, and though a small portion of its western border is on the Rim, yet it is one of the richest counties of the Basin. In point of fertility of soil, wealth of its citizens, and intellectual advantages, it stands third in Middle Tennessee and fourth in the State. Go where you will, in any country, and you will find that rich land makes rich people, and hence follow schools, churches, hospitality and intelligence.

*Boundary.* It is bounded by Davidson on the north, Rutherford on the east, Marshall and Maury on the south, and Hickman on the west.

*History.* It originally constituted a portion of Davidson county, and was cut off by an act of the General Assembly on the 26th of October, 1799. Henry Rutherford, who gave his name to the large creek in the southern part of the county, and John Davis, were the commissioners appointed to divide the two counties. It received its name from General Williamson, of North Carolina, some of whose descendants were prominent men of that day, among others, Dr. Hugh Williamson, the intimate friend and companion of Franklin. It is supposed by some that the county received its name from Dr. Williamson and the county seat from the name of his eminent friend. The county originally contained twenty-four districts, but the enterprise of Rutherford in building turnpikes robbed us of the twenty-third and the twenty-fourth, and with them deprived us of a rich section and the finest cedar forest of the State.

*Towns and Villages.* The only town in the county is Franklin, the county seat, though the whole county is dotted with thriving villages, besides numerous "country stores," thus bringing every facility desired within reach of every one to furnish himself with supplies. These country merchants do also a thriving business in barter, thus converting the produce of the careful housewife into material wealth.

*Franklin.* Franklin is one of the loveliest towns in Middle Tennessee. It is eighteen miles from Nashville, on Big Harpeth River, and is in the center of a valley that would rival the Vega of old Grenada, if it had the same historic associations, nor is it devoid of a bloody day, for here the Confederates made their last gallant charge upon the Federal army, and here was poured out the best blood of the South, many of them inspired by the sight of their homes in possession of their enemies; and here died Cleborne, the Bayard of the South. In point of schools, both male and female, it stands unrivaled, though it boasts no college halls, except a female college, hereafter noticed. As an evidence of the character of its teachers, though ample facilities for attending free schools are afforded to every one, and many private schools throughout the State have succumbed to their cheapness, yet these schools stand unshaken, and are likely to remain as prosperous as ever. The churches of this town embrace all the denominations of our free-thinking people, and are all well supported and have the ablest pastors of the different denominations officiating in them. All these educational and religious advantages, together with the fact of having the Louisville, Nashville and Great Southern Railroad passing through

it, makes it a very desirable place for the residence of men of means or of business men in Nashville, who can, by almost hourly trains, reach their place of business in a few minutes, thus combining the advantages of a city with the health, quietude and good water of the country, and evading the dust, mud and excessive taxation of city life. The Review and Journal is published in Franklin, is Democratic in principle, and fearless in the advocacy of all progressive movements.

*Villages.* There are many villages in the county which have grown up around stores that have been established for purposes of barter. Some of them are quite thriving, and all offer peculiar inducements to country families to educate their children and attend religious worship. They have in all good society and educated people, and offer great social advantages to those preferring this to country life. Hillsboro, Peytonsville, Bethesda, College Grove, Triune, Nolensville, Brentwood, Mitone, Thompson's Station, Williamsburg, Jordon's Store and Arrington dot the county all over with their pleasant cottages and thrifty appearance. Brentwood boasts a woolen mill, which bids fair to supply the needs of this county with all woolen fabrics. It belongs to Messrs. Holt, Gibbons & Humphrey, men alive to their own and the country's interests, and by the next season they will have up all their machinery, already purchased, to manufacture jeans, blankets, flannels, etc., in as good style, and as cheaply as can be procured elsewhere. A great obstacle to the establishment of factories in Tennessee, is the notion that our people will patronize Northern factories when we have them here. But this idea will vanish when our artizans work as cheaply as at the North, and produce as good fabrics. Why we cannot do this, is yet to be ascertained. We have an ample supply of cheap provisions, fuel is cheap and abundant, and we can easily procure skilled labor by offering the same inducements held out by other and similar establishments. It wants a little of Northern energy and enterprise infused into our veins. The capital would be quickly forthcoming to erect a factory upon every stream in the county were right men to take the matter in hand. The raw material is here, and the idea so long endured to transport it thousands of miles and pay other men to do what we can easily do ourselves, thus enriching them and enriching corporations to transport it for us, is something not easily explained in political economy.

*Flour Mills.* Arrington and Franklin have the best of merchant flouring mills, and a fine mill has been built near Brentwood by the



enterprise of Mr. William Davis. Besides these, there are many fine mills upon the streams to be mentioned hereafter.

*Topography.* The face of the county is undulating all over the Basin, though in some places it swells up into hills and knobs almost equal to mountains. The water-shed is from the south-east to the north-west. There is a famous range commencing in Rutherford county, from Stewart's Creek, running south-westerly, and gradually sinking into the general level near the Wilson Pike, about six miles from Franklin. The northern face of this range empties its waters into Mill Creek, and the valleys of this creek and its tributaries compose two civil districts, and are exceedingly fertile. No amount of cultivation seems to exhaust them, though they have been cultivated continuously for a long period. The uplands are also good, some first-rate, except the cedar glades. A fine belt of cedar traverses this section, coming in from Bedford and Rutherford, and is amply sufficient to supply all demands for rails within hauling distance. All these streams, however, become still and silent during the heats of summer, though affording abundance of stock water. Of course no mills can be remunerative on them. The "knobs" are really mountains, in height, but bottoms in fertility. They are heavily clothed with poplar, ash, oak, walnut and wild cherry, and the soil is deep black loam, and although so steep that it is difficult to walk up, yet they are very thickly settled, and the produce is really astonishing. Grains and grass, and especially fruit, find here congenial nourishment. The people raised here are attached to hills, and rarely leave them for the low lands. Fruit rarely fails from frost, and lately, within three years, a vineyard has been established upon one of the northern spurs, and though last year was its first bearing, it proved highly profitable. Many other men are following the example set by Mr. Didiot, an educated Frenchman, who has demonstrated the fact that more money can be made from one acre of good grapes than from twenty acres in corn. The southern aspect of these highlands is truly beautiful. Spurs run out from the main ridge and gradually end in Hay's Creek, and are separated from each other about half a mile.

Between these spurs are valleys, or rather gorges, that rival the famous valleys of Switzerland, both in beauty of landscape, fertility of soil and equable climate. Exposed as they are to the genial rays of the sun, sheltered from the cutting blasts of the north, it is a delightful place to live. Snow never remains upon the ground but a day or

two, grass grows all the winter, and vegetation starts here long before it does on the other side. Passing over the Ridge, it feels like going from one country to another. Here is the finest inducement to sheep husbandry to be conceived of. In fact, these hills should be devoted exclusively to stock and fruit, being well watered, cheap, and producing grass in the finest manner. What is truly surprising about them, they do not wash into gullies but slightly, though perfect torrents sometimes pour down their sides, converting the insignificant branches into roaring rivers. This peculiarity arises from the fact that the soil is mixed intimately with small gravel or chert, thus affording the best of drainage. Another, and possibly still larger range, begins in the twenty-second district, at what is called Cross Keys, and the description of the Burke Knobs applies equally to the Keys. On the south-western slope of this range rises Rutherford Creek, which represents as good land as is in the county, but it quickly leaves Williamson and passes into Maury. Between the two, commences the system of

*Harpeth Rivers*, which, with its valleys and foot-hills, constitute Williamson county; for although two districts are drained by Mill Creek, and a part of one by Rutherford Creek, all the balance is drained by the the different Harpeths. And here my pen fails me. Much has been written about the famous blue-grass lands of Kentucky, and the lands on the Mt. Pleasant Pike, near Columbia, are deservedly admired; but here is a whole county, as it were, equal to the best lands in any country. Gently rolling, heavily timbered even now, formerly covered with a dense growth of cane, black loam deep and strong, capable under the worst abuse of supporting a nation. There is no break, no waste lands in its whole extent. These lands extend from the head of Harpeth to where it leaves the county. Were this region cared for, and improved with fine buildings, it would be a terrestrial paradise. Here cotton, corn, hemp, millet, wheat, oats, rye clover—anything, everything grown in a temperate climate, reaches perfection. In the centre of this magnificent valley, like a queen on her throne, is situated Franklin, and it also includes many of the above-named villages. The main stream, Big Harpeth, rises on 'Squire Owens' farm, in what was once the twenty-fourth district, and flows a south-westerly course, and empties into the Cumberland River at the famous Harpeth Shoals, forming a bar there which has ever been a check to the prosperity of Nashville. There are also South Harpeth, West Harpeth and Little Harpeth. The lands bordering these streams are of the same general character, with the exception of those of South Harpeth, to which we

will shortly go. If there is any difference, it must be made in favor of Little Harpeth, which runs from near the Hollow-tree Gap, north of Franklin, in a westerly course, and empties into Big Harpeth, near Tank. The lands on this stream are as rich as the richest, and generally are finely improved, and are graced with the best country residences in the county. Land is here in great demand, as high as \$100 per acre being occasionally paid, and \$75 to \$80 per acre being quite common. Brentwood is on this stream, and from its location on the Louisville, Nashville and Great Southern Railroad, it offers a fine locality for future manufacturing establishments. West Harpeth courses along the base of the Highland or Rim on the western border of the county, and has on its bottoms fine farming lands. It rises from the north slope of the Cross Keys, and includes in its course those famous lands around Thompson's Station and Spring Hill, though the latter village is just across the line of Maury county. It empties into Big Harpeth near the county line. This family of Harpeths contain within their embrace more fine farming land than any other stream in Tennessee. Not only the bottoms, but the hills are rich. All over it crops out limestone, and that not enough to interfere with its full cultivation, but sufficient for all building purposes, and it is freely used in fencing. They are peculiarly adapted to the raising of stock and all grains. Before the war tobacco formed one of the staple productions, and Williamson county took the premium on this enervating weed. Byrd Hamlet, aged ninety-one years, and in excellent health, lives near Nolensville, and he carried the first hogshhead of tobacco to Nashville that was ever raised in Middle Tennessee. He sold it to a young man just commencing business, named John Yeatman, who gave him a check on Stump & Cox. They offered to keep it for him at a big rate of interest, which he wisely declined. Now, from the many obstacles thrown in the way of this valuable article, it has ceased to be a staple production and is only raised for home consumption. One of the best of our tobacco raisers was the late Wm. DeMontbreun, whose father was the first settler of the city of Nashville, and a Captain in Montcalm's army, and had his arm broken in the great and decisive battle of Quebec, when Wolfe and Montcalm both fell. He established a trading post at the Licks, on the bluff of Cumberland, and remained there during the winters of nineteen years, returning to Kaskaskia, on the Ohio, during the summer, before the place was permanently settled. Wm. DeMontbreun, the subject of this sketch, was born there, during one of his annual visits, in a cave at the mouth of Mill

Creek, on the Cumberland, which still bears his name. Leaving his parents at a very early age, and diving into the wilderness, he settled near College Grove, and in time became a great farmer, though he lost his aristocratic name. Being deprived of educational advantages, and losing sight of his father, he spelled his name by its sound, and from being William of the Brown Mountain, the meaning of his name, he became simply Uncle Billy Demumbrane. Another of his contemporaries was a Mr. Sledge, who penetrated, with his wife and a pack-horse, the dense cane, and settled near Peytonsville, where he lived in a cane shelter four years, and where four children were born in this primitive residency. One of his sons now lives in the sixteenth district, and though upwards of eighty years old, does not hesitate to walk to Nashville, a distance of sixteen miles, and back in a day. This hardy race of pioneers, however, is fast disappearing from the face of earth, and another race, better or worse, is taking their place. The name of Harpeth originated from two celebrated highwaymen, named from their size Big Harp and Little Harp. They had their headquarters on Big Harpeth, and from thence ravaged the settlements far and near, and the name was synonymous for all that was terrible and murderous. They defied all forces brought against them for many years, but at last were caught, and as is done on the frontiers even now, had justice summarily dealt them by having their heads cut off. The only comment upon their end was by Big Harp, a huge giant, who turned his eyes on his executioner and told him, as he was sawing at his bull's throat, "he was a d—d rough butcher."

*South Harpeth.* We now come to South Harpeth, which cuts its way through the Rim or Highland in the extreme western part of the county, and is, though small, the most steadily running stream among them. It is bordered by huge bluffs and high hills through its whole course in the county, and has but a narrow valley, though this is extremely rich. Were it not for its continually changing bed, it would afford fine water-power, being fed with bold springs along its whole course; but from the quantity of coarse gravel in its bed, and the fierce torrents that occasionally almost fill the valley, this gravel is drifted first one side of the valley and then the other, so that it would be difficulty, if not impossible, to utilize its waters. It is on this stream that are situated the celebrated medicinal springs, well known as Smith's Springs. It is a very cool, pleasantly tasted water, and is moderately impregnated with iron, and strongly with sulphur, and has a great local reputation for curing diseases of the liver, kidneys and bowels.

This place only lacks a convenient method of traveling to make it popular, and is destined, when it is properly improved, to become one of our standard places of summer resort. On each side of South Harpeth is the great Rim of Middle Tennessee, extending west to the Tennessee River about seventy-five miles, and eastwardly about six or seven miles to the West Harpeth. This region, except upon its creeks, is very sparsely settled, and abounds with primitive game, such as deer, turkeys, and a few bears. Its value consists almost entirely in its timber, which is something marvellous. So thick does it stand that the woods are almost impenetrable. The timber is very valuable from its tenacity and solidity. Almost all of it is white oak, though in some parts a fine growth of poplar and chestnut stands. The trees are very large, and the wonder is how such poor land could produce such an immense growth. It is but little used as yet, on account of the difficulty of transportation, except in the neighboring bottoms, where the fencing is procured altogether from it. It is capable of furnishing all the staves, boards, bucket oak, etc., for the Mississippi Valley. The land, when denuded of its timber, is of little value, except for fruit-growing, but for this, on account of its great elevation, it is unequalled. This plateau stands about three hundred feet above the bed of the neighboring streams. At present it affords grazing for large numbers of cattle and sheep, and when a mast "hits," any number of hogs are fattened on it. The people of this region are a hardy, adventurous race as was well shown during the civil war, for they, though the last to go into the struggle, were the last to come out of it, and gave many a doughty blow for the South. A very thrifty colony of Pennsylvanians have settled in these barrens, and express themselves as being highly pleased with it. No doubt, in time, this great treasure house of timber will be opened out to the world, when other and more accessible timbers are exhausted. Lands sell here for from twenty-five cents to two dollars per acre. With the the exception of the lower parts of West and Big Harpeth, none of the streams of this county afford any permanent milling facilities, all drying up during the summer months, but both the above streams would be effective near their mouths, or in the north-western part of the county. As yet, in our chrysalis state, no effort has been made to put them to use.

Now, I have already stated that the bulk of the lands partake of the same general character, being a rich black loam, but in the neighborhood of the cedars there is some exceptions. The lands here are sandy, and when first cleared very fertile, but soon becoming worn and

thin. This is especially so with those known as white oak lands. And here blue-grass does not grow well, though they are fine for root crops, such as potatoes, ground peas, etc., and when manured, produce the best of tobacco. This sort of land is found mostly on the head waters of Mill Creek, and between Triune and Franklin. These lands rate at from ten to twenty dollars per acre. The cedar lands sell for from fifty to two hundred dollars per acre, according to its convenience to rich lands.

*State of Agriculture.* The farms of the county are not in as good condition as before the war, from the scarcity of labor and its uncertain character, but even now, great improvements are to be seen, many of the farmers repairing their dilapidated fences and out-buildings. Our county produces, on an average, about ten bushels of wheat per acre, but this small yield is to be attributed to the usual slovenly manner of its cultivation, but few farmers doing more than plowing it in between the stalks without any previous cultivation with bull-tongues. When a good farmer pays proper attention he rarely fails to be amply repaid, making from twenty-five to thirty bushels. One farmer, in my knowledge, sowed a field in wheat, from which he gathered four bushels. He sowed it in clover, and at the expiration of two years resowed the same field, after breaking it up, and got thirty bushels. Corn is grown easily, and with proper cultivation, will yield fifty bushels, though for the same reasons above stated the average yield cannot go beyond thirty bushels. Oats, a crop greatly neglected, will easily make forty to sixty bushels. Cotton, the principal money crop, will make from eight to twelve hundred of seed cotton. Tobacco rarely falls under one thousand pounds per acre. Millet seed, a crop peculiar to the Mill Creek Valley, will make with proper culture, on good land, fifty bushels. This crop has long been grown in the eastern part of the county, and with many farmers has superseded all other money crops. The growing importance of millet can be seen when it is known that before the war the demand was so little that a thousand bushels would glut the Nashville market, and it would fall below a paying price. But the superior excellence of German millet over all others, and the fact that it is a fine substitute for the more costly timothy, has created a southern demand, that last year made the price of it three and a half dollars per bushel, though the supply reached at least ten or twelve thousand bushels. The present crop will probably reach fifteen thousand bushels, and there is a decided demand, so that producers need not fear receiving pay for their work. Hemp, once

the staple of the Thompson Station country, has ceased to be produced, the heavy work attending its cultivation preventing laborers undertaking it. But few peanuts are raised, though some patches in this neighborhood reach from seventy-five to one hundred bushels per acre. There are comparatively few large farms left, and there is a decided tendency to cut up these. Some men who do own large tracts, build shanties and lease to hands, virtually making small farms. I suppose the average size of farms would fall under eighty acres rather than above, and from the great demand for small tracts, they will soon come still lower. Many negroes of thrifty habits have laid by their earnings, and take every opportunity to secure homes, so that it is less difficult to sell than formerly. The average price of lands throughout the county in 1873 was, according to the tax books, \$16.23, and this includes the barrens, where the price is merely nominal. In the southern part of the county, land readily brings fifty dollars; in the southeastern, about fifteen to twenty; in the Mill Creek Valley, about fifteen to forty; and around Franklin, and to Brentwood, from forty to seventy-five, and even one hundred dollars have been paid. This is, however, on liberal time. The taxable property of the county is about eight millions, and of this there are in land 356,100 acres. The following is the tabular statement of the productions of the county, according to the census of 1870:

Indian corn.....	1,010,443 bushels.
Wheat .....	227,294 "
Rye .....	4,662 "
Oats.....	99,933 "
Barley .....	10,536 "
Peas and beans.....	652 "
Irish Potatoes.....	24,440 "
Sweet Potatoes.....	20,555 "
Clover Seed.....	23 "
Grass " .....	593 "
Tobacco.....	80,415 pounds.
Wool.....	29,994 "
Rice.....	1,191 "
Butter.....	187,008 "
Cheese.....	1,122 "
Honey .....	10,370 "
Flax.....	10 "
Cotton .....	3,815 bags.
Wine.....	782 gallons.
Sorghum molasses.....	13,246 "
Horses .....	7,193 number.
Mules and Asses.....	3,121 "

Milch Cows.....	5,060	number.
Working Oxen.....	379	"
Other Cattle.....	6,609	"
Sheep.....	15,226	"
Swine.....	41,703	"
Fruit, value of.....	\$23,528	

This is far from a full report of the crops raised, as can be easily seen from what I have already stated about the cultivation of millet, no mention of it being made. Another industry is omitted which is now growing into huge proportions, namely, hay. Much attention is being paid to this valuable friend of the farmer. Chiefly timothy, although the other grasses are raised in considerable quantity. Blue-grass grows spontaneously over nearly the whole country, and clover, that great renovator of the soil, is grown by almost every farmer, and its popularity is increasing daily. The soil is well adapted to clover, and with the aid of gypsum, it yields from two to four tons per acre. A few farmers are also sowing clover seed in considerable quantities. All our agricultural papers and societies have been endeavoring to wean our people from cotton and turn them to stock, but as yet with few exceptions, but little has been done, the farmers preferring the sure returns of the cotton fields to the fluctuating and uncertain prices of stock. No doubt the land would be greatly benefitted by the change, but the war left our people in such an impoverished condition, that few had the capital necessary to properly prepare and suitably stock a farm. And then much of our lands are leased to tenants, who cannot afford to seed down the land, and await the slow returns. For this and other reasons that might be given, it suits our people to produce money crops. There are a few exceptions to this, and these public spirited men deserve well of our community for their enterprise in bringing to us the best blood of the country. It has certainly had a salutary effect in improving the common stock. Poverty has hitherto also restricted us from availing ourselves of the best farming implements, but in this respect there is improvement. As yet, the bull-tongue and turning plow supply most of our wants. Mowers and reapers are, however, greatly used, few considerable farmers being without them. Horses and mules, mostly the former, do all our farm work, oxen being only raised for the butcher's use. If all the labor of the county could be made available, it would perhaps be sufficient, but that being impossible, there is a deficit, and though improving annually, it is yet far from reliability. Farm hands are generally obtained on the shares, though some pay money, as they can better repair their fences, out-



buildings, &c., by this means. The usual price is twelve dollars per month and board. When shares are taken, and this is being generally adopted, the laborer gets, without anything being furnished, one-third. When stock is also furnished by the owner, they divide equally. Land rents for, from three to six dollars, according to location and fertility. House servants cost from four to six dollars per month, except in the towns, where they command eight to ten dollars and board. Nashville may be said to be altogether our market, and produce is carried there by the different turnpikes centering at that place. But few facilities are afforded by the only railroad passing through the county. Sheep are not annoyed by dogs to the same extent as they were a few years ago.

*Domestic Manufactures* have almost totally disappeared, farmers preferring to sell their cotton and wool and buy their clothes. This is owing to the fact that our wives and daughters have the most of their house-work to perform.

The greatest drawback to farming is poverty, but few farmers possessing sufficient capital to avail themselves of all the appliances to profitable tillage.

*Smaller Industries.* We are becoming alive to the profits of the smaller industries, many farmers even now paying all the expenses of the farm by selling butter, honey, dried fruit, &c., and this branch will be still more pursued, as we see its good effects. From our distance to market, except in a scarce year, it pays but little to carry fruit off the farm, and there being a great many orchards, we are drying more fruit each year. The past year Nashville was, in a great measure, supplied by our knobs and their spurs, for here fruit never fails. There are but three nurseries in the county, and they are amply sufficient for the supply of our people, though many are still taken in by itinerant tree sellers. Messrs. Truett, at Franklin, have the largest, and have earned a well deserved fame as a reliable nurseryman. Messrs. Crutcher, Sparkman and Crisman & Green, have also nurseries, and have the full confidence of the county. With my present data, it is impossible to say what is the extent of their sales, though it will probably reach about \$15,000.

*Immigration.* We are all glad to see steady industrious immigrants come among us. If they want work, it can be obtained at an advance over our local supply, or if they want farms they can also easily be procured on most reasonable terms. Much of the success of the

United States is due to the advent of these daring and courageous immigrants, and from being the best of Europeans they become the best of our citizens, and succeed best. This "natural selection" has made the great west to blossom as a rose, and should their restless steps trend this way, they will be most heartily welcomed, as the few who have already come can well testify. In the language of Rev. Mr. Zinche, "All other series of events, as that which resulted in the culture of mind in Greece, and that which resulted in the Empire of Rome, only appear to have purpose and value when viewed in connection with, or rather as subsidiary to the great stream of Anglo Saxon immigration to the United States." A nation adopting thus the greatest number of intellectual, energetic, brave, patriotic men, will have eventually a great advantage over all other countries and peoples. So come on immigrants. Our population is already, according to the census of 1870, 25,328, of which 11,111 are colored, and we would like to increase it by the next decade to 50,000. This is an increase since 1860 of several thousand, in spite of the fatality of the war. But few of our citizens emigrate, which speaks well for the soil and climate. Another inducement to immigrants is our well developed system of

*Free Schools*, which are under full operation throughout the county. We have a tax of 15 cents on the polls, besides the interest on the school fund, which is amply sufficient to afford several good schools in every district, convenient to every child, for at least five months in the year, and with rigid economy and a little private assistance, for ten months. One school, the Nolensville High School, has received \$300 from the Peabody fund, and others could do the same with a little attention by the directors. We have a most able Superintendent, Jno. B. McEwen, whose heart is so wholly in the cause, that he gives his services freely to the county, an example it would be well for many of our office-holders to imitate. We have an Agricultural and Mechanical Association at Franklin. It has a splendid lot and suitable buildings for holding annual fairs.

*Patrons of Husbandry.* As yet but ten Granges have been formed and a County Council, but the whole county is on fire, and we may look for the formation of many more, and then we hope our agricultural interests will receive a new impetus.

*County Debt.* The debt of the county is insignificant and is fully met by the ordinary taxes which generally, including the school tax, equals the State assessment. Our free schools have superseded all pri-

vate schools, except in Franklin, where the very best private schools in the State are well patronized. A Female College, under the supervision of Professor W. J. Vaughan, stands deservedly high in public estimation, and receives support from all parts of the South. A literary society with a small but growing library, is all that the county can boast of.

*Springs.* There are mineral springs resorted to by invalids, besides several others without any accommodations. First I have already mentioned, Smith's Springs, situated on the South Harpeth, thirteen miles from Franklin, but best reached from Nashville by the Hardin pike to Allison's mill, thence up the creek six miles to the springs. The buildings here are not such as one would desire, but this is owing to a defective title to the land, and when that is settled the property will be improved. Cayce's Springs are on the waters of West Harpeth, six miles from Franklin, and have great character for children's diseases, especially summer complaints. They are finely improved and an excellent hotel is kept up during the season. McEwen's Spring is situated one mile from Franklin, and is gaining very rapidly in fame. It has only been cleaned out for visitors one year, and from its location on the highest hill, Roper's Knob in the valley, from whence are the finest views, it is destined to be famous. Thousands visited it the past season with manifest pleasure and benefit. It would be a very magnificent place for a German garden. I have had no analysis of any of these waters. Besides these, there is a Sulphur well at Brentwood, Nolensville and Petersburg, that may in time become popular.

*Poor-House.* We have a poor-house with a farm attached, but the people are too independent to need its kind offices, as there are only twenty to thirty inmates.

*Turnpikes.* We have seven turnpikes traversing the county from one end to the other, converging with three exceptions to Nashville. Three go direct to Franklin. Besides these, we have a most excellent system of road working, having adopted the system lately made discretionary by the Legislature, and it is working admirably. Under its provisions our roads in a few years will equal the roads of England, for a spirit of emulation is strongly aroused among the overseers as to who shall have the best worked roads. I would strongly urge all the counties to adopt it. On the whole, though no banner county as to any particular article of production, we can present as good a record as any county

in the State. All cereals grow well, as well as textile crops. Stock is abundant and begins to ornament every hill pasture. Water is every where for stock purposes at least, and though not sufficient generally for manufactories, is amply so for all milling purposes, as good mills border every stream. Our citizens are independent, brave, hospitable and social. Schools are everywhere, and churches point their tall steeples from almost every hill-top. Our colored people deserve every praise for their steadiness and sobriety, and have equal educational and religious advantages with the whites, and when well and promptly paid, make as good servants as any one could desire.

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## WILSON COUNTY.

COUNTY SEAT—LEBANON.

Wilson ranks among the best counties of the Central Basin. It was originally a part of Sumner, and was established October, 1799, by an act of the Third General Assembly of Tennessee, three years after the organization of the State. The General Assembly met at the time in Knoxville. The following were the original boundaries: Beginning upon the south bank of Cumberland River, at low water mark, at the mouth of Drake's Lick Branch, the north-eastern corner of Davidson county; thence, with the line of Davidson county, to the Cherokee boundary, and with said boundary to the Caney Fork; and down the Caney Fork, with its meanders, to the mouth thereof; thence down the meanders of Cumberland River, by the south bank, to the beginning.

The new county was called Wilson, after Major David Wilson, a native of Pennsylvania, who came to Sumner county while it was a part of North Carolina. The first court of the county was held at the house of Captain John Harpole, the first magistrates were Charles Cavanaugh, John Alcorn, John Lancaster, Elmore Douglas, John Doak, Mathew Figures, Henry Ross, William Gray, Andrew Donelson and William McClain. Robert Foster was elected Clerk; Charles Cavanaugh, Chairman; Charles Rosborough, Sheriff; William Gray, Ranger; and John Alcorn, Register. B. Seawell, Esq., was appointed County Solicitor. Among the names mentioned, the citizens of Wilson will recognize many belonging to the old families of the county.

Wilson lies next east of Davidson, and is washed on its northern side by the Cumberland River for an air line distance of about twenty-four miles. In 1868, according to a survey made by General A. P. Stewart, it contained  $585\frac{2}{3}$  square miles. Since that time,  $7\frac{1}{2}$  square miles have been taken off from the north-eastern corner, to help make the county of Trousdale. This leaves  $578\frac{1}{6}$  for Wilson, as it now stands, equal to 370,022 acres.

*Geology.* The lands are based almost wholly on limestones. These limestones occur in successive layers, nearly horizontal in position, and measuring, altogether, in vertical thickness, from the lowest exposed to the highest in the hills, inclusive, about 900 feet. In addition, a number of the high hills and ridges in the eastern and south-eastern part of the county are capped with a stratum of flinty material, immediately beneath which is a layer of Black Shale or slate. This Shale is generally so covered with soil and the flinty debris of the upper rock as to not be seen unless dug for. At a few points the Black Shale has been dug into for coal, (a waste of time and money) by persons not as profound geologists as they might be. Such is the simple geology of Wilson. We may say its rocks are limestone, disregarding the Black Shale and the flinty stratum above it, for the latter are found only on high points, and make an insignificant part of the area of the county. These limestones belong to the group of formations which geologists call Lower Silurian. The upper part of them, embracing 500 feet of layers, pertain to the Nashville Formation, (Cincinnati) having been once continuous with those outcropping about the Capital. The lower part may be called the Lebanon Formation, (Trenton) as this place is located upon some of its layers. We thus divide the limestones of Wilson into two great formations, the Nashville and the Lebanon. The rocks of the former are seen on the slopes of the hills and ridges, while those of the latter outcrop on lower grounds and in the valleys. There is a difference in the composition of these limestones; those of the Nashville division contain more sandy or siliceous matter, while those of the lower or Lebanon division are more clayey.

*Streams and Topography.* The county, as we have said, has the Cumberland River on its northern side. The following important creeks lie wholly within its area: Cedar, Spring, Barton's, Spencer's and Cedar Lick. These flow in a north-westerly direction into the Cumberland River. The following have their head waters and considerable portions of their valleys in the county: Stoner's, Sugg's, Hurricane and Fall creeks, which ultimately empty into Stone's River;

Smith's Fork and Round Lick emptying respectively into Caney Fork and the Cumberland. All these streams have good valleys, large portions of which are rich and attractive, supplying sites for very many excellent farms. In the south-eastern part of the county are many high but fertile hills and ridges, from which flow the head branches of Hurricane, Fall, Smith's Fork and Round Lick creeks.

The county, summarily, outside of the valleys, of which there is a good supply, may be said to be rolling, with often high hills and ridges in the eastern part. The county seat, Lebanon, is surrounded by a circle of moderate hills, the area within being a depression or basin, in the center of which is the town. From the town to the hills, in any direction, is from three to four miles. The average elevation of the county above the sea is from 500 to 600 feet.

*Land and Soils.* There is very little waste land. With the exception of a few cedar glades and some rocky points, all can be cultivated. The number of acres has been given. A large part, say four-fifths, of the county is enclosed. According to the census of 1870, the number of acres in woodland is 151,749, not much less than half the county. This appears to us to be too great a proportion. It is a rare circumstance to see old turned out fields. The soils of the county, excepting those of alluvial bottoms, and a dark cedar soil sometimes met with, may be grouped into two general kinds or classes, corresponding respectively to the two formations above mentioned, into which the limestones are grouped. The first kind found on the tops of the hills and plateaus of the western and middle portion of the county, and on the higher slopes of the eastern portion, is a mulatto-colored, warm and rather sandy soil; it may be called a *corn* soil, though it produces wheat, cotton and other crops well. It is proverbial for its fertility. Blue-grass, if a little shaded, springs from it luxuriantly and covers the hills. This soil comes by disintegration and weathering, from the sandy limestones of the Nashville Formation, and, by the way, wherever, in Middle Tennessee, these limestones outcrop, the same soil is to be seen. The second kind, found outside of the bottoms in the valleys and lower parts of the county, rests upon the Lebanon group of limestones, and is also a mulatto soil, but is more clayey and rather stiffer. It may be denominated a *wheat* soil. It does not fall much behind in fertility, though we would place the other, all things being equal, before it. Corn, wheat, oats, grasses, clover, etc., thrive upon it, and yield satisfactory returns. The soil, and more especially its subsoil, contains frequently more or less "flinty gravel," small angular pieces

of weathered flint or chert, which perhaps is an advantage. The same may be said of the first mentioned soil. These fragments are derived from the underlying limestones, and are principally small pieces of petrified corals, sponges and shells.

The prices at which lands are held in Wilson are estimated to be, per acre, as follows:

Best improved bottom lands.....	\$100
Best improved uplands.....	50
Medium bottom lands.....	30
“ uplands.....	20
Inferior uplands.....	10

At this time lands are low, with a downward tendency, but recently cedar lands have been sold for the timber at \$40 to \$60 per acre. Taking the whole county, the average price, or present cash value, may be placed at \$20 per acre, which makes the farms in the county worth in the aggregate \$7,400,440. Wilson is in fact the sixth county in the State in cash value of land. Bedford is very little ahead; the others which outrank Wilson in this respect are, in the order of greatest value, Davidson, Maury, Rutherford and Shelby.

In the ninth census report the county is credited, for 1870, with 2,009 farms, which are thus classified:

Farms having 3 to 9 acres.....	157
“ “ 10 to 19 “ .....	461
“ “ 20 to 49 “ .....	1,196
“ “ 50 to 99 “ .....	793
“ “ 100 to 499 “ .....	448
“ “ 500 to 999 “ .....	4

Farms as here understood, “include all considerable nurseries, orchards and market gardens, which are owned by separate parties, are cultivated for pecuniary profit, and employ as much as the labor of one able-bodied workman during the whole year.” What is owned or leased by one man and cultivated under his care, may be included under the name farm, the cultivation requiring the labor of one hand for a year.

The farms of Wilson are mostly occupied by their owners; very few entire farms are rented. It is common, however, for portions to be rented either on shares or for cash; when on shares, the rates are from one-third to one-half the products; when in cash, from \$1 to \$5 according to quality of land.

The best farm hands get from ten to twelve dollars per month; women (cooks and laundresses) from four to ten; good axmen get one dollar per day.

*Crops, Dairy Products, etc.* The crops, in the order of their importance, are corn, wheat, oats, hay and barley. In addition to these are produced in considerable quantities, tobacco, cotton, potatoes, both sweet and Irish, and sorghum. Small quantities of clover and grass seed, and rye may be added to the list. The following are the quantities respectively, of corn, wheat, oats, etc., produced in Wilson county in 1870, according to the report of the census of that year:

Corn.....	1,173,201 bushels.
Wheat, spring.....	1,765
Wheat, winter.....	239,950— 241,715 “
Oats.....	151,067 “
Barley.....	11,355 “
Potatoes, sweet.....	33,362 “
Potatoes, Irish.....	25,945 “
Clover seed.....	1,117 “
Grass “.....	932 “
Rye.....	3,189 “
Hay.....	5,850 tons.
Tobacco.....	332,901 pounds.
Cotton.....	1,205 bales.
Sorghum.....	47,794 gallons.

The same report brings out the fact that in 1870 Wilson was the banner county in wheat production, the yield being greater in this than in any other county of the State. Greene county, in East Tennessee, was next in quantity of wheat, and close upon Wilson. This year the county raised a good crop, and doubtless still claims the banner. And here, once for all, we may mention in what else this county excelled in 1870. Of all the counties, Wilson had the greatest number of horses, made the most butter, and the greatest number of gallons of sorghum. Moreover, it was only second in hogs, barley, and in clover and grass seed; was third in mules, sheep and hay, and fourth in orchard products, corn and oats. As to tobacco and cotton, the yield has been steadily increasing since the war. The crop of tobacco in 1872 was estimated at 750,000 pounds; in 1873, at 400,000. The yield of cotton has been considerably greater of late years than that reported for 1870. The following is an estimate of the average yield per acre of a few of the crops grown in the county by some of its citizens:



Corn.....	25 bushels.
Wheat.....	10 "
Oats.....	20 "
Barley.....	20 "
Potatoes, sweet and Irish.....	100 "
Clover and timothy.....	1½ tons.

The averages for corn, wheat and oats are small, falling much below what they ought to be considering the fertility of the soil. When crops, by better cultivation, may be increased at least one-third, boasting ought to be moderate, though the banner is carried off. The average yield of corn in Ohio and Illinois is thirty-eight bushels to the acre; of wheat in the former State fourteen, and in the latter thirteen and a half bushels, and of oats respectively thirty-four and thirty-three. The census report has the following information as to other Wilson county productions :

Orchard products.....	Value \$24,660
Produce of market gardens.....	" 11,740
Forest products.....	" 9,668
Home manufacture.....	" 45,909

As we have said the county is fourth in orchard products, this is its rank likewise in yield of market gardens. Dried fruit makes a considerable item. The number of bushels of dried apples produced is estimated to be 2,000; of peaches, 1,000. In the production of butter, as before stated, this county takes the lead. Nor is this butter a poor white article, with an aguish look about it, but the solid golden stuff that comes from good cows and blue-grass. The quantity of butter produced in 1870 was 399,249 pounds. A little cheese was made, but nothing to boast of; the quantity given is 540 pounds. We trust the good people of Wilson will improve upon the start they have made, and soon exhibit an aggregate of a million of pounds of butter, which they could easily do.

*Forest Products.* The value of these for 1870 is given above at \$9,668. This is for subsequent years greatly below the mark. The county exported in 1871 over the Tennessee and Pacific Railroad, as we have been informed by Mr. R. Miller, the former secretary of the road, 3,976,000 feet, board measure, of cedar, sawed and in telegraphic poles. If we rate this at two and a half cents per foot, it amounts to \$99,400, or in round numbers \$100,000. In addition much oak, ash, and hickory timber, the latter for spokes, axe-handles, etc., were carried off by the same road. Add to this the lumber sawed at a score of

mills, and used in the county, and also the large quantity of wood sent by railroad to Nashville, and we must have for the value of the forest products not much less than \$200,000. In April of this year, 1874, parties from Pittsburgh, Pa., contracted with gentlemen of the county for the delivery of 5,000 cords of good sound cedar at Nashville. This is now being shipped to Nashville, from which point it is carried to Pittsburgh by water. The county is noted for its fine cedar. It is used at home for many purposes. Most of the rail fences are built of it, the rails lasting fifty years. The cedar exported goes to Nashville, St. Louis, Louisville, Cincinnati, and other points. Many telegraph poles are sent also to distant points, and even stakes of cedar are shipped to Indiana, and other States for vineyard purposes.

*Live Stock.* Wilson is undoubtedly to be classed as a stock county. The value of its live stock in 1870 was \$1,919,019, which makes it, in this respect, third among the counties, Lincoln and Maury leading it. The census statistics show the following figures :

Horses.....	Number	9,682
Mules and asses.....	"	4,150
Milch cows.....	"	5,185
Working oxen.....	"	584
Other cattle.....	"	7,399
Sheep.....	"	24,023
Swine.....	"	48,708

For the later years the numbers will be much greater. There has been marked improvement in all kinds of stock. The blue and other grasses of the uplands and hills make excellent pasturage, and cattle, sheep and mules readily grow sleek and fat. Beef-cattle, hogs, sheep and mules are sent off in large numbers to supply the Nashville, and more especially the southern markets. The value of animals slaughtered and sold for slaughter in 1870 was reported to be \$610,972. Were it not for the abominable dogs which at night roam over the country, this county, in the place of 24,000, would have 100,000 sheep grazing over its rich hills. In this county these public enemies kill about 2,000 sheep every year, a heavy loss to its citizens, and a stoppage to enterprise in this direction.

Let some "fierce Achilles  
The god propitiate, and the pest assuage."

*Population.* The people of this county have and deserve a good name. They encourage and support many academies and schools, and

compare well with other sections as a church-going people. They are intelligent, hospitable, and know how to mind their own business and let other people's alone. To industrious and clever immigrants, they are well disposed, no matter from what section they may come, but persons of uncertain character do not receive a hearty welcome. The total population in 1870 was 25,881, which was classified as follows:

White.....	18,544
Colored.....	7,331
Indian.....	6

*Manufactures, etc.* The value of home manufactures for 1870 is stated to be \$45,909. This includes cotton and woolen goods and all else made at home. There are at least twenty-five saw-mills in the county, twelve of which run by steam power; one or two woolen factories, and perhaps a dozen wool-carding machines. It also has a full quota of carpenter, wagon and blacksmith shops. Of grist-mills, wheat and corn, there are about twenty, of which six or seven are steam mills. Flour is an important article of export. At Lebanon there is a barrel and stave factory. The company operating was organized in the spring of 1873, with a capital stock of \$4,500. The amount now invested in machinery, land, etc., is \$15,000. The establishment has machines for doing all the work of making staves and heads, with capacity of about eight cords of wood per day for staves and four cords for heads. It works thirty hands in the factory, and from seven to twelve in the cooper shop. Located north of the town, it is convenient to an abundance of the finest timber. The price of barrels is from thirty to forty-five cents. Hands receive 40 cents to \$2.50 per day.

*Colleges and Schools.* Cumberland University, is located at the county-seat, and is one of the best institutions of the South. In addition to the Academical Department, it has a Law School, Theological School, Preparatory School, and Commercial and Telegraphic School, with a corps of eleven professors and teachers. It is under the care of the Cumberland Presbyterian Church. The Alumni of this University have supplied the bar and bench, the pulpit and the halls of Congress to a considerable extent, and have furnished many of the best editors, teachers and business men of the country. The last catalogue, June, 1874, exhibits a total of three hundred and fifty-two students. An endowment is being rapidly obtained. The influence of the Institution is widening every year, and it promises to be, within the near future, a great power in the land.

Four miles east of Lebanon, on the Sparta turnpike, is Greenwood, a seminary for young ladies. The location is noted for its beauty of landscape, being within a delightful valley, with bold, wooded, swelling hills in sight, to add a pleasing variety. The Institution was founded in 1850 by the late N. Lawrence Lindsley, L.L. D., so long recognized throughout the country as Tennessee's great educator and scholar. Since his death in 1868, it has been presided over with signal ability and success by his elegant and accomplished widow, assisted by the ablest teachers in all of the departments of learning. Graduates of Greenwood hold high positions as educators. They all look back upon it as the happy home of their youth, and from almost every State in the South, in person and by letter, constantly come the assurances of a most pleasant and grateful memory.

The county has twelve high schools, or academies, male and female, which average seventy-five pupils each. There are about seventy-five free schools, attended in all by 4,500 children. To the support of the latter schools the county contributed in 1872 the sum of \$12,000, secured by a tax of five cents on the hundred dollars, and by the appropriation of the poll tax. Within the last year, however, no tax has been levied for school purposes.

*Roads and Railroads.* The county is traversed by many good roads. An excellent macadamized turnpike runs entirely through it from west to east, being a part of the old stage route from Nashville to Knoxville, a route which was, not many years ago, before the day of railroads, a grand highway from the eastern slope of the Alleghanies to the great West. In addition, there are six other macadamized roads radiating from the county seat, and two branch roads in the extreme parts of the county. The common country roads are generally in bad condition. Lebanon is the present terminus of the Tennessee and Pacific Railroad. The length of this road is thirty miles. It supplies ready means of transportation, and large quantities of material, such as flour, wheat, lumber, lime, live stock, etc., are carried off by it. The extension of the road is a desideratum, as it will be when completed one of the most important railways in the State. We believe the demand for the route will, before many years, secure the extension and completion of this road. It is not saying much for judicious enterprise that we cannot go from the capital to Knoxville without going out of the State.

*Towns.* Lebanon, the county seat, is an incorporated city, with something more than 2,000 inhabitants. It is the seat, as we have

stated, of Cumberland University. It has also a female seminary of high grade, besides other schools. The educational facilities of the place are rarely equaled. The Methodists, Cumberland Presbyterians, Baptists and Christians are the principal religious denominations, and the first three have large and respectable places of worship. The colored portion of the population have also two very good churches. Places of worship are well attended. The people are noted as well for their good morals as for their intelligence and refinement. The Lebanon Herald, the only paper in the county, is ably edited, has an agricultural department, and a good circulation. The town has its full share of mercantile establishments, and in this respect does not differ materially from other places in the State of the same size. There are nine lawyers' offices; two national banks; three steam flouring-mills; a cotton and woolen factory, using also steam power; the barrel factory already mentioned; a buggy and wagon factory; a marble yard; two saddle and harness establishments; five boot and shoe shops; also several furniture establishments, one with steam power; a number of carpenter and tin-ware shops; nine general stores; three drug stores; one hardware store; two jewelry establishments; two hotels; two livery stables; one broom factory, etc. The Fair Grounds of the Wilson County Agricultural and Mechanical Association are located at Lebanon. These grounds, with their improvements, reflect great credit upon the association. The space enclosed embraces many acres. There is a grand covered amphitheatre, a complete circle, making a delightful promenade for lads and lasses. A floral hall has been added to the other buildings.

In addition to the county seat, there are a number of small towns in the county which deserve to be mentioned. These are Statesville, Gladesville, Commerce, Laguardo, Taylorsville and Shop Springs. These are pleasant villages, with an average population of about one hundred. The larger places contain two hundred or more people.

## PART IV.

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# WEST TENNESSEE,

(WITH A DESCRIPTION OF EACH COUNTY.)

West Tennessee, extending from the Tennessee River to the Mississippi, embraces twenty counties, and has an area, if we include the whole of Hardin county, of 10,700 square miles, or about one-fourth of the entire area of the State. It had a population in 1870 of 367,576, of which 127,738 were colored. The number of voters in 1871 was 85,440, of whom 26,757 were colored. The number of acres of land assessed in 1873, exclusive of town lots, was 6,316,300, valued at \$63,217,856, or over \$10 per acre. The entire value of taxable property is \$107,633,035. West Tennessee has in operation 713 miles of railway, or about seven-sixteenths of all in the State. While in territorial extent it is but a fourth of the whole State, it has over one-third of the wealth and nearly one-third of the entire population.

### HISTORY.

Prior to the year 1819 this region, known as the Western District, was occupied by the Chickasaw Indians, whose title to the lands was extinguished during that year. Two counties, Hardin and Shelby, were organized by the General Assembly immediately subsequent to the treaty extinguishing the Indian titles. In the year 1821, provisions were made for the organization of Weakley, Madison, Henry and Henderson counties; in 1822, for the organization of Carroll county; in

1823 for the organization of the counties of Obion, Gibson, Dyer, Haywood, McNairy, Hardeman and Tipton and in 1824 for the organization of Fayette county. These comprised all the counties in the District until the year 1835, when provision was made for the organization of the counties of Benton and Lauderdale. In 1845 the act of the General Assembly authorizing the organization of Decatur county was passed; in 1870 Lake county was organized, and in 1872 Crockett took its place in the family of Tennessee counties.

#### PHYSICAL GEOGRAPHY.

There are three natural divisions in West Tennessee.

1. The Western Valley of the Tennessee River.
2. The Plateau Land, extending westward to the Mississippi bottoms.
3. The Mississippi Bottom.

The first division includes the counties of Hardin, the eastern parts of Decatur, Benton and Henry. Bounding this division on the west is a high bold ridge, known as Tennessee Ridge, the water-shed between the Tennessee and the Mississippi rivers. This ridge has an elevation of 600 and sometimes 700 feet above the sea. It is by far the roughest part of West Tennessee, and is valuable principally for its timber, but a few spots occur that are well adapted to cultivation. This main ridge sends out towards the Tennessee River on the east a succession of minor ridges, some of which terminate in bluffs on the Tennessee. Some of these ridges before reaching the river flatten down so as to give a better agricultural country. The general slope of the Western Valley is toward the north, while that of the Mississippi River is toward the south, thus denoting a warped surface to West Tennessee. The elevation of high water of the Tennessee at Hamburg is 392 feet, while at the crossing at the Northwestern Railroad it is 357, which shows a fall of about four and a half inches per mile. The valleys between the ridges making out from the Tennessee Ridge eastward are generally in cultivation and some of them have rich productive soils. The Plateau or Slope of West Tennessee differs greatly from the Valley of the Tennessee and particularly in two features: 1. In having no hard rocks excepting in a few localities, and 2. In having more level surface. Sand, too prevails everywhere, and the soil though tender is very productive. The absence of a clayey subsoil makes horizontalization a necessity for the preservation of the soil. Hundreds of acres have been exhausted and are beyond remedy. The entire area has

this distinctive feature, that though there are hills and valleys to be seen in every county, its general character is that of a broad plateau. Especially fringing its eastern and western boundary lines, is the hill country to be found, the hills being, as before stated, the minor ridges extending eastward from the Tennessee Ridge, and on the west the Mississippi Bluffs, which reach throughout the State, from north to south, on a line almost parallel with the Mississippi River. It is very difficult to estimate correctly the average elevation of so comprehensive a section as that of the Plateau of West Tennessee. Its elevation is, in the southern part of the division, between 500 and 600 feet above the sea, and in the central and northern part, from Jackson northward along the Mobile and Ohio Railroad, it becomes less, ranging from 400 to 500 feet. It also appears that in going toward Memphis the elevation is reduced to a level considerably below 400 feet. (Geology of Tennessee, page 117.)

#### THE MISSISSIPPI BOTTOM

Is just what its name indicates, a bottom lying on the banks of the Mississippi River. The whole of this bottom is a low and great alluvial plain, which, at many points, is below the high water level of the Mississippi, differing much in its general features from any other large section of the State. It is true along the banks of the Tennessee River there are a few bottoms which present features somewhat similar to those presented in this section, but they are on a limited scale, and imperfectly foreshadow what is found there. A very considerable proportion of the area embraced in the bottoms is covered with swamps and lakes, and much of it is covered with wild, dark and heavy forests in which are found even such wild game as deer and bear. Considered as an agricultural section, it is especially attractive, though its resources are still in a very undeveloped condition. This division of West Tennessee embraces in its area about 900 square miles. The general surface of this division coincides very nearly with the high water level of the Mississippi River. Its general elevation on the northern boundary of the State may be placed approximately at 295 feet above the gulf, and on the southern boundary below Memphis, at about 215, the fall in this distance being therefore eighty feet.

#### CLIMATE.

It is not known that any systematic climatological observations have been made in the Western Valley, but being lower than the Central Ba-



sin in Middle Tennessee, it is presumable that it enjoys a warmer temperature. Within the Plateau of West Tennessee there may have been a few observations in some of the counties, but they were not systematically made, and of course cannot be relied on. This much, however, may be said with safety, that the climate is modified sufficiently to throw nearly the whole division in the cotton belt. The Mississippi Bottom, owing to the fact that it has a less altitude above the level of the sea than any of the other leading natural divisions is in all probability the warmest section in the State.

#### SOILS.

The soils of West Tennessee are as varied as its topographical features. For instance, the bottom lands on the Tennessee River generally consist of a deep, dark, rich, alluvial soil, which rests upon a clay subsoil, and wherever the lands are not subject to overflow they produce excellently well in corn and cotton, and where there is a pretty good mixture of sand, the grasses generally do well. The highlands of the Western Valley are much less productive than the bottoms. In color they are generally much lighter, and they rest upon a clay subsoil, which is either whitish, yellowish or red. They produce tolerably well when planted in corn, cotton, tobacco, and especially well when sowed in grass, provided there is not too much sand in the soil. The general character of the soil in the *Plateau, or Slope, of West Tennessee* is everywhere pretty much the same. Of course it differs materially in color in different counties, or even in different districts of the same county; but everywhere it is mellow, mixed with more or less sand, impregnated with siliceous matter, and susceptible either of the highest state of cultivation, or, in the hands of careless and ignorant farmers, on account of its very mellowness, of being very soon made comparatively worthless. As has been before said, much of the area of the Mississippi Bottom is covered with lakes, bayous, lagoons, etc., and much of what remains is covered with heavy timber, but everywhere the soil is a dark, rich alluvial, very deep and everlasting. Indeed, it is difficult to understand how even a careless or ignorant farmer can ever render this soil entirely worthless. By surface plowing only, it may not produce well after a few years, but it will even then require only a thorough "subsoiling" or deep plowing to make it as productive as ever. This section of country is destined in time to become the agricultural paradise of Tennessee. At present, however, owing to the immense size of its timber, which renders it extremely

difficult to get it in a state of cultivation, but a small proportion of it is being worked at all. The reader is referred to the first part of the Report for the general geology of this portion of the State.

#### TIMBER.

In every county in West Tennessee there is an abundance of timber, including all the varieties usually found in the West and South-west. The best timber, however, is poplar, the different varieties of oak and gum, hickory, ash, cypress and walnut. No portion of the State can compare with Dyer and Obion counties in wealth of timber.

#### FARM PRODUCTS.

In the more northern counties of West Tennessee the staple products are corn, tobacco and the grasses; but in most, if not all of them, cotton, wheat and oats are also raised. The principal staple in the southern counties is cotton, though corn, wheat and oats, the different grasses, and some tobacco are raised in all of them. In addition to these crops, sweet and Irish potatoes are grown everywhere, but scarcely ever for market. In those counties where there is much sand (as for instance in Decatur), peanuts are raised to a considerable extent.

#### LIVE STOCK.

Though possessing very superior natural advantages as a stock country, West Tennessee does not rank well with the "fine stock" sections of the country. In fact, very little attention is being paid to the subject of raising fine stock, and almost none to that of rearing pure breeds. Occasionally a few pure-blooded males will be found, having been introduced into a county with the view of improving the domestic breeds; but it is a rare thing to find a farmer who has turned his attention to breeding thorough-breeds. Almost every farmer, however, in the northern part of West Tennessee raises a sufficient number of horses, mules, cattle, sheep, swine (common stock), for his own purposes, and most of them raise some to sell. In every county and in almost every neighborhood, the range is good, and it really costs but little to raise and even fatten a good number of stock. It is earnestly hoped that ere long the farmers of this grand division of the State will understand that it costs no more in dollars and cents to raise a thorough-bred than to raise a scrub, and but little, if any, more trouble.

## GRASSES.

It is very appropriate in this connection to consider West Tennessee as a grass-growing section. If the natural advantages of this section of Tennessee for grass-growing were developed, it would probably equal Middle Tennessee. All the best grasses grow well, and wherever there is a reasonable amount of lime in the soil, blue-grass thrives as well as in any part of Middle Tennessee; and where there is not sufficient lime in the soil for blue-grass, herds-grass and orchard-grass both grow, and the latter is more prized by stock men than blue-grass. Clover is also a standing crop in the northern portion of this division, and is being extensively grown, not only for its grazing and hay-making qualities, but also as a fertilizer. The usual rule is to allow it to stand untouched for two years, when it is turned under, thereby greatly increasing the fertility and crop-producing properties of the lands.

## FARMING BEFORE AND SINCE THE WAR.

Prior to the war the farms of West Tennessee were generally in very good condition, the farmers were generally solvent, and the agricultural interests of the country were being reasonably advanced. But the war, when it ceased, left the whole section in an impoverished condition, from which it was difficult to recover. The people, however, after the first feeling of despair, went vigorously to work, and despite the many difficulties with which they had to contend, they have, in a great measure, recovered their "lost ground," and are still working with the cheering hope, that before many more years shall have passed they will have completely regained their fallen fortunes. The farming community has this serious difficulty to contend with, however: most of them are either indifferent to the real value of labor-saving implements, or they consider themselves too poor to purchase them. In either case, the result is the same. A very small minority of the farmers are using them, and a large majority are content to plant, work and gather their crops just as did their fathers and grand-fathers before them. There has been, within the past few years, an increase of interest in these matters, and in almost every neighborhood one or more enterprising men are to be found who are using these improved implements and machines, greatly to their advantage, and indirectly to the advantage of their neighbors; for they are slowly, but

surely, convincing them of the wisdom of their course, which will, it is hoped and believed, eventually result in the general introduction and use of labor-saving implements throughout this division of the State.

#### TRANSPORTATION—RAILROADS.

West Tennessee is fast becoming a net-work of railroads, the following enumeration including all those which are already completed, or actually in the course of construction :

The Nashville and North-western Railroad, which is now under the immediate control and is being operated by the Nashville and Chattanooga Railroad Company, extends from Nashville, Tennessee, to Hickman, Kentucky, on the Mississippi River. This road crosses the Tennessee River at Johnsonville, which is on the east bank of the river, and in Humphreys county, and entering West Tennessee ranges thence west and north-west through the counties of Carroll, Weakley and Obion, passing out of Obion into Kentucky at a point about half-way between the north-east and south-east corners of the county. This road crosses the Memphis and Louisville Road at McKenzie, in Carroll county, the Mississippi Central at Martin's, in Weakley county, the Memphis and Paducah at Paducah Junction, in Obion county, and the Mobile and Ohio at Union City, also in Obion county.

The Memphis Branch of the Louisville, Nashville and Great Southern extends from Memphis to Louisville, Kentucky. This road crosses the Tennessee River into West Tennessee from the east at Danville, in Houston county, ranges thence west through Benton and Henry counties to Paris, the county seat of Henry county; thence south-west through the counties of Carroll, Gibson, Madison, Haywood, Fayette and Shelby to Memphis. It crosses the Nashville and North-western Road at McKenzie, Carroll county, the Mississippi Central at Milan, in Gibson county, and the Mobile and Ohio at Humboldt, also in Gibson county.

The Mobile and Ohio Railroad extends from Mobile, Alabama, to Columbus, Kentucky, where it makes connection with the Iron Mountain Railroad of Missouri. It enters West Tennessee from the south, crossing the State line in McNairy county, and ranges thence in a direction a little west of north through the counties of McNairy, Madison, Gibson and Obion, passing out of West Tennessee at Jordan's Sta-

tion, on the Kentucky line. This road crosses the Mississippi Central Railroad at Jackson, in Madison county, the Memphis and Louisville at Humboldt, in Gibson county, the Memphis and Paducah at Troy Station, in Obion, and the Nashville and North-western at Union City, also in Obion county.

The Mississippi Central Railroad extends from New Orleans, Louisiana, to a point on the Ohio River opposite the city of Cairo, Illinois, there connecting with the Illinois Central Railroad. It enters West Tennessee from the south-west, in Fayette county, ranges thence north-east through the counties of Fayette, Hardeman, Madison, Gibson and Weakley, thence into Kentucky, crossing in its route the Memphis and Charleston Road at Grand Junction, in Hardeman county, the Mobile and Ohio at Jackson, in Madison county, the Memphis and Louisville at Milan, in Gibson county, and the Nashville and North-western at Martin's, in Weakley county.

The Memphis and Charleston Railroad extends, as its name indicates, in the direction towards Charleston, South Carolina. In its route it ranges east, passing through the counties of Shelby, Fayette, Hardeman and McNairy, thence into Mississippi at a point on the southern line of McNairy county, about twelve miles east of where it touches the western line. In its route through West Tennessee, it crosses the Mississippi Central Railroad at Grand Junction, in Hardeman county.

The Memphis and Paducah Railroad is chartered to extend from Memphis, Tennessee, to Paducah, Kentucky, but at present is not completed. From Memphis it runs to Covington, in Tipton county, passing through portions of the counties of Shelby and Tipton. From Paducah it extends to a point a little north of Newbern, in Dyer county, leaving a gap which is yet to be completed. Work upon this road is progressing very satisfactorily, and when completed from Memphis, it will range north-east, passing through the counties of Shelby, Tipton, Lauderdale, Dyer and Obion, and crossing, in its route through West Tennessee, the Mobile and Ohio Road at Troy Station, in Obion county, and the Nashville and North-western at Paducah Junction, also in Obion county.

The Mississippi and Tennessee Railroad, extending from Memphis, Tennessee, to Grenada, Mississippi, leaving Memphis, ranges south, and passes through a portion of Shelby county, which is the only county in West Tennessee that is touched by this road.

These are the only roads in West Tennessee, except a few miles of narrow-gauge from Raleigh toward Memphis. For projected roads, see chapter on railroads, Part I. of this report.

#### TRANSPORTATION—RIVERS.

The Tennessee River laves the entire eastern boundary of West Tennessee, and furnishes first-rate marketable facilities to a large number of the West Tennessee counties.

The Mississippi River, on the other hand, washes the entire western boundary of West Tennessee, and of course gives to those persons living on or near its banks the very best marketable facilities.

In this connection, it should be remarked that, with the exception of Henderson county, every county in West Tennessee has either direct railroad or river transportation.

#### MINERALS.

Though not so rich in mineral wealth as either of the other divisions of the State, some very rich deposits of iron ore are met with in Decatur and Benton counties. Previous to the war there were two furnaces in operation, Brownsport and Decatur. The former only has been in blast since. In Henry, Benton and Decatur counties quarries of very good variegated marble occur. The same rock is burnt into lime, which is the principal source of supply for the more westerly counties. Beds of lignite outcrop on the slopes of the Mississippi bluffs in Obion, Dyer, Lauderdale, Tipton and Shelby. This material has been mistaken for true stone-coal, an error which has led some into expensive and vain exploration. In a number of counties beds of potter's clay abound, much of which is white. In McNairy, Hardin and Henderson a very extensive bed of "green sand" is met with, which has been described in the first part of this Report.

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#### BENTON COUNTY.

#### COUNTY SEAT—CAMDEN.

Benton county is bounded on the north by Henry county and the Tennessee River, on the east by the Tennessee River, on the south by Decatur county and a corner of Carroll county, and on the west by

Carroll and Henry counties. It embraces about 400 square miles, and had a population by the last census amounting to 8,234, of which 452 were colored. The number of acres of land, exclusive of town lots, assessed for taxation in 1873 was 239,663, valued at \$911,277. The whole valuation of taxable property for the same year was \$1,012,619. There are twelve civil or magisterial districts, and the school districts coincide with the civil districts.

*Outlines of the County's History.* The principal portion of the territory now included in Benton county was originally a part of Humphreys county, the balance, including about one civil district, having been taken from Henry county, by virtue of the act of the General Assembly authorizing the organization of the county, which act was passed November 24, 1835. The district taken from Henry county comprises that part of the county lying south of Sandy River, and between that and the Tennessee River. The commissioners who organized the county were Green Howers, Ephriam Perkins, Lewis Brewer, John F. Johnson and George Camp, who accomplished the work assigned to them on the 7th day of February, 1836. The first settlers in the county were principally from the counties of Middle and East Tennessee and from North Carolina.

*Physical Geography.* Benton county is partly in the Western Valley of the Tennessee River and partly in the Plateau or Slope of West Tennessee, the eastern section being in the former, the remainder in the latter. The point where the Nashville and Northwestern Railroad crosses the Tennessee River is 357 feet above the sea. But as this point is lower than the western section of the county by several feet, it will probably be safe to say that Benton county is, on an average, about 370 feet above the sea. It should be observed, however, that the level of low water in the Tennessee River is about forty feet below that of high water. The surface character of Benton county is very varied, and is difficult to describe. Immediately about Camden, which is located very near the center of the county, the country in every direction for a distance of about five miles is gently undulating, but going east towards the Tennessee River, until the margin of the river valley is reached, there are many steep bluffs, or spurs, which fringe the valley along its entire length in the county. This valley is about, on an average, two miles wide, and not less than fifty miles long, and has a rich, alluvial soil, which is very productive. But going west from the town of Camden, the county becomes more rolling, and the soil is thinner and much less productive. There are generally flats or

bottoms along the creeks which ramify the county, which flats or bottoms will probably average half a mile from head to foot, and are fringed on both sides by ridges which are distinctly marked, but not very high. The lands in these bottoms are generally rich, but along the ridges is is very thin and produces but indifferently.

*Formations.* Along the ridges in the southern part of the county there are formations of limestone which are found at various depths below the surface. Along the margin of these ridges a blue limestone which makes good lime. In the third civil district, on Birdsong Creek, in the southern part of the county, is found a variegated marble, which is susceptible of a good polish, and presents when polished a handsome appearance. At or near Rockport, on the Tennessee River, a quarry was opened and worked very successfully some years since, but recently the work on it has been abandoned.

*Climate.* The thermometer in summer sometimes shows the temperature to be as high as  $100^{\circ}$ , and in winter sometimes as low as zero, but it is not often as high as  $92^{\circ}$  and seldom as low as  $4^{\circ}$  above zero; in the summer it generally ranges from  $75^{\circ}$  to  $80^{\circ}$ , the average for the year being about  $59.5^{\circ}$ . The climate is not regarded as changeable, except during the spring and fall, when the temperature changes more frequently and more rapidly than is comfortable. About the time of the autumnal equinox a very changeable spell of weather may generally be expected. The average rain fall in the county it is thought will not exceed  $3\frac{3}{4}$  inches per month. The average snow fall is probably about 5 inches per year. About the 10th of October the first killing frost may be expected.

*Health of the County.* In the latter part of the summer and throughout the fall months the prevailing diseases of the county are bilious and intermittent fevers, and such generally as are superinduced by excess of malaria. In the winter, pneumonia is most to be feared, and in fact it may be said with truth that lung diseases are quite prevalent. But none of the diseases to which the county is subject are, as a class, malignant or fatal, the per cent. of deaths resulting from them not exceeding twenty.

*Rivers, Creeks and Springs.* There is no county in Tennessee which is better watered than Benton. The following named streams are perennial and are the most important: Eagle Creek rises in the southern part of the county, near the Decatur county line, ranges north-east, and empties into the Tennessee River. Birdsong Creek rises near the



Carroll county line, ranges north-east, and also empties into the Tennessee River. Sycamore Creek rises in the county, ranges north, and is a tributary of Birdsong Creek. Wolf Creek is another tributary of Birdsong, which also rises in the county and ranges north. Seventeen-mile Creek rises in the southern part of the county, ranges about south-east, and also empties into Birdsong Creek. Cypress Creek rises near the Carroll county line, ranges north-east, and empties into the Tennessee River. Cane Creek is a tributary of Cypress, one branch of which rises south-west of Camden, the other north-east, the two forming a junction near Camden, thence flowing to Cypress Creek. Burnside Creek, another tributary of Cypress, rises north of Camden, and ranges south-east. Beaver Dam Creek, still another tributary of Cypress, rises in the county, ranges nearly south, and empties into Cypress east of Camden. Rushing Creek rises in the north-eastern part of the county, ranges north-west, and empties into Sandy River. Ramble Creek rises in the county, ranges west, and empties into Sandy River. Sugar Creek is a small stream which rises in the county, and is also a tributary of Sandy River. Harmony Creek rises in the county, ranges north-east, and empties into Tennessee River. Sulphur Creek also rises in the county, ranges north-east, and empties into the Tennessee River. Crooked Creek is another tributary of the Tennessee River, rises in the county, and ranges north-east. Lick Creek is still another of the numerous tributaries of Tennessee River, rises also in the county, and also ranges north-east. The Tennessee River washes the north-eastern border of the county for a distance of not less than fifty miles, and the Big Sandy River forms the dividing line between Benton and Carroll counties. All of these creeks are fed by springs, which are in great numbers in the county, and they furnish a bountiful supply of water for stock throughout the entire year. The beds of those streams which empty into the Tennessee River (excepting Cypress Creek) are generally covered with flinty rock, while those emptying into Sandy River have sandy, gravelly bottoms. Cypress Creek is a very sluggish stream, and also has a sandy bottom. The springs in the northern and central part of the county are freestone, except in a few instances where the water is strongly impregnated with sulphur or iron. On Sulphur Creek there are several small sulphur springs, and on Sandy River there is a very strong sulphur well. On Beaver Dam Creek there is one spring, the waters of which are strongly impregnated with alum, and there are several small chalybeate springs on the same stream. The water in the southern part of the county is also principally free-

stone, but there is some limestone water, and on the Tennessee River, near Rockport, there is a superior chalybeate spring. For domestic purposes the people use wells and springs about equally, the average depth of wells throughout the county being about thirty-five feet, though there are some (in the bottoms) as shallow as ten feet, while there are others (on the highlands) which are as deep as seventy feet.

*Timber.* There is a very fair supply of timber in the county, the best being oak, but scattered over the county in limited quantities are found some poplar, and in the southern districts some chestnut. There are still other varieties of timber, but not in large quantities. Along the creek bottoms and on the rivers, there is some walnut.

*Lands, Statistics.* The following figures taken from the census report of 1870, will give the reader a very correct idea of the county as it is in 1874, the change having been small:

Total number of farms in county.....	1,165
Number of farms having under 3 acres.....	1
"    "    "    3 and under 10 acres.....	53
"    "    "    10 "    "    20 "    .....	235
"    "    "    20 "    "    50 "    .....	469
"    "    "    50 "    "    100 "    .....	310
"    "    "    100 "    "    500 "    .....	97

It may be mentioned, as one of the peculiarities of Benton county, that the farmers are generally men of small means, who are content to work on small farms, hence do not feel much the general scarcity of labor. Some, however, prefer to rent out their land, and it is estimated that about twenty-five per cent. of the improved lands are in the hands of renters, the average rentals being, for cotton, corn and grain lands, per acre, \$3.00. It is also estimated that about the same (25) per cent. of the improved lands are for sale, and can be bought on reasonable terms, the average prices being as follows:

Best improved lowlands, per acre.....	\$15 00
"    "    uplands    "    "    .....	10 00
Medium lowlands.....	5 00
"    uplands.....	3 00
Inferior lowlands.....	3 00
"    uplands.....	2 00

These figures will surprise most persons who examine them, for it is a well established fact that in proportion to their real value, the lands of Benton county sell cheaper, by a large per cent., than the lands in any other county in West Tennessee. It is true they are not first-class

lands as a rule, but they produce reasonably well, and are really worth more than they sell for. The following figures will give a very correct idea of what these lands will produce, the averages having been estimated by some of the most intelligent farmers in the county :

Average yield of cotton, per acre.....	500 pounds.
“ “ corn “ “ .....	25 bushels.
“ “ tobacco “ “ .....	700 pounds.
“ “ Irish potatoes, per acre.....	60 bushels.
“ “ sweet “ “ “ .....	75 “
“ “ peanuts “ “ .....	65 “

The usual form of renting throughout the county is for part of the crops, the terms generally being as follows: Where the land-owner furnishes everything but the labor, he gets one-half; and where he only furnishes the land, he gets one-third of the crop. The usual terms of sale are for one-third cash, the balance in one and two years, without interest, a vendor's lien being retained to secure payment of unpaid purchase money.

*Labor.* As has been stated above, the people of Benton county are more independent of farm labor than those of its neighboring counties, but still there is a fair demand for good hands, which, at present, are very scarce. The principal available labor now is negro labor, which is very unreliable; there are, however, some white laborers, and they are generally regarded as being very reliable. The people would be glad to welcome white men who are willing to work for wages, but they insist that they don't want any fresh installments of negroes. The wages usually paid for hands in the county are as follows:

For farm hands, per year.....	\$180
“ “ “ per month.....	15 to \$20
“ “ “ per day.....	1 00
Cooks, per month.....	4 to 5
House servants, per month.....	5 to 6

Good cooks are greatly in demand, but the demand for house servants is small.

*Grasses.* As yet the people of Benton county have paid no attention to the growing of grasses, though it is reasonable to suppose that they would do well. Indeed, a very few farmers in the neighborhood of Camden testify that their limited experience proves that grasses will do well, especially herds-grass, which is their favorite. Clover yields well, but it is too short-lived to be profitable. The quantity of hay

that is saved in the county is too small to enable even an approximate estimate of the yield per acre to be made with any certainty.

*Fruits.* Benton is a good county for the growing of fruits, but there are few market orchards; peaches and plums do especially well, and they are raised in abundance on almost every farm. The other varieties of fruits also thrive, but those named are the most reliable, and are the favorites. Grapes, too, bear profusely, the domestic as well as the wild varieties, and most, if not all of the berries grown in Tennessee, are grown very successfully.

*Forest Products.* Lumber is not regarded as an article of commerce, though good qualities can be obtained in any quantities. Along the banks of the Tennessee River some attention is paid to rafting logs, but very little lumber is sawed in the county, only sufficient for home use.

*Stock.* Little or no attention has been paid to stock-raising; every farmer raises enough for his own purposes, and a sufficient surplus is raised in the county to supply the towns and villages, but no attention is paid to raising stock for market. Some efforts have been made to raise sheep, but for the want of a "dog law" they have been unsuccessful.

*Game and Fish.* There is very little game in Benton county, and such as there is, is very small; a few deer are occasionally found on the Tennessee and Sandy rivers. But there is a plentiful supply of fish in the rivers, and in all the creeks, the principal varieties being buffalo, cat, some trout and perch. As a general thing, game fish are scarce.

*Markets.* Nashville, Louisville, Memphis and Evansville are the principal markets, by way of the Nashville and Northwestern, and the Memphis and Louisville railroads, and the Tennessee River.

*The People.* As a general rule, the people are very law-abiding and work well, but they are not the thriftiest people in the world. In fact they might do much better, but as a class they seem satisfied to work, and make just enough to live on comfortably. There seems to be less disposition to get rich among the farmers than is usually seen in Tennessee; indeed, they are the most contented and the most easily satisfied people in West Tennessee, if not in the South.

*Immigration and Emigration.* Those who are in the county seem satisfied to remain there, and the result is that very few leave; those

who do leave generally go to Texas and Missouri. And since the war there seems to be but little disposition manifested on the part of homeseekers to settle in Benton, and the result of this state of affairs is that the population of the county continues about the same from year to year, and undergoes but little change. A man may leave and return after many years' absence, and reasonably expect to find many familiar faces. The people, however, will heartily welcome white men and their families, without regard to political antecedents or proclivities, provided they will come of their "own free will and accord." They cannot be prevailed on to trouble themselves much to induce immigration. It is due them to say that they are eminently sociable as a people.

*Roads.* The county roads are in a very bad condition, and have but little attention paid to them. The people have no confidence in the new road law, which has never been enforced in the county. There are no improved roads in Benton county.

*Railroads.* At present there are but two railroads passing through the county the Nashville and Northwestern, which passes through its center from east to west and the Memphis and Louisville, which just touches the extreme northern part of the county. Efforts are being made to build a road from Cairo, Ill., to Johnsonville, on the Tennessee River, to be called the Cairo and Tennessee River Railroad, but as yet the prospects are not flattering.

*Towns and Villages.* Benton county is well supplied with towns and villages, which are scattered about promiscuously—those at all deserving of mention being as follows:

Camden, the county seat, is located near the center of the county, has about 300 inhabitants, is the center of trade in the county, has a court-house and jail, three churches, Baptist, Methodist and Cumberland Presbyterian, and two good schools. It has also, among other business-houses, a stock store, which is deserving of mention. It is owned by a joint stock company, numbering 175 (mostly farmers) members, with a cash capital of \$6,000. The stockholders in the aggregate being worth \$100,000. The shares are twenty-five dollars each, and no one stockholder is allowed to own more than twenty shares, and every stockholder is allowed to purchase all the goods he needs for his family use at an advance of ten per cent. on first cost. It is a chartered institution, having been regularly incorporated under the style of "The People's Company," in April, 1872, when there were

only forty members. It has no connection with the order of the Patrons of Husbandry, and any one not in the interest of a merchant can become a stockholder, with all the privileges which the others enjoy.

Mt. Carmel is a small village, fifteen miles south-west of Camden, with about thirty inhabitants. Coxburg is fifteen miles south of Camden, and has about thirty inhabitants. Rockport is a shipping point on the Tennessee River, and is eleven miles south-east of Camden. Thompson's Point is on the Tennessee River, and is nine miles south-east of Camden. Wills' Point is also on the Tennessee River, and is seven miles east of Camden. Sales' Landing on the same river is seven miles south-east of Camden. Point Mason is also on the same river and is eighteen miles north-east of Camden. West Danville is on the west bank of the Tennessee River, where it is crossed by the Memphis and Louisville Railroad, and is twenty-three miles north-east of Camden. Benton Ridge is a depot on the Memphis and Louisville Railroad, and is twenty miles north-east of Camden. Big Sandy is also a depot on the same road, and is fourteen miles north of Camden. Barter Hill is six miles north-west of Camden. Sawyer's Mills is six miles west of Camden. All of these places, except Camden, are very small, and have a neighborhood importance on account of having in them blacksmith shops, and some of them stores and post-office. In this connection, it will be well to observe that post-offices are not convenient to all sections of the county. A great many were abandoned during the war, which have not since been revived. The result is, a large proportion of the people have to ride to Camden to get their mails.

*Mills and Factories.* The fall of the streams in the county is very slight, and the result is there are few mills. The average milling distance is not less than five miles. There are two or three small tobacco factories in the county, but they have only a local importance.

For school statistics, see Part I of this Report.

*Churches.* Nearly every neighborhood has churches convenient, representing some one or more of the Christian denominations. The denominations rank in numbers and wealth as follows: 1st, Methodist; 2d, Cumberland Presbyterian; 3d, Baptist; in the southern part of the county there is one congregation of Reformers or Christians. As a general thing Sunday-schools are not kept up in the country churches, and but indifferently in the towns and villages. No newspaper is published in the county.

## CARROLL COUNTY.

COUNTY SEAT—HUNTINGDON.

This county is bounded on the north by the counties of Weakley and Henry, on the east by the counties of Benton and Decatur, on the south by Henderson and Madison counties, and on the west by Gibson county. There are about 625 square miles of territory in the county. The number of acres exclusive of town lots assessed for taxation in 1873, was 352,030, valued at \$3,153,880. The county is divided in twenty-five civil districts and seventy-five school districts, giving an average of three school districts to each civil district. This division into school districts was made under the new school law. There are no natural divisions which are worthy of remark.

*History.* On the 9th day of November, 1821, the General Assembly passed an act providing for the organization of what was known as the Western District into counties, and under and by authority of this act the county of Carroll was formally organized on the 11th day of March 1822.

*First Settlers.* The old pioneers who first settled in the section of country now embraced in Carroll county, were originally from the States of North Carolina, South Carolina and Virginia, and not a few of them were from the older counties of Middle Tennessee.

*Topography.* In the immediate vicinity of Huntingdon, which is located very near the center of the county, the surface character of the country is very broken; going north from three to four miles the country becomes quite level, and continues so until the county line is reached; going south without being hilly, the country is broken; going west five or six miles, a very level and very rich body of land is reached, which extends to the west county line; going east the county is rather broken for about nine miles, when it becomes very much broken, and even hilly.

*Soil.* The soil is generally of a gray color, with a reddish subsoil, which is very retentive of moisture. But there is a light sandy soil in various sections of the county, on which cotton does better than on the gray lands, but even on that it pays well to raise it.

*Geological Formations.* As a general rule, the county is very free from rocks, but in the eastern part there is occasionally a formation of

sandstone found, which generally lies near the surface, but it is sometimes reached by well-diggers at a depth ranging from three to six feet. These formations, however, are very limited in extent, and have only a local interest. It may also be well to notice that in various portions of the county a very singular looking sand is found, sometimes at or very near the surface, but for the most part at a depth ranging from eighteen inches to five and six feet. In color it varies considerably, sometimes presenting a reddish appearance, at another time or place assuming rather a yellowish cast, while in other places its color is almost white; again beds of it are found which are something of a bright orange color, and in more than one place in the county all or most of these colors may be found in one bed, mixed with a pasty colored clay. It seems generally to run in veins, and it is said that sometimes fossil leaves and even semi-petrified twigs and tree limbs are found in these beds.

*Rivers and Creeks.* The county is reasonably well watered with perennial streams, of which the following are most worthy of notice:

Big Sandy enters the county from Henderson county, ranges north-east, cutting off the south-eastern corner of the county, and empties into the Tennessee River in Henry county. Beaver Creek rises in the county, with two heads, one in the south-eastern part of the county, which ranges west; the other in the north-eastern part of the county and ranges north-west, uniting about two miles south-east of the town of Huntingdon, thence ranging west, and empties into the South Fork of the Obion River. Crooked Creek enters Carroll county on its northern boundary near the centre of the line from Henry county, ranges south-west, and intersects Beaver Creek about four miles from the west boundary line, forming the South Fork of the Obion River. Reedy Creek, in the south-western part of the county, ranges about north-west, and empties into the South Fork of the Obion. Rutherford Fork of the Obion rises in Henderson county, enters Carroll in the south-western part of the county, ranges north-west through the county. Forked Deer enters the county on its southern line, near the western corner, and cuts off the south-west corner of the county.

The above named streams, which, it will be seen, are very convenient to a large proportion of the county, are fed by springs; those west of Huntingdon have sandy beds, the others have all muddy beds. There is a great number of springs in the county, some of them being quite strongly impregnated with sulphur, while others are chalybeate,



but most of them are freestone. The principal dependence for stock-water is in the rivers, creeks and branches, but for household purposes wells and cisterns are mainly relied on.

*Land Statistics.* In 1870 there were 960 farms in Carroll county, of all sizes, of which number there were three having more than three and under ten acres; sixty having more than ten and under twenty acres; 447 having more than twenty and under fifty acres; 226 having more than fifty and under one hundred acres; 180 having more than one hundred and under five hundred acres; and only four having more than five hundred acres, and these four had each less than one thousand acres. Since 1870, there has been some improvement in the matter of clearing lands, but it has been so small that it scarcely admits of being estimated. The cash value of these farms in 1870 was \$1,671,572, while the cash value of the farming implements and machinery was \$114,585, which value has not increased to any great extent. In 1873 there were probably not less than  $33\frac{1}{3}$  per cent. of all the open lands in the hands of renters, while a large proportion of the balance, say  $33\frac{1}{3}$  per cent. of the whole, is worked by hired hands for for money, or on shares, while only about  $33\frac{1}{3}$  per cent. is worked by the land owners themselves. In this connection it may be well to notice that scarcely more than 5 per cent. of the lands now open in the county are really tillable. The amount of lands in the county which are for sale, at reasonable prices, is probably 20 per cent., owned by persons who have large bodies of lands; but a small proportion of this 20 per cent. is land which is open and ready for cultivation. The average prices for lands in the county are about as follows :

Best improved land, per acre.....	\$30 to \$40
Medium lands.....	15 to 20
Inferior lands.....	5 to 8

In many of the West Tennessee counties quite a difference is made in the prices of the uplands and the lowlands, but in Carroll county, as a general rule, there is no such distinction made. The average rental of lands in the county is about as follows :

Cotton and corn lands, per acre.....	\$3.50, or one-third of the crop.
Meadow and grain lands “ .....	One-third of the crop.

When the land-owner furnishes everything but the labor, and crops on shares, he gets one-half of the crop. The usual terms of sale are, one-third cash, the balance in one and two years, with lien retained for the unpaid purchase money.

*Labor.* Labor is very scarce, the people having to rely principally upon negroes, who are indolent and not trustworthy as a class. There are some white laborers, but they, too, as a general rule, are not regarded as reliable. Good white laborers are very much wanted, and they can command the following prices:

Farm hands (with board) per year.....	\$150
“ “ “ “ “ month.....	15 to \$20
“ “ “ “ “ day .....	1
Harvest “ “ “ “ .....	2
Cooks “ “ “ month.....	8 to 10
House servants “ “ “ “ .....	10 to 12
Mechanics “ “ “ day .....	2 to 4

*Products.* The county generally produces well, and the following averages of crops may be relied on:

Corn, per acre.....	22 bushels.
Cotton “ .....	600 to 800 lbs.
Wheat “ .....	8 bushels.
Tobacco “ .....	800 lbs.
Oats “ .....	15 bushels.
Potatoes, Irish, per acre.....	20 to 30 bushels.
Potatoes, sweet, “ .....	25 to 40 “

The cotton generally ranks from good ordinary to low middling; the tobacco is of a good quality, but not much is raised; oats do well sometimes, but on account of the frequency of rust, but few are raised. The following crops were realized in 1870, and will give a fair idea of what the people of Carroll county are doing in 1874:

Wheat raised.....	93,872 bushels.
Corn “ .....	777,922 “
Oats “ .....	4,206 “
Tobacco “ .....	10,840 pounds.
Cotton “ .....	5,023 bales.
Wool “ .....	13,044 pounds.
Potatoes, Irish, raised.....	213 bushels.
Potatoes, sweet “ .....	371 “
Butter.....	272,083 pounds.
Cheese.....	4,475 “
Hay.....	108 tons.
Sorghum.....	8,065 gallons.
Honey.....	3,135 pounds.

In this same connection may be very appropriately given a few other statistics as illustrating the industries of the county:

Value of home manufactures.....	\$ 87,455
“ animals slaughtered, etc.....	312,707
“ all live stock.....	910,255

Number of horses.....	3,517
“ mules and asses.....	2,265
“ milch cows.....	4,076
“ working oxen.....	857
“ other cattle.....	4,505
“ sheep.....	10,822
“ swine.....	35,018

*Grasses.* Clover and herds-grass have long been the favorite grasses in the county, but of late years clover has been giving place, to a great extent, to timothy, which is now extensively sowed. The German millet is also coming into favor in many neighborhoods, but as yet it cannot be classed as one of the general crops of the county. The estimated average yields of these grasses is as follows: Herds-grass and timothy per acre, two tons; German millet, three tons. There is also in the lowlands over the county a wild grass, called locally, swamp grass, which is said to grow luxuriantly, and of which stock of all kinds are remarkably fond. This swamp grass stands a drought well.

*Fruit, Vines and Berries.* The most reliable fruits are the peach and the apple; pears do well, especially the standard varieties, but the dwarfs are short lived and unreliable; plums and cherries likewise do tolerably well, but they are not much valued or cultivated. Every year there is fruit in some neighborhoods of the county, and about “every other year” a good crop may be relied on. Grapes, especially the wild varieties, seem to thrive particularly well, but most of the domestic varieties are subject to more or less rot, which fact prevents them from becoming an article of export from the county. Berries of the kinds usually found in West Tennessee grow in great abundance, and are regarded as being very reliable. The muscadine is abundant.

*Forest Products.* Good lumber can be procured in the county at from \$15 to \$20 per thousand feet, principally yellow poplar, but there is some red gum; the other varieties are very scarce, and but little is shipped.

*Stock and Stock-raising.* But very few persons are paying any attention to the improvement of stock. It is believed, however, that the plentiful supply of water, the wild grass which abounds, and the extensive ranges in the county peculiarly adapt it to this branch of industry. The Berkshires are the favorite hogs in the county, and a dog law is very much wanted, and would be very popular with the farmers, most of whom would raise sheep, but cannot do so on account of the great number of sheep-killing dogs which infest the county.

*Game and Fish.* There is very little game in Carroll county; principally turkeys, squirrels and birds, and they are rapidly getting scarce. Fish, also, are becoming very scarce, the most numerous varieties being trout, perch, suckers and cat, and a very few buffalo.

*Markets.* The principal markets are Nashville, Memphis and Louisville, via the Nashville and Northwestern, and the Memphis and Louisville railroads. There is also a good home market for everything which one may have to buy or sell.

*Population.* According to the census report of 1870 the population of Carroll county was as follows: Whites, 14,648; colored, 4,799; total, 19,447.

*The People.* As a general rule the people are industrious and thrifty, and there is a general spirit of improvement manifested, especially among the farming classes. New buildings are going up, old ones are being improved, fences are being built, and to a very limited extent new lands are being cleared and made ready for cultivation. The court records show that the people are generally law-abiding, but there is probably more litigation in proportion to the population than in any other county in West Tennessee.

*Farming and Farmers.* Since the war, there has been a very gradual and marked improvement in the manner of farming; but even in 1873 the farmers read but little on the subject of farming, or on any other subject, and agriculture, as a science, is but little understood. There is some machinery in use, but very little, and there is certainly great room for improvement. A very insignificant proportion of the people are subscribers to agricultural papers and journals.

*Immigration and Emigration.* During the past five or six years very few families or individuals have moved into the county; these few principally from East Tennessee and from North Carolina, while occasionally one from Virginia finds his way into the county. The people express themselves as being anxious to welcome good settlers, but they have as yet made no effort worthy of the name to induce people to make their homes with them. They will be glad to have settlers come in, without respect to color or political proclivities. Some families have left the county recently, most of them going to Arkansas and Texas, but the general disposition of the people is to stay at home, that is to say, in the county, but it is said that they are equally as fond of confining themselves to their respective homes, the result being that they are not noted for their sociability.

*Roads.* As a general rule the roads in the county are in a very neglected condition, and often in the winter they are nearly impassible. The people seem to be so much absorbed in the raising of cotton that they cannot be induced to work on the roads, and the result is obvious. The road law of 1872-3 is not in force in the county, and is not likely to be.

*Railroads.* The railroad facilities, however, are very good, and the prospects are very encouraging. The Nashville and Northwestern Railroad runs through the county, entering it from Benton county, ranging in a south-westwardly direction to Huntingdon, running thence in a north-westerly direction to McKenzie. The Memphis and Louisville Railroad enters the county from Gibson county at Milan, which is not far from the line between Gibson and Carroll counties, and near the middle of the line, running thence in a north-easterly direction, passing out of Carroll into Henry at McKenzie, which is on the dividing line between Carroll and Henry counties, and very near the center of that line. The Tennessee Central, which is to run from Huntingdon to the town of Fulton, on the Mississippi River, in the county of Lauderdale, is under contract from Huntingdon to Trenton, in Gibson county, and will, in all probability, be completed.

*Towns and Villages.* Huntingdon, the county seat, is situated near the center of the county; has a population of about 800 inhabitants; has four churches, representing the following denominations: Methodist Episcopal Church, South; Methodist Episcopal Church, North; Cumberland Presbyterian, and Colored Methodist; has as its only public buildings the court-house and jail; is quite a good looking town, is growing some, and does a heavy business; has a depot on the Nashville and Northwestern Railroad, the contemplated northern terminus of the Tennessee Central Railroad, and also of the contemplated railroad from Jackson. Over 4,100 bales of cotton were shipped from this point in 1873.

McKenzie is at the crossing of the Nashville and Northwestern, and the Memphis and Louisville railroads; is 12 miles north-west of Huntingdon; has about 1,000 inhabitants; is quite an active business point; is growing rapidly; is the seat of Bethel College, which institution is under the patronage of the Cumberland Presbyterian Church, and has about eighty students; also of McKenzie College, which has about 170 students, and is a private enterprise; has three churches, representing the following denominations: Methodist Episcopal Church, South,

Cumberland Presbyterian, and Baptist; has also one foundry, one planing mill, one flouring-mill, three cotton gins, two colored churches (Methodist and Baptist) and two colored schools. Trezevant is a depot on the Memphis and Louisville Railroad; is twelve and a half miles west of Huntingdon; has a population of about 250 inhabitants. McLemoresville is on the contemplated line of the Tennessee Central Railroad; is nine miles west of Huntingdon; has about 200 inhabitants; is the seat of a fine institution of learning known as Bethel Seminary, with 104 students. Atwood is on the Memphis and Louisville Railroad, fifteen miles of Huntingdon; has about 100 inhabitants. Lavinia is a small village, twenty miles south-west of Huntingdon, with about 150 inhabitants. Clarksburg is nine miles south of Huntingdon, and has about two hundred inhabitants. Buena Vista is eight miles east of Huntingdon, and has 50 inhabitants. Hollow Rock is a depot on the Nashville and Northwestern Railroad; is ten miles east of Huntingdon, and has about 200 inhabitants. Marlborough is thirteen miles north-east of Huntingdon, and has about 200 inhabitants. Macedonia is a small village, nine miles north of Huntingdon; is the seat of Macedonia College, and has about 60 inhabitants. Maple Creek is fourteen miles south-east of Huntingdon, and has about 40 inhabitants. It will be noticed that these towns and villages are at convenient distances throughout the county, thus giving the people good post-office and commercial facilities.

*Water-power, Mills and Manufactories.* The streams of the county are very sluggish, hence there is no excellent water-power in the county. However, mills are generally very conveniently located, the average milling distances being about three miles, and most of them are very good. There is no strictly merchant mill in the county, and the saw-mills generally saw lumber for the home trade. About twelve miles north of Huntingdon the Shiloh cotton factory is located, which it is proposed will manufacture cotton cloths, but as yet it is only running spindles, and employs about twenty-five hands.

*Schools and School Statistics.* Public schools are not favored. A tax for that purpose is unpopular. There are, however, many good private schools, and the public schools are kept up for a few months each year. The scholastic population is 5,697.

*Religious Statistics.* Churches are conveniently located with respect to most of the neighborhoods of the county, representing the following denominations: Methodist Episcopal Church, South, Cumberland

Presbyterian, Baptist and Christian; there are also some representatives of the denominations of Primitive Baptist, but the church is very weak. Masonic and Odd Fellows' lodges are quite common.

*Newspapers.* There are two newspapers published in the county: one, the Tennessee Republican, is a Republican paper, published at Huntingdon, and has a good circulation; the other is the McKenzie Times, which is a Democratic paper, published at McKenzie—it also has a good circulation. The people in the county are not great readers of newspapers, but to a very limited extent, the secular, religious and agricultural press is patronized.

*Fair Association.* At McKenzie is an association known as the "McKenzie Agricultural and Mechanical Association," which is in its third year, and is in a good condition. The people in the county manifest much interest in its success. The farmers have numerous organizations.

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## CROCKETT COUNTY.

COUNTY SEAT—ALAMO, OR CAGEVILLE.

Crockett county is bounded on the north by the counties of Gibson and Dyer, on the east by the counties of Madison and Gibson, on the south by the counties of Haywood and Madison, and on the west by the counties of Haywood and Dyer. According to the best information to be had on this subject, without an accurate survey, the county contains about 275 square miles. The number of acres assessed for taxation, exclusive of town lots, is 163,658, valued at \$2,661,121. There are thirteen civil districts in the county, and thirteen school districts organized under the school law of 1872, the school districts corresponding with the civil districts. The county has no natural divisions, but being composed of parts taken from the counties of Gibson, Haywood, Dyer and Madison, it is very convenient to refer to certain sections of the county, as the Gibson, Haywood, Dyer or Madison fraction.

*History.* The act of the General Assembly authorizing the organization of Crockett county was passed July 7, 1870, but was amended in 1872, and in April, 1872, the organization was effected.

*Physical Geography, Geology and Soil.* The country around Alamo, the county seat, is level for from three to five miles in every direction. Going north from Alamo, the county is level to the county line, going south, it is the same way, going west it is level for about three miles, and is then hilly to the county line; eastward, it is level until the Madison fraction is reached, about three miles from Alamo, when it becomes quite hilly; north-west from Alamo, the hilly country commences in about two miles and extends to the county line. There are no hard rocks to be found on the surface or under it. In digging wells, sand is reached at about thirty-five feet below the surface in most sections of the county. The underlying formation is the LaGrange Sands, 116 of the map, but this is generally covered by the Orange Sand, which gives character to the region.

The best lands are in civil districts numbers eight and twelve, which formerly belonged to Haywood county, and number twelve, which was taken from Dyer county. Number thirteen is also a rich body of land. The color of the soil in these four districts is very dark, (almost black) and has no sand. The poorest lands in the county are in the eastern districts, near the town of Gadsden, on the Memphis and Louisville Railroad, the color of the soil being reddish. The northern and southern districts, though not as good as those in the western part of the county, (numbers eight, ten, twelve and thirteen) are better than those in the eastern part, and yield very well.

The staples in the county are cotton and corn, though only corn enough is raised to supply the annual home demand.

*Health.* The health of the county is not first-rate, owing to the fact that what are called the "West Tennessee bottoms" border it on the north and south, and there is too much malaria. It will compare very favorably, however, with other counties in this respect in the same section of country.

*Rivers, Creeks and Springs.* Crockett is not as well watered as many other counties in West Tennessee, the following named streams being the only ones worthy of especial mention: South Fork of the Forked Deer River, forms the southern boundary line of the county. Middle Fork of the Forked Deer River forms the northern boundary. Pond Creek rises about 300 yards north of the town of Alamo, runs north-west, and empties into the main Forked Deer River near the town of Dyersburg, about twenty-five miles from Alamo. Cypress Creek rises



in Madison county, runs north-west, and empties into Forked Deer River ten miles north of Alamo. There are very few springs in the county, and none of them are very bold or noteworthy. For a supply of stock water, the people have to depend on artificial ponds, which are easily made and hold well, and the ponds in the beds of the creeks which cease to run in summer. Many of these ponds hold water during the greater part of the year. The dependence for household purposes are wells and cisterns. The water in all parts of the county is freestone, though two and a half miles west of Alamo there is a good well of mineral water, which is thought to have medicinal virtues. The water has not been analyzed; it affects the liver very actively when taken even in small quantities.

*Timber.* All of the various kinds of timber found usually in West Tennessee, except pine, are found in large quantities in Crockett county, though the varieties mostly abounding are oak and poplar.

*Land Statistics.* It is impossible to give a perfectly accurate report of the products of Crockett county in 1873. However, according to the best information which has been attainable, the following estimates for 1872 are very nearly correct:

Whole number of farms.....	1,230
Farms having 3 to 10 acres.....	4
“ “ 10 to 20 “ .....	31
“ “ 20 to 50 “ .....	715
“ “ 50 to 100 “ .....	310
“ “ 100 to 500 “ .....	166
“ “ 500 to 1000 “ .....	4
Total value (not assessed) of farms.....	\$3,106,460

Value of farming implements and machinery.....	140,152
“ orchard products.....	1,871
“ forest products.....	808
“ home manufactures.....	5,157
“ all live stock.....	710,595

Horses .....	2,239	number.
Mules and Asses.....	2,511	“
Milk Cows.....	2,610	“
Other Cattle.....	5,299	“
Sheep.....	2,824	“
Swine.....	24,211	“
Corn.....	554,430	bushels.
Wheat, winter.....	38,029	“
Oats.....	6,686	“
Irish Potatoes.....	2,328	“
Sweet Potatoes.....	7,630	“
Cotton .....	7,500	bales.
Wool.....	6,751	pounds.
Butter.....	20,293	“

The average yield per acre for the most prominent crops are as follows: cotton, 700 pounds; corn, 35 bushels; wheat, 10 bushels. There is very little tobacco raised, the amount being too small to admit of a general estimate being made. There are about  $33\frac{1}{3}$  per cent. of the farming lands of the county worked by renters, the rest being worked either by the land-owners or under their supervision. The usual terms of rent are as follows: when money rent is required the prices paid are, for cotton lands, per acre, \$4; corn land, \$3: small grain land, \$2.50. When part of the crop is required, the land-owner furnishing only the land, he gets one-third of the cotton and corn and one-half of the small grain. When he furnishes all but the labor, he gets one-half of the cotton and corn, and two-thirds of the small grain.

The following are the average prices of land in the county:

Best land.....	\$20.00 to 25.00 per acre.
Medium land.....	12.00 to 20.00 “
Inferior land.....	5.00 to 12.00 “

Not less than fifty per cent of the land can be purchased at these prices, and on the following terms: one-third cash, the balance in one and two years, a lein being reserved on the land to secure the payment of the second and third installments.

*Labor.* Labor is very scarce throughout the county, the laborers being principally negroes, who are very unreliable. The farmers especially are very anxious to welcome good laborers, and will prefer white men who are not afraid to work. Laborers can command the following wages: farm hands, per year, \$180; per month, \$18; per day, \$1; cooks, per month, \$7; house servants, \$6. Cooks are in great demand, though the demand for house servants is not so great.

*Grasses.* Very few persons are paying any attention to grasses, the “cotton fever” being universal. It is said, however, that herds-grass, timothy and clover all do well, and are valuable crops.

*Fruit.* In the eastern section of the county, there are good quantities of peaches and strawberries raised every year. The standard varieties of pears are reliable, and not much subject to blight; but little attention is paid to them. The dwarf varieties are short-lived and unreliable. In the other sections of the county, plenty of fruit is raised for home purposes, peaches and plums being the favorites. Grapes are cultivated to a considerable extent in the neighborhood of Gadsden, and yield well, but in the other sections of the county, though they do well, little attention is paid to them.

*Stock and Stock-raising.* There is little or no blooded stock in Crockett county, and the people are paying no attention to the improvement, grazing or raising of stock. There are a few Berkshire hogs; but little care is taken with them. There are no improved breeds of sheep; in fact, this branch of industry is almost entirely neglected.

*Markets.* Memphis, Louisville, Cincinnati and St. Louis are the markets to which all the cotton and other produce of the county are carried to be sold. Memphis, however, gets the bulk of the trade, as it is only eighty-six miles from Alamo, the county-seat, and is very accessible *via* the Memphis and Louisville Railroad.

*Population.* Since the county was organized, there has been no accurate estimate made of the population, but multiplying the voting population (2,100) by 5, which is generally regarded as a fair rule, and it gives 10,500 as the actual population of the county, of which about one-fourth are colored.

*The People.* As a mass, the people are not well educated. They are, however, a hard-working and law-abiding people, but in the strict sense of the term, they are not thrifty. The result is, that while they are generally in comfortable circumstances, their general want of enterprise is felt by the county, which is developing but slowly. The drawbacks are, the want of a wholesome system of labor and the scarcity of railroads and good schools.

*Immigration and Emigration.* There has been but little immigration to the section of country now included in Crockett county since the war. The majority of the few families or individuals who have moved in are from the counties of Middle and West Tennessee, with a few from Mississippi. Nor has there been much disposition manifested to leave the county, but those who have gone went to Texas, Arkansas and Missouri. In this connection it should be stated that the people are very conservative in their views and feelings generally, and will cordially welcome good citizens, regardless of political opinions.

*County Roads.* The county roads of Crockett county are better than the average in West Tennessee, though they are far from being first-class. Though the new road law is not in force, and is not likely to be, the people work the roads sufficiently to render them passable at all seasons of the year.

*Railroads.* The only railroad now running through the county is the Memphis and Louisville, which passes through the south-eastern

corner. The Tennessee Central is chartered and surveyed to pass through the county, and will doubtless be completed. The Holly Springs, Brownsville and Ohio Railroad is also chartered and surveyed to run through the county, but its prospects at present are not very flattering.

*Towns and Villages.* The following are the only towns and villages in the county worthy of mention: Alamo, the county seat, (formerly called Cageville) is located very near the center of the county, and has about 350 inhabitants. Gadsden, a station on the Memphis and Louisville Railroad, is eight miles east of Alamo, and has about 150 inhabitants. Bell's Station, on the Memphis and Louisville Railroad, is six miles south-east of Alamo, and has about 400 inhabitants. Lonefield is five miles west of Alamo, and has about 50 inhabitants. Cairo is four miles north-west of Alamo, and has about 50 inhabitants. Chestnut Bluff is fourteen miles west of Alamo, and has about 100 inhabitants. Friendship is twelve miles north-west of Alamo, and has about 350 inhabitants. Quincy is four miles north of Alamo, and has only one store and a blacksmith shop, and a very few dwellings. Crockett Mills, seven miles north-west of Alamo, is a very small place, and has the best steam grist and saw-mill and cotton gin in the county.

*Mills.* The average milling distance throughout the county is about five miles. The mills are generally good, and there are numerous good mill sites which might be improved.

*Churches.* The leading denomination in the county is the Methodist, and the Christian ranks second. There is also a number of Baptist and Cumberland Presbyterian churches in the county. The church advantages are very good throughout the county. Any person can ride from two and a half to three miles and attend divine worship. In the towns and villages Sunday schools are generally well kept up, but this is not the case in the country.

*Newspapers.* One newspaper is published in the county, the "Crockett County Sentinel," a democratic weekly, which is published in Alamo. It was established in May, 1873, and as yet has a limited circulation. As a general rule the people of the county are not a reading people, and but few papers of any kind circulate. A very small number of political and religious papers are taken, but the agricultural press is but indifferently patronized. The farmers are pretty well organized in Granges.

## DECATUR COUNTY.

COUNTY SEAT—DECATURVILLE.

Decatur county is bounded on the north by Benton county, on the south by the Tennessee River and Hardin county, on the east by the counties of Henderson and Carroll, and on the west by the Tennessee River. This county contains about 550 square miles. The number of acres returned for taxation, exclusive of town lots, is 322,690, valued at \$3,214,148, or nearly ten dollars per acre.

*Divisions.* There are twelve civil districts and twelve school districts in the county, which comprise all the artificial divisions in the county. The natural divisions are those which are created by the various creeks or rivers. It might also be mentioned that there is a ridge, known in the county as the "shore line," which traverses the county in a north and south direction, and forms two divisions known locally as the "sand district" and the "rocky district," the former being west of the ridge and the latter being east of it.

*History.* Decatur county was formerly a part of Perry county, but in November, 1845, the General Assembly of the State passed an act, which went into effect on the first Monday in April, 1846, dividing Perry into two counties, giving to that of the old county lying west of the Tennessee River the name of "Decatur county, in honor of and to perpetuate the memory of Commodore Decatur of the United States Navy, of whose services our nation should be proud and whose memory should be revered."

*Health Statistics.* The people of Decatur county claim to have one of the healthiest counties in West Tennessee, and with the exception of a few neighborhoods, this claim is not without foundation. In those sections of the county which are subject to be annually overflowed by the Tennessee River, and even in the immediate vicinity of these sections there is more than a usual amount of sickness growing out of the superabundance of miasmas which rise from the overflowed territory. But with these exceptions, the county is generally healthy, the prevailing diseases in summer being of the malarial type, and in the winter, affection of the lungs. The mortuary list of the county will compare very favorably with that of the other river counties in West Tennessee.

*Physical Geography.* A large portion of Decatur is included in what is known as the Plateau or Slope of West Tennessee, the remaining part being in the West Tennessee Valley. The character of the country west of the Tennessee River and until the river bluffs are reached is a rich dark alluvial soil, very porous, very deep and very productive. It is true some portions of this county are annually subject to overflow, but on the high grounds are some of the best farming lands in the State. The bluffs range with the meanderings of the river, as a general rule, the average distance from the river being about one and a fourth miles, though the valley in some places is as much as two miles wide, while in other places it is very narrow, the bluffs approaching very near to the river banks. West of the bluffs is a high, dry table land, which is not so rich and not nearly so productive as the valley or lowlands, and all over the table land is found a great deal of rock, which generally lies near the surface, frequently cropping out above ground. This indeed is the general character of this section of the county until what is known as the "old shore line" is reached, which extends from north to south through the county. Decaturville, the county seat is located upon this ridge. Going west from this ridge toward Henderson county, there is much sand and the districts in this part of the county are known locally as the "sand districts," not because there is nothing but sand, but to distinguish them from the rocky districts east of the "shore line." The soil in these "sand districts" is very mellow, productive and rather thirsty. At a distance below the surface of about eight inches, on an average, is a light colored, grayish yellow clay, which is more porous than clay usually is, and is therefore more thirsty. But on the whole this land produces very well, and this section may be regarded as a very fine farming country. As a general rule the lowlands are planted in corn, and the uplands in cotton, wheat and peanuts. The highlands are well adapted to the growth of clover, and where there is a preponderance of sand in the soil, herds-grass and peanuts thrive especially well. Wheat generally does better in those sections of the county where there is less sand, and where the soil is stiffer than in the very sandy sections. In various portions of the county, especially upon or near the ridge, are numerous glades or bare tracts of land, sometimes containing several acres, which will produce nothing in the way of vegetation, but an occasional bush or little patches of wiry grass. These glades result from the disintegration of gray and sometimes reddish marly limestones, which contain occasionally interstratified thin cherty layers. The surface is

made up of the debris from these rocks, and consists of marly matter, mixed with angular calcareous and flinty gravel. Fossil shells, crinoids, corals and sponges from the limestones are found in comparative abundance, mixed with the debris, and have made this region of glades classic ground to palæontologists. These glades in fact, constitute a distinctive feature of Decatur county.

*Formations.* Beginning at a point about six and a half miles from the northern boundary line of the county, and immediately upon or very near the west bank of the Tennessee River, and extending through the county along its bank and out from the river to a distance varying from one-half to three miles, is found the formation known as the Niagara Limestone. The formation consists of thick-bedded crystalline and fine grained limestones, more or less argillaceous, and often weathering into shales. Most of the limestones are sparry and crinoidal. The series is divided into two nearly equal members, the sponge-bearing bed above and the variegated bed below, each about 100 feet in thickness. The lower bed is an alternation of gray, red and mottled layers, the crinoidal portions sometimes making a fair marble. Much of the mass tends to crumble into shale. The limestone of the upper beds are gray, and as in the lower beds, much of it weathers into shaly matter. On the hill-sides layers of this limestone frequently outcrop in two or three successive ledges, separated by intervals of shale. Thin layers of chert or flint often occur, interstratified with the limestone or embedded in it. In the report of Henry county it will be noticed that mention is made of a bed of this formation, which affords a very fair marble, some of which was used in laying the foundation of the court-house in Paris. It belongs to the variety of Tennessee marble known as the reddish variegated fossiliferous marble, and sections of the same variety are found in Benton county, and also in Decatur county, though in Decatur no efforts have been made to develop the wealth of the beds. Resting on the Niagara limestone is a series of blue limestone, full of shells, and known as the Helderberg formation. These rocks are seen about Decaturville. They usually outcrop further west from the river than the Niagara. The western side of the county, from north to south, presents a far more recent formation than those of the limestones mentioned. It is a bed of sand with with more or less of clayey leaves, and is known as the Coffee sand. Overlying all the formations mentioned, patches of the superficial group spoken of in the first part of this report as the Orange sand, are occasionally met with. The Orange sand consists of sand and gravel.

The iron banks are in it. At a few points immediately on the Tennessee River a blue limestone crops out from below the Niagara rocks which yields a good hydraulic cement.

*Rivers and Creeks.* The Tennessee River forms the eastern boundary of Decatur county, dividing it from Perry county, and is of course worth much to the people of Decatur. There being no railroads in the county, all the exports go out by the way of the river, and all the imports are brought in the same way. Beech River, which rises in Henderson county, enters Decatur at a point about five miles a little north of west of Decaturville, and passing through the county from west to east, empties into the Tennessee River at a point about six miles a little north of east of Decaturville. It is the principal stream passing into or through the county. The only other streams in the county worthy of mention are Stewman's, Turnbull's, White's, Rushing's, Cub and Morgan's creeks, which pretty thoroughly water the county and afford ample milling facilities. These streams have each fine valley lands on both sides of them, some of the valleys being of considerable length and width. Of the Tennessee River valley enough has already been said, but it should be stated that the valley of Beech River is also a very superior one. The soil in this valley is perhaps, not so deep, nor so productive. The various creek bottoms on the creeks mentioned, also afford very superior farming facilities.

*Timber.* There is a bountiful supply of superior timber in Decatur county, the growth, being poplar and the different varieties of oak, gum, hickory, ash, cedar, pine, sugar-maple, wild cherry, walnut and some chestnut. As a very natural consequence, there are a number of saw-mills, which are engaged in sawing up the best timber into lumber, which is shipped by the way of the Tennessee River to various markets. The varieties which are shipped principally, are poplar, pine and walnut.

*Land Statistics.* According to the best information to be had on the subject in 1873, there were in the county 662 farms of all sizes, as follows:

Farms having	3 to	9 acres.....	9
"	"	10 to 19 " .....	62
"	"	20 to 49 " .....	245
"	"	50 to 99 " .....	224
"	"	100 to 499 " .....	119
"	"	500 to 999 " .....	1



Of the 41,205 acres of improved lands in the county, about two-thirds or 37,470 acres were worked in 1873 by the land-owners, while only about one-third or 13,735 acres were worked by renters. The general rule of renting is, for the land-owner to furnish everything but labor, when he gets of the crop one-third of the corn, oats and wheat, and three-fourths of the cotton. But in some instances the land-owner furnishes only the land, when he gets one-third of the corn, oats and wheat and one-fourth of the cotton. When land is rented for money, the usual charges are, for

Best improved bottom lands.....	\$5.00
Medium bottom lands.....	3.50
Best improved uplands.....	4.00
Medium uplands.....	3.00

The inferior bottom lands, as well as the third class uplands, are not highly prized and are not in demand for rent, renters always preferring to work the best land they can get. Of all the lands in the county, it is estimated that at least one-half can be purchased at reasonable figures, the usual terms of sale being one-third cash, the balance in one and two years, with lien reserved upon land to secure payment of unpaid purchase money. The usual prices asked and paid for land are as follows:

Best improved lowlands, per acre.....	\$40.00
2d class improved lands " " .....	25.00
3d " " " " " .....	15.00
Best unimproved " " " .....	15.00
2d class " " " " .....	10.00
3d " " " " " .....	2.00

These lands include only the tillable lands of the county. There are very rich river bottom lands, which are subject to annual overflow, that can be purchased at from three to five dollars per acre, but they are worthless except for the timber which is upon them. The lands generally of Decatur county yield well, as will be seen by the following table:

Average yield per acre in corn.....	30 bushels.
" " " " " cotton, (in seed).....	700 pounds.
" " " " " wheat.....	17 bushels.
" " " " " peanuts.....	25 "

Some attention is paid to the growing of grasses and such roots as are usually grown in West Tennessee. Until recently tobacco was raised to a limited extent and it generally paid well, but since 1871 the rage has been for peanuts, which that year paid even better than

cotton. The crop of 1872, however, did not pay so well, and in 1873 it appears that the peanut rage had very materially subsided. Efforts were made to get correct statements as to the yields in 1873 of the various crops in the county, with the view of embodying them in this report, but as they failed, the reader must, perforce, be satisfied with the estimates of 1870, as taken from the census report of that year, with this assurance, however, that the estimates of 1870 and 1873 would not differ materially, except in the item of cotton, the estimate for 1870 being too great for 1873 on account of the rage for peanuts, which caused less cotton to be planted in 1873 than was planted in 1870. It should also be observed that in the census report for 1870, there was no estimate made of the peanut crop, which was insignificant then, but considerable now. With the exception of these two items, therefore, the following estimate, though compiled for 1870, will nevertheless give the reader a very fair idea of the yield for 1873:

Tobacco.....	44,630 pounds.
Cotton.....	1,159 bales.
Wheat.....	19,239 bushels.
Oats.....	20,549 "
Potatoes, sweet.....	15,913 "
Potatoes, Irish.....	8,709 "
Peas and beans.....	2,770 "
Butter.....	96,348 pounds.

As a general rule, very few grass-seeds are sown for hay and grazing, and hay is not an article of export; in fact, not a sufficiency is raised in the county to supply the home demand, though the uplands generally are well adapted to the growing of the various grasses. Among the few who pay any attention to grasses, clover is the favorite and it is thought to do better than any other grass, especially on the limestone and clayey lands. On the sandy lands herds-grass grows luxuriantly. Clover is usually allowed to stand two years without being turned under, to the great advantage of the land. Though there is a number of extensive marl beds in the county, no fertilizers are used. The lands are indifferently cultivated, the farmers using none of the scientific implements so much appreciated by scientific agriculturists, and pay no attention to saving or improving their lands. A few of them are beginning to understand the system of rotating their crops to their advantage, but a large majority of the farmers continue to work and manage (or mis-manage) just as did their fathers and grand-fathers before them. As a natural result of these violations of the laws of nature, the lands are yearly becoming more and more worthless, and unless there is a wholesome and radical change, the future promises but little to the farming community of Decatur county.

*Stock Items.* The same want of enterprise and judgment is as manifest in the mode of handling stock as in the mode of farming. No efforts have been made to introduce the improved breeds of stock into the county, and little or no attention is paid to the stock on hand, which is all of common breeds. The object of the farmer seems to be merely to raise a sufficient number of mules and horses for his own purposes, and so they are able to do his farm work, he seems entirely satisfied. Cattle and hogs are rarely fed, but are turned out to pick up a precarious living in the "commons," where wild grass is to be found, and few or many acorns, as the mast happens to be light or heavy. Sheep would do well running at large, if it was not for the fact that the dogs are very destructive to them. Notwithstanding this fact the farmers still allow them to "look out for themselves," and they seem satisfied to take as their share of the mutton what happens to be left by the dogs. It is earnestly hoped, however, that there is a better time coming for Decatur county, when the agriculturist will understand that farming is a science as well as an art. The following report of the live stock in the county is taken from census returns:

Horses.....	Number	1,238
Mules and asses.....	"	628
Milch cows.....	"	1,436
Working oxen.....	"	754
Other cattle.....	"	2,115
Sheep.....	"	5,649
Swine.....	"	13,508
The value of this stock was estimated to be.....		\$311,117

*Labor.* Decatur, like her sister counties, complains of a very great scarcity of labor. A large majority of the laborers in the county are white men, who are regarded as being generally more reliable than the negro laborers, but not even the whites cannot be said to be reliable. During certain months of the year they work well, but when the weather gets very hot or very cold they spend too much of the time which they have sold to their employers, either in the shade or by the fire. The following prices are asked by them and readily paid: Farm hands, per year, \$180; per month, \$20; per day, \$1.50; cooks per month, \$8; house servants, per month, \$8.

*Markets.* The markets at which the people of Decatur buy and sell are reached by water, the immediate outlet from the county, being the Tennessee River. Louisville, Cincinnati, Evansville and St. Louis are the principal ones.

*Iron Ore.* The amount of iron ore in this county is considerable. The ore (limonite) is singularly free from flint, sand, sulphur and phosphorus. Near Brownsport Furnace is a bank from twelve to twenty feet in thickness, and resting upon a limestone bed. This bank is capped with a cherty mass, and there is an unusually small proportion of dead matter. Brownsport Furnace is the only one in operation in the county. It is three miles from the Tennessee River. This furnace has been in operation forty years, and has now a capacity of 6,000 tons of pig metal per annum, or from eighteen to twenty tons per day. The stack is forty feet high and twelve feet between bosh. It blows with three tuyers, is hot blast and has all the modern improvements. It has a vertical engine, with twenty-four inch cylinder, and a blowing cylinder sixty inches in diameter. Sand rock for hearths is convenient, and the ore is dug within one hundred yards of the trundle head. For making a ton of iron 120 bushels of charcoal are used (2,688 cubic inches to the bushel). Coal costs seven and a half cents per bushel delivered. Ore delivered costs \$2.00 per ton. About two and a quarter tons of ore make a ton of iron. The hauling of the pig iron to the river costs \$1.25 per ton. Limestone is delivered at \$1.00 per ton. The iron made is only suitable for castings, most of it being consumed for light castings, such as require strength and toughness. About 200 hands are kept employed.

*The People.* The population of the county in 1870 was 7,722, of which 1,056 were colored. It may be said that the people are sober, reasonably industrious and law-abiding, but as a whole, they are neither educated, enterprising nor thrifty. It has been stated above that the farmers, as a class, are not enterprising, and the same with equal propriety may be said of the representatives of the other callings of life. Exceptional cases there are—men who are thoroughly alive, well advanced and up to the times, and who are thrifty and large property holders.

*Roads.* The new road law has never been enforced in Decatur county, and under the misworkings of the old law, the county roads have not, and are not now, kept in good repair. In the sandy districts they are better than elsewhere, because they are more easily worked, and are not so liable to get in bad condition, but even there they could be put in better condition to the great comfort of the traveler who is compelled to pass over them, good or bad.

*Towns and Villages.* The only town (or village) worthy of mention

is Decaturville, the county seat, which is located near the center of the county, about six miles west of the Tennessee River. It has a population of about 200 inhabitants, and does a very fair business, most of the people of the county doing their trading there.

*Mills and Manufactories.* Every neighborhood in the county has convenient to it a good grist-mill, the average milling distances throughout the county being about four miles. Iron is about the only article which is manufactured in the county.

*School Statistics.* The people of Decatur county have been, for many years past, very indifferent on the subject of education, so much so indeed that it has been almost impossible to keep up a single really good school in the county. In March, 1872, the County Court levied a tax of twenty cents on every hundred dollars worth of property for the purpose of establishing a system of free schools in the county; but for some cause the matter stopped there, or at any rate the public schools were not established. The scholastic population is 2,357. Twenty-six free schools were in operation in the fall of 1873, three being for colored children. The total number enrolled being 964, between six and eighteen, and 127 between eighteen and twenty-one years of age.

*Churches.* There are in the county about twenty church buildings owned by various Christian denominations, of which the leading are the Methodist, Presbyterian and Baptist. The people are constant attendants upon divine services, and are very liberal in their support of the ministry.

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## DYER COUNTY.

COUNTY SEAT—DYERSBURG.

Dyer county is bounded on the north by the counties of Obion and Lake, on the east by Gibson and Crockett, on the south by Haywood, Crockett and Lauderdale, and on the west by the Mississippi River. It has an area of about 600 square miles. The number of acres assessed for taxation in 1873 was 327,690, valued at \$3,214,148. The assessed value of property is \$4,072,081. The county is artificially divided into fourteen civil districts, and thirty-seven school districts.

The natural divisions are made by the different rivers touching or passing through the county, and by the Mississippi Bluff, which separates the highlands of the county from the Mississippi Bottoms, thereby creating two other divisions, known locally as the highlands and the bottoms respectively.

*History.* The General Assembly, on the 16th day of October, 1823, passed the act authorizing the organization of Dyer county, and during the early part of the year 1824, it was formally organized. John Rutherford, Benj. Porter, John D. Burrus, Wm. Lyrrell and Dr. Thomas Hash were the first commissioned magistrates, and constituting the first County Court, selected as their chairman John Rutherford, and as their first clerk, Wm. Mitchell. The first settlers in the county were principally from Middle Tennessee and Virginia.

*Health of the County.* That part of the county included in the bottoms, and also that in the immediate neighborhood of the Bluff, are more unhealthy than the other sections, except, perhaps, the various river and creek bottoms throughout the county. All these sections are subject to malarial diseases during the summer months. Upon the highlands the people generally enjoy excellent health, but no part of the county is favorable to consumptives, as the atmosphere is generally too damp.

*Physical Geography.* Those portions of the county within the various river and creek bottoms are very flat, but the general surface of the highlands is gently undulating, except in the neighborhood of the Bluff, where it is very hilly. The country immediately around Dyersburg, the county seat, is very level and fertile, and is well timbered and watered. Going north from Dyersburg to the county line, the surface is much more undulating, sometimes even hilly, but it is also fertile and well timbered. Southerly from Dyersburg to the county line the county is level again and very rich, and is covered with a dense growth of timber. Going east from Dyersburg to the county line, there are some slight hills, especially in the neighborhood of the various creeks which one will have to cross going in this direction, but with these exceptions the country is very level. West from Dyersburg a few miles, the Mississippi Bluff is reached, and in this immediate vicinity, as already stated, there are many and very steep hills. Before these bluff hills are reached, the country is level, and after they have been passed, it again becomes flat, and continues so to the Mississippi River. The soil of Dyer county is generally a dark

rich loam, with a subsoil of yellow clay; but in the western district there is considerable sand, and the soil is much lighter in color. The bottom lands are alluvial, and the soil is remarkably deep, ranging from five to twenty feet in depth. By far the greater portion of the county east of the Bluff is comprised in what is called by scientists the bluff loam region, where the soil is generally a rich siliceous loam, somewhat calcareous. In this region the soil is lighter, being of a dark yellowish hue. This section is all included in the Plateau or Slope of West Tennessee, and of Dyer and Obion counties. Dr. Safford, the State Geologist, says "it may not be too much to assert that Obion and Dyer, the uplands of which belong to this belt, are naturally the richest counties in the State. Here, at any rate, may be seen a growth of great poplar, walnut, beech, white oak, etc., unsurpassed, I am sure, by anything elsewhere in Tennessee." As to the producing qualities of these soils particular mention will be made further on in the pages of this report, but it will not be out of place, in this connection, to observe that in no part of the State do they produce better or last longer. In fact the subsoil, when mixed with the soil, produces well, and the soil itself is generally so deep that it seems almost impossible even to exhaust it. All that is needed to make it everlasting is a thorough system of subsoiling.

*Rivers, Creeks, etc.* Dyer county is excellently well watered, as will be seen from the following brief description of the most important streams: The Mississippi River washes the entire western border of the county, and receiving the water from numerous creeks which passing through portions of the county, contribute greatly to its value. Obion River enters Dyer county from Obion county, about four miles west of the point where the lines of Obion, Dyer and Gibson counties come together, runs thence in a north-westerly direction until it gets within six miles of the Mississippi River, when it runs thence south to the south boundary line of the county, thence with the line westward and empties into the Mississippi River. North Forked Deer River enters from Gibson county, about midway of the eastern boundary line of the county, ranges thence west to a point about two miles south-west of Dyersburg, when it runs south and forms a junction with the South Forked Deer River, about five miles south-west of Dyersburg. South Forked Deer River enters from Haywood county, about sixteen miles south-east of Dyersburg, runs thence in a south and south-west direction with the south boundary line of the county, until it empties into the Obion River, forming, in fact, the dividing line between Dyer

and Lauderdale counties. Richland Creek rises about eight miles north-east of Dyersburg, runs south and empties into the North Forked Deer River, about seven miles east of Dyersburg. Louis Creek rises about three and a half miles north-east of Dyersburg, ranges south and empties into North Forked Deer River about three and a half miles east of Dyersburg. Pond Creek enters the county at or near its south-east corner, ranges north-west, and empties into Forked Deer River about ten miles south-east of Dyersburg. Reed Creek rises about sixteen miles north-east of Dyersburg, ranges west and empties into Obion River, about eight miles north of Dyersburg. Coon Creek rises north-west of Dyersburg several miles, ranges north-west and empties into Reel Foot Lake, in Obion county, not far from the north-west corner of Dyer county. Ricks Slough (Bayou) runs from Obion River through the center of the county, and empties into Forked Deer River. There are still others, but smaller streams, which have a neighborhood importance, but it is not deemed necessary to mention them in detail. The principal dependence for stock water is upon the rivers and creeks, and their various tributaries, but pools are easily made, are very reliable, and are considerably used. For domestic purposes the people use wells and cisterns, which are easily and cheaply made, the wells averaging in depth about thirty-five feet. There are fine springs (some sulphur) in the county, but they are not numerous.

*Timber.* As has been stated above, Dyer county is one of the best timbered counties in the State, the best timber being poplar, hickory, walnut, cypress, the different varieties of oak, chestnut and beech, and the other kinds usually found in West Tennessee. Some of the poplars rise to a height of sixty or seventy feet without a limb, and will measure six or seven feet in circumference. Oaks, hickories and walnuts grow to an immense size, and even the sassafras here attains the dimensions of the largest trees of the forest. The wealth of timber is almost marvellous. The lumber trade from Dyer county is considerable even now, and is constantly on the increase.

*Land Statistics.* The following figures will give the reader a very fair idea of the condition of the farming interests of Dyer county. They have been carefully estimated from reliable reports received directly from the county:

Total value of farms in the county.....	\$2,138,540
Number of farms " " .....	2,346
" " having under 3 acres.....	3
" " " 3 and under 10 acres.....	97
" " " 10 " 20 " .....	866



Number of farms having 20 and under 50 acres.....	943
“ “ “ 50 “ 100 “ .....	313
“ “ “ 100 “ 500 “ .....	118
“ “ “ 500 “ 1,000 “ .....	6
“ “ “ 1,000 acres and over.....	0

Of these farms, about three-fourths were worked in 1873 by the land-owners themselves, or under their immediate supervision, and the remaining one-fourth was worked by renters. The usual terms of rent are as follows. When money rent is charged, the prices vary according to the value and character of the land and the kind of crop to be raised. The prices asked may be classified as follows:

Best cotton and corn lands, per acre.....	\$6.00
Second class cotton and corn lands, per acre.....	4.50
Third “ “ “ “ “ .....	3.00
Wheat, oats and grass “ “ “ .....	3.00

When part of the crop is required, the land-owner furnishes only the land, and gets one-third of the cotton and one-fourth of the corn; or if he furnishes everything but the labor, he gets two-thirds of the cotton, and three-fourths of the corn. Of all the lands, improved and unimproved, in Dyer county, about one-third can be purchased at the following reasonable figures:

First class improved lands, per acre.....	\$30.00
Second class “ “ “ .....	20.00
Third “ “ “ “ .....	10.00
First “ unimproved lands, per acre.....	15.00
Second “ “ “ “ .....	10.00
Third “ “ “ “ .....	5.00

There are considerable bodies of land in the county which are subject to annual overflow, and which can be purchased at from fifty cents to two dollars per acre. The usual terms of sale are, one-third cash, the balance in one and two years, with a lien reserved on land.

The following, compiled from authentic information, will show the average yield per acre:

Average yield per acre, of corn.....	35 bushels.
“ “ “ cotton.....	950 pounds.
“ “ “ tobacco.....	1,000 “
“ “ “ wheat.....	12 bushels.
“ “ “ oats.....	17 “
“ “ “ hay.....	3,000 pounds.

The cotton shipped from the county ranks in the market with the best Tennessee cotton, and the tobacco, most of which is shipped to New Orleans, ranks well as a heavy shipping tobacco. The leading

staples of the county are corn, cotton and tobacco, but a considerable quantity of wheat is annually raised, and also other crops to a very limited extent. During the past few years much more attention has been paid to grasses than formerly, and now considerable tracts of land are sowed down in clover, timothy or herds-grass. A large majority of the farmers who are sowing grasses use their grass fields principally for mowing and grazing purposes. These men are also using clover as a fertilizer; but its value in this respect does not seem to be appreciated as it deserves to be. Dyer is a reasonably good fruit county, considered as a whole, but its northern districts are peculiarly adapted to fruit growing. The most reliable domestic fruits are apples and standard pears, but peaches and cherries also do well. The different berries generally found in Tennessee abound in Dyer county, and in the woods are walnuts, chestnuts and pecans. Fruit is not one of the staples of the county, and very little is shipped. The following figures, estimated for 1873, will give the reader a pretty good idea of the crops which were gathered in that year:

Bushels of corn.....	731,219
“ winter wheat.....	83,128
“ oats.....	7,832
Bales of cotton.....	5,709
Pounds of tobacco.....	421,147
“ hay.....	536,000

There is so little spring wheat raised in the county that it has not been considered necessary to estimate the quantity. The following table contains the estimates which have been made for 1873, of the value and number of stock in the county:

Value of all live stock.....	\$859,218
Number of horses.....	3,848
“ mules and asses.....	1,497
“ milch cows.....	3,633
“ working oxen.....	932
“ other cattle.....	4,746
“ sheep.....	7,318
“ swine.....	31,364

The following estimate may be very appropriately given in this connection:

Pounds of butter.....	283,437
“ wool.....	10,324
Value of animals slaughtered, or sold for slaughter.....	\$261,710

In regard to the condition of the farms as compared with that before the war, it should be stated that many of those which were very

large, have been divided up into several small ones, and these are now being well worked and are in a good state of cultivation. There is a manifest disposition among the farmers all over the county to improve their farms, and in every direction evidences are seen of this progressive spirit. New houses are being erected, old ones are being repaired, fences are being renovated, and, in short, improvement is the watch-word. The farmers are also improving in another direction, for of late years they have been devoting much more time, attention and means to the improvement of stock, and there are to be seen in almost every district specimens of blooded stock. The favorite stock of horses, so far, are the Pacific and Albion; of cattle, the Short-horn; of sheep, the Southdowns, and of hogs, the Berkshires. In the Mississippi River bottoms, and in the bottoms of the Obion and Forked Deer rivers, are thousands of acres of wild lands, covered with a luxuriant growth of cane, which afford a fine range for stock during the entire year, and it is to be wondered at that even more attention is not being paid to the raising and fattening of stock. There is still another evidence of thrift which must be mentioned to the honor of the Dyer county farmers: they are fast laying aside their old foggy notions on the subject of farming, and are beginning to introduce into their fields labor-saving agricultural implements of every description.

*Labor.* There is a great scarcity of labor in Dyer county, and, as a natural result, this interferes very materially with the farming interests of the county. At present there are more black than white laborers in the county, but they are, as a class, unreliable. The great demand now is for farm hands, but all classes of laborers may rely upon securing work and getting good wages. The following prices were paid in 1873:

Farm hands	per year, with board.....	\$150.00
“	“ “ without board.....	250.00
“	“ per month, with board.....	14.00
“	“ “ without board.....	20.00
“	“ per day.....	1.00
Cooks	per month.....	8.00
House servants	“ .....	8.00
Mechanics	per day.....	3.00

*Game and Fish.* There are large quantities of game in Dyer county, deer, turkeys, ducks, geese, rabbits, squirrels, etc., and the rivers and larger creeks abound in such fish as trout, perch, cat and buffalo.

*Markets.* The principal market of the county is Memphis, which is seventy miles from Dyersburg, but some corn, cotton and lumber are

also shipped to St. Louis. Most of the tobacco raised is shipped to New Orleans.

*Population.* Since the census report of 1870 was made, a small fragment of the county has been cut off, but from the best information at present attainable, without an actual count, the population of the county, as bounded at present, is very little smaller than it was in 1870. The following are the estimates for 1873: Whites, 10,767; colored persons, 2,822; total, 13,589. The population in 1870 was 13,706, of which 2,893 were colored.

*Immigration and Emigration.* A very respectable number of persons are moving into Dyer county every year, principally from the States of Virginia and Mississippi, and from the counties of Middle Tennessee. There are also a good many persons moving away every year, principally to Texas, Missouri and Arkansas. The immense forests and the high prices asked for land are driving many away from the county, especially those who have large families and small means. The prairie land of Texas, and especially the low price of land there, are the great attractions.

*The People.* The people of Dyer county are industrious, thrifty, peaceable, and conservative in their religious and political views. Of late years, they are paying more attention to education than they did formerly, and are realizing to a greater extent the value of newspapers. They are also very sociably disposed, and toward actual new settlers they feel very kindly, regardless of their religious or political proclivities. The rule acted upon is, "if we can't agree, we will agree to disagree, and not quarrel about it."

*County Roads and Railroads.* The roads upon the high lands of Dyer county are generally good, and are kept in tolerable condition, but in the low lands or bottoms they are bad, in spite of the levees which in many places have been thrown up. If it were not for these levees the bottom roads would be impassable in wet weather. On the whole, however, the roads of Dyer county are above the average of roads in West Tennessee. The only railroad at present in Dyer county is the Memphis and Paducah, which enters the county near the north-eastern corner, ranges north-east and south-west, passing very near the towns and villages of Trimble, Newbern and Dyersburg.

*Towns and Villages.* The following named towns and villages are the only ones in Dyer county worthy of special mention: Dyersburg, the county seat, is located very near the center of the county, on the

north bank of the Forked Deer River. It has about 1,000 inhabitants, is a depot on the Memphis and Paducah Railroad, is seventy miles north of Memphis, has good churches and schools, excellent saw and grist-mills and one planing-mill. It is in the center of a rich and thickly settled section of country, and does a very good business. Newbern is on the Memphis and Paducah Railroad, ten miles north-east of Dyersburg, has about 400 inhabitants, the best school building in the county, churches, stores, post-office, wagon, carriage and blacksmith shops, does a good business, and is located in one of the healthiest sections of the county. Maxwell, fourteen miles north-east of Dyersburg, is on the Newbern and Trenton county road, and has two or three business houses. Ro Ellen, six miles east of Dyersburg, has one church, one academy, one Masonic hall and one cotton gin. It is a very small place.

*Mills and Manufactories.* On the Obion and Forked Deer rivers there is quite a number of very superior steam saw and grist-mills, and at various other points in the county there are also good steam saw and grist mills and cotton gins. There are no regular manufactories in the county. The average milling distance, it is thought, will not exceed four miles.

*School Interests.* The County Superintendent reports that the districts are so arranged that one school in each district will accommodate all the white persons in the district who will attend, and that special arrangements have been made for colored persons. He thinks he will be able to keep up the schools at least eight months in the year. Besides the public schools, there are a very few private select schools, but they are being but indifferently patronized. The scholastic population numbers 4,301. The county levied a tax of ten cents on the \$100 and \$1 on polls for school purposes.

*Churches.* The county is well supplied with churches, there being one or more in almost every neighborhood. The leading denominations are as follows: Cumberland Presbyterian, Methodist, Baptist, Christian and Presbyterians. The average distance which the people have to go to church will not exceed three miles.

*Newspapers.* There are three newspapers published in the county, two in Dyersburg and one in Newbern. Those in Dyersburg are the Neal's State Gazette, a Conservative weekly, and the Dyer County Progress, a Democratic weekly. The Newbern paper is called the

Newbern Bugle, is a Democratic weekly, and has been recently established.

*Farmer's Organization.* The Order of Patrons of Husbandry is getting a firm foothold in Dyer county, and the interest which is being manifested in the farmers' movement is a live one. There is also a flourishing fair association in the county, with headquarters in Dyersburg. It was organized in 1870, has superior fair grounds near Dyersburg, and is called the Dyer County Agricultural and Mechanical Association.

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## FAYETTE COUNTY.

COUNTY SEAT—SOMERVILLE.

This is one of the largest and one of the best counties in the State, and comprises over 700 square miles. The number of acres, exclusive of town lots, assessed for taxation in 1873, was 438,652, valued at \$4,910,805, or a little over \$11 per acre. The whole amount of taxable property in the county amounted in 1873 to \$6,343,325. The country bounded on the east and north by the Big Hatchie, the Wolf on the south, and the Mississippi on the west, is said to be the most productive tract of upland cotton land on the globe, in area 1,400,744 acres. In the center of this tract lies Fayette county, in shape nearly square.

*Early History.* About the beginning of this century, some North Carolinians settled near what is now LaGrange, in this county. They were followed by other hardy pioneers from their own State, Virginia and South Carolina, and the number increased so that on September 29, 1824, the Legislature formed a county for them, and on the 6th of December, the same year, the first County Court of Fayette county opened at the house of Robert G. Thornton, in the southern part of the county, and there held its sessions until November, 1825. Edmund D. Tarver was Chairman of this first court, and Henry M. Johnson, the first settler of Somerville, was the Clerk. Only one case was tried at the first session, which resulted in bringing into the county treasury six and one-fourth cents as a fine. Figuring largely among the first entries by Clerk Johnson, are notices of wolf scalps being taken, one

Ramsey being credited with nine scalps at one time. A tax of thirty-seven and one-half cents on the 100 acres of improved land, and some other burdensome taxes raised the revenue of the county to nearly \$700 in 1825, in which year Mr. Robert Cotton is taxed on a four-wheel carriage, the only one in the county. At the February term, 1825, the commissioners appointed by the Legislature to select a site for the county seat reported that they had located the same on lands donated by George Bowers and James Brown, who are supposed to have made fortunes out of corner lots. November 14, 1825, the County Court held its first session in Somerville, in a small log cabin, which stood on the public square, then otherwise marked by four stakes. The County Court this year ordered a public road, and three years later the first stage came rattling into town, its twanging horn and general appearance, says a citizen still living, exciting quite as much interest and curiosity as the advent of the locomotive at a later day.

*Towns.* Somerville now has a population of some 1,600, and though hardly the town it was in the palmy ante-bellum days, it is still a thriving place, with superior society, old and of highest culture, and despite the many indications of decadance, is still a pleasant looking village to the tourist. There are eight or nine large supply plantation stores, as many dry goods stores, with the corresponding number of smaller stores, and shops of various kinds, banks, two hotels, three churches, fine male and female academies. A new jail, costing \$20,000, has just been completed, and other important improvements are in contemplation. The merchants are prosperous and reliable. The trade, although confined to a circuit of seven or eight miles, is very heavy, as that circuit embraces the most thickly populated planting section of the county. A live newspaper, the *Falcon*, is published here weekly. Next to Somerville, comes LaGrange, sixteen miles south-east, on the Memphis and Charleston Railroad. LaGrange was once called LaBelle Village, and had a population of some 2,500; not more than half of which remains. "Owing to the war" is the explanatory legend that may be written over many such. Grant had his headquarters here for some time, with 60,000 men. This was the wealthiest section of Fayette county, and much of the refinement and elegance of those days remain. The trade of the village, like that of the other towns in the county, is simply local, consisting mainly in plantation supplies. A fine female academy is located here. Macon is eleven miles from Somerville, in a very wealthy neighborhood, and is held to be a very delightful place of some 800 souls, has a fine school, two

churches, and gave \$70,000 to the narrow-gauge railroad. LaFayette has about 700 people, is a town of pretty residences, seven miles from Macon, on the Memphis and Charleston Railroad. One firm here does \$100,000 business annually. Galloway, on the Memphis and Louisville Railroad, is the principal village of the north-west corner of the county, has about 600 inhabitants, and does a thriving business in this county and the adjoining sections of Shelby and Tipton. Moscow, at the junction of the Memphis and Charleston and the Somerville Branch Railroad, has four or five good stores, trades in northern Mississippi, as well as southern Fayette county, and is thriving, with a population of about 300. Oakland is the center of a heavy planting district, does a large trade, and has about 400 people. Bellemont was a thriving town until the business portion moved over to Macon, on the Memphis and Louisville Railroad, leaving it now barely a town. Stores are scattered over the entire county, bringing supplies conveniently near to all the large planters.

*Geology, Topography and Streams.* The formation underlying the surface of Fayette county is the Lagrange Sand described in the first part of this Report. This, however, is very often concealed by the Orange Sand drift. The topographical features are not strongly marked. The northern portion is slightly undulating; the middle and western a little more inclined to be hilly, with extended plateaus; the south-east portion is more hilly, with very fertile valleys. The extreme southern part is an unbroken level, being the bottoms of the Wolf River, which is the largest stream in the county, and navigable at certain seasons. It runs east and west. The North Fork of Wolf rises in the eastern part of the county and joins the Wolf at Moscow. The Loosahatchie also rises in the eastern part of the county, runs west nearly through the center, and empties into the Wolf at Memphis. Bear Creek rises in the north-east, running north to the Big Hatchie, and the Beaver waters the north-western portion of the county. The streams water almost every part of the county, and though very sluggish in dry seasons, are all available for milling purposes, except Wolf, which is too large. There are seven mills on the Loosahatchie.

*Soils.* The soils of Fayette county are almost uniformly sandy, with more silicates in those in the southern portion, and a gradual increase of clay in the northern. That of the entire county is peculiarly adapted to the growth of cotton and other textile plants. It is quick, and produces satisfactory crops of all the cereals; neglected, this soil easily



washes into great gullies, but it is easily preserved by the Cannon system of horizontalization, which is generally adopted in the county. This system of levels has each row to carry off its own water. There is no regular system of fertilizing. Occasionally the manure from the stables is used, and some of the green sand or marl of McNairy county has been used as top dressing for grasses with gratifying results. This marl can be had in unlimited quantities for about the cost of transportation, and will probably come into more general use in the future. The cow pea is used as a renovator by turning it under while green; rye has also been used for this purpose.

*Farms, Crops.* A large proportion of the land in the county is improved, only timber enough remaining for farming purposes. The prices of farming land range from \$3 to \$40 per acre, averaging about \$9.50. The price per acre is governed mainly by location and condition of land. Large quantities of hillside lands having been wholly neglected during the war have washed into gullies and ravines, the top loam being swept into the valleys. These only were first cultivated, though improvements are again reaching up the hillsides and reclaiming them. These neglected lands can be bought for from \$5 to \$10 per acre, and will produce 500 pounds lint cotton, or fifteen to twenty-five bushels of corn without fertilizers, when properly treated. The general difference between the condition of farms now and before the war, is that between thrifty and negligent farming, between reliable and unreliable labor. Lands are deteriorating, because negroes are not good farmers, and have no interest, as they think, in their preservation. The blackberry, convovulus vines, etc., in fence corners, rot the fences, and no rails being made, fields must be thrown out. The average yield of cotton, under the present system, is about 200 pounds lint, of corn eighteen bushels, wheat (rough seeding, *i. e.*, thrown on the ground and ploughed in) 9 bushels, rye and oats, etc., in proportion, or about half in each case of the average yield before the war. The commercial crop is exclusively cotton, and this is deemed the most profitable crop. Ordinarily, enough of all cereals (except corn) are raised for home consumption. No particular attention is paid to these crops, except by amateurs. Many of these, however, have experimented quite extensively, and found that the climate and soil here admit of almost an indefinite expansion in varieties of crops, of all cereals, fruits, vegetables, flowers, etc. Plantations are generally large, though lessening slightly, and now are,

as a rule, from 150 to 800 acres. Within a radius of five miles of Somerville there are ten plantations of over 1,000 acres each, and some sixteen over 500 acres. The land-owners are generally quite able to hold their land, and are not disposed to sell in parcels, except to desirable neighbors. The old negro quarters are being broken up, and cabins scattered over the plantation. Grasses generally do well in Fayette, red and white clover, red top, orchard-grass and timothy all do well—clover growing three feet high in some instances; still it is not used as a renevator, but solely as a forage crop. Bermuda grass grows finely where pains are taken.

*Labor and Wages.* Before the war and ever since, the Fayette planters have introduced, as fully as their labor permitted, all kinds of the latest and best improved agricultural implements and machinery. It is well to remark that a large number of the leading planters of Fayette county are regular graduates of some of the oldest and best colleges in the Union. A great many agricultural journals are taken, and science introduced into farming just as rapidly as it can be through the laborers. Before the war there was a most flourishing agricultural association—none now; but there are eleven granges in the county, all well attended and earnestly engaged in devising means to reclaim waste hands, make labor more efficient and reliable, and homes more comfortable generally. Many experiments have been made with a view to bettering the labor, trying to introduce white labor, etc., but after all done, it is the unanimous opinion that the old negro labor, badly demoralized as it is, is the best. The prevailing arrangement with the negroes is to furnish them implements, mules, provender for mules, and seed, and give them one-half the crop, they furnishing labor, their clothing, provisions, etc. A few hire out; first-class hands receiving \$150 to \$175 per annum, and some rent land; \$4 to \$5 per acre being charged for cotton land, some less for wheat and corn, rent to be paid out of the crop. House-servants' wages are \$4 to \$6 per month; cooks \$6 per month; cook and washer \$6 to \$10. Mules are used almost exclusively for farm work. There are no particular efforts being made in stock-raising, none except for actual domestic and farm uses, but before the war there was much fine stock introduced, and improved breeds were sought after. Large flocks of best breeds of sheep were brought here, but the dogs have effectually destroyed the sheep husbandry of this county.

*Smaller Industries and Manufactories.* The industries outside of

planting are merely incident to it in this county; and as a rule, even the smaller industries receive only the attention demanded by home needs. There are no manufactories of note, though cotton factories would have very superior advantages, and a paper factory could get abundant material at a nominal price. The ramie plant grows remarkably well, and produces very fine fibre, and that with the waste cotton of the gins would supply factories with raw material cheaper and better than rags.

*Transportation Facilities* are very good, every farm in the county being within a few miles of a railroad. The Memphis and Charleston road traverses the southern portion of the county—the Somerville Branch runs up to the centre, while the Mississippi Central and the Memphis and Louisville embrace it on the east, north and west. In fact it seems that the only real drawback to prosperous farming, is the inability to control labor, as with tolerably constant labor of a fair grade a fair crop is almost certain.

*Fruits.* A great many orchards are being planted, for which the best varieties of fruit are selected, and many are putting out a very great variety of apples, peaches, pears, plums, cherries, etc., all of which seem to thrive wonderfully, except winter apples. The fruit has a peculiarly delicious saccharine flavor, particularly the peaches. Nearly every variety of grapes do exceedingly well, as proved by amateur growers. The scuppernong grows in great abundance and perfection, never rotting. Blackberries are indigentous, and are only too abundant, while raspberries and strawberries reach perfection, and are certain.

*The Timber* of Fayette county was, for the larger part, very heavy, valuable, and of great variety. Along streams, the cypress; on hillsides, the oak, walnut, poplar, and hickory, often of enormous size; in the bottoms, the beech, overcup and white oak. At present, none remains for export, and farmers generally are carefully husbanding their timber.

*Miscellaneous.* The people are very anxious to secure intelligent, honest and thrifty immigrants, regardless of nationality or opinion, if they will only affiliate with the best classes of the citizens and unite in the efforts being made to better the condition of the whole county. The negroes at present have a majority of more than 1,000 votes, and the whites, who pay very nearly all the taxes, are naturally anxious to have sufficient votes to retain control of the finances of the county at least.

So far, no one can complain at the administration. The county is out of debt, with a surplus on hand, while some fine public improvements have been made and paid for. There were sixty-three, wholly or in part, public schools taught in 1873-4, for from two to ten months. More than half of these schools were colored. Between \$9,000 and \$10,000 was expended, only about one dollar per pupil. There are five academies and colleges in the county, besides numerous private schools. In brief, the educational facilities of Fayette county are very good, and every child, white or black, has a fair chance to get at least primary instruction. There are now ten inmates of the county almshouse, more than at any time since the war. The colporteur of the Bible Society has just made his report for this county. Not a white family in the county is without a bible; not a colored family but that has some one in it who can read. The education of the negroes of this county was not wholly neglected in ante-bellum times, and there are several very good colored teachers, born and raised here. The people are patiently working their way back to the wealth and comfort of ante-war times, amid a cloud of obstacles, and are dealing fairly with all. A strictly cotton-growing county, it necessarily suffers more from the labor and political revolution than those counties with more diversified industries. The handsome results attending the experiments of the amateur horticulturists and florists promise to lead many into those industries, and in due season they expect greater immunity from the peculiar evils of the time.

*Statistics.* The population of the county is as follows: White, 9,158; colored, 16,987; total, 27,145. White voters, 2,178; colored voters, 3,362; total, 5,540.

The following statistics are taken from the report of the ninth census:

Horses.....	2,839
Mules and asses.....	4,073
Milch cows.....	4,534
Working Oxen.....	405
Other cattle.....	4,872
Sheep.....	3,828
Swine.....	30,762
Value of all live stock.....	\$1,085,136
Value of animals sold for slaughter.....	152,020

FARM PRODUCTS.

Wheat.....	11,786 bushels.
Corn.....	627,271 "
Oats.....	9,450 "
Cotton.....	20,131 bales.
Peas and beans.....	2,082 bushels.
Irish potatoes.....	8,418 "
Sweet potatoes.....	26,077 "
Butter.....	12,232 pounds.

This county stands second in the production of cotton, Shelby being first.

## GIBSON COUNTY.

## COUNTY SEAT—TRENTON.

Gibson county is bounded on the north by the counties of Obion and Weakley, on the east by Carroll county, on the south by the counties of Haywood, Crocket and Madison, and on the west by the counties of Dyer and Crocket. It comprises about 600 square miles. The number of acres of land, exclusive of town lots, assessed for taxation, is 366,105, valued at \$5,618,695, or over fifteen dollars per acre.

*Organization.* Gibson county was organized by an act of the General Assembly of the State of Tennessee, passed on the 21st day of October, 1823, which act provided for its organization. The first Justices of the Peace commissioned were Wm. P. Leat, Robert Edmondson, Obey Blakemore, Benj. White, Robert Read, ——— Rice, Abner Burgan, John D. Love, Wm. W. Craig, W. B. G. Killingsworth, John J. Lane and F. Davis. The first session of the County Court was held, beginning on the 1st day of January, 1824, and Wm. P. Leat was elected the first Chairman, and Thomas Fite was elected the first Clerk. The first settlers of Gibson county were principally from Middle Tennessee and North Carolina.

*Health of the County.* Gibson may be regarded as a reasonably healthy county, though during the summer and fall months chills and fevers generally prevail without being fatal. During the winter months there are cases of pneumonia and other lung diseases, but they are neither very frequent nor of a very malignant type. In regard to consumption, it should be stated that very few cases originate in the county. It is claimed by the physicians, and no doubt very justly, that the mortuary list of Gibson county will compare favorably with those of the other West Tennessee counties.

*Physical Geography.* Immediately about Trenton, the county seat, which is located very near the center of the county, the surface is quite level, there being but very little broken land. Going north from Trenton to the county line, the land is also generally level, but southward it is very broken. Easterly it is also quite hilly and broken, but going west to the county line, the land is again very level. The western half of the county is regarded as the best, the lands being richer and lying better. Here the soil is generally a dark or black

loam, with a yellow clay subsoil, which is very retentive of moisture, and is a good guarantee against very severe droughts. The soil in the other half of the county is mulatto colored and has a perceptible mixture of sand. The subsoil is rather darker, being of a reddish cast. The soil here does not stand a drought so well, nor is the land so productive. Considered as a whole, however, the lands of Gibson county may be classed as good, and paying crops are annually raised upon them.

*Topography and Formation.* There are no ranges of hills in the county that are worthy of note. Between the different streams which will be mentioned, there are generally low ridges that divide the valleys, but they are neither very distinctive nor very prominent. All of Gibson county is on "the Plateau or Slope of West Tennessee," in which there are very few or no regular strata of hard rock, such as sandstone, slate or limestone, which are found in most sections of Middle Tennessee; occasionally, however, local and limited beds or blocks of coarse reddish or brown sandstone are met with, and this is true of Gibson. As stated, the soil upon the surface is loam, which is dark, ranging from a mulatto color to black, and varies in depth from six to twenty-four inches. Immediately below this loam is a clay, which varies in color from yellowish to dark brown, and varies in depth from eighteen inches to four feet. Below this clay in almost every section of the county are found strata of sand of various colors. Below the sand is often found a very hard clay, locally known as "hard-pan," which is hard to dig with picks. It is very difficult to classify the lands of Gibson county with respect to their relative adaptability to the growth of certain crops, but it may be stated as a general rule, that the darker lands of the county, which are principally embraced in the western half of the county, are more favorable to the growth of cotton than the others, though all the good lands in Gibson county grow corn and cotton well. The soil of Gibson county generally is very mellow and has in it a considerable quantity of siliceous matter. It is easily tilled, but where there are any very perceptible elevations, it is subject to be washed away, and requires good handling to make it durable. A Gibson county farm in the hands of a careless and indifferent farmer soon decreases greatly in fertility and value. But in the hands of an intelligent and energetic man who, understands and appreciates the importance of hill-side ditching and general drainage, and who is not indifferent to the value of fertilizers, it will not only hold its own, but increases in value and productiveness. It is but

just to observe that no lands in the State respond more readily to the use of fertilizers and are more grateful for rest.

*Rivers, Creeks and Springs.* There are other counties in West Tennessee which are better watered than Gibson county, but it has plenty of water for all practical purposes. The following are the only streams which are worthy of mention :

Middle Fork of Forked Deer River enters the county from Madison county, about fourteen miles south of Trenton, runs north-west, and passes out of the county into Dyer county about fourteen miles west of Trenton. Little North Fork of Forked Deer River heads in the south-eastern corner of the county, ranges west, passing nearly centrally through the county, and empties into the Middle Fork near where it passes into Dyer county. Rutherford Fork of Obion River rises in Carroll county, comes into Gibson near its north-east corner, ranges north, and passing into Obion county, empties into the main Obion River about seventeen miles north of Trenton. South Fork of Obion River laves the northern line of Gibson, forming the dividing line, in part, between Gibson and Weakley counties. Big Creek rises about six miles south of Trenton, runs west, and empties into Middle Fork of Forked Deer River near the town of Eaton, eleven miles west of Trenton. There are various other smaller streams in the county, tributaries of those named above, which water the county very generally. Along the banks of all the streams in the county are numerous springs which feed them, but away from the streams springs are very rarely seen. For domestic purposes wells are almost universally used, though a few families have cisterns, which are made without brick and generally without cement. The wells are generally dug from twenty-five to thirty-five feet, though plenty of water may be often found at a much less depth. In sections of the county where the rivers and creeks are not convenient, farmers make ponds, which hold water well and are easily made. The water throughout the county is freestone.

*Timber.* The county is well timbered with the class of trees generally found growing in West Tennessee, with the exception of pine, which does not grow here. Gibson having been settled upwards of fifty years ago, there has been a greater destruction of timber than in many of the neighboring counties; still there is enough left for all practical purposes. The best timbered land is in the western half of the county, though there is no scarcity in any section. Lumber is not one of the staples, though there is quite a number of

saw-mills constantly at work; they only try, however, to supply the home demand for lumber, which is not inconsiderable. In the western half of the county the principal undergrowth is pawpaw, and in the eastern half it is principally hazle.

*Statistics.* Since 1870 no accurate estimates have been made of the products of Gibson county, but supposing that one-seventh of the county, as it stood in 1870, has since been given to Crockett county, decreasing the returns of 1870 for the county a pretty accurate estimate can be secured of the products of 1873. About the same area was planted in 1873 as in 1870. The following figures, therefore, are approximately correct:

Orchard products.....	\$ 10,271
Forest products.....	21,260
Value of home manufactures.....	20,157
“ animals slaughtered or sold for slaughter.....	358,493
“ all live stock.....	1,130,779
Number of horses.....	4,827
“ mules and asses.....	2,533
“ milch cows.....	4,689
“ working oxen.....	457
“ other cattle.....	5,443
“ sheep.....	12,097
“ swine.....	43,803
Bushels of winter wheat.....	100,145
“ corn.....	915,236
“ oats.....	10,387
Pounds of tobacco.....	83,400
Bales of cotton.....	8,413
Pounds of wool.....	10,866
Bushels of peas and beans.....	13,988
“ Irish potatoes.....	20,092
“ sweet “.....	51,665
Pounds of butter.....	209,211
Tons of hay.....	754
Pounds of honey.....	25,003

The following table will show the number of farms in the county and the relative size of each:

Total number of farms.....	2,893
Number having under 3 acres.....	1
“ “ 3 and under 10.....	138
“ “ 10 “ 20.....	708
“ “ 20 “ 50.....	1,284
“ “ 50 “ 100.....	554
“ “ 100 “ 500.....	206
“ “ 500 “ 1,000.....	2
“ “ 1000 and over.....	0



There are about 33½ per cent. of all the open lands in Gibson county which are annually rented, the general terms of rent being as follows: When the land-owner gets a part of the crop raised on the land, and furnishes only the land, his proportion is one-third; but when he furnishes all but the labor, his proportion is one-half. When money rent is required, the following prices are asked and obtained by the owner:

For first-class lands per acre.....	\$5.00
“ medium “ “ .....	3.00
“ inferior “ “ .....	2.00

At least 75 per cent of all the lands in the county can be purchased at reasonable prices and upon good terms. There is very great difference in the prices asked for the lowlands and the uplands generally, the advantages being in favor of the lowlands, which, as a rule, are level and rich, while the uplands are generally broken and less productive. The general terms of sale are as follows: one-third cash, the balance in one and two years, with from 6 to 10 per cent. on deferred payments, and lien reserved upon the land to secure said payments. The prices asked are:

Best uplands, per acre.....	\$15.00 to \$20.00
“ lowlands “ .....	20.00 to 25.00
Medium uplands “ .....	10.00 to 15.00
“ lowlands “ .....	15.00 to 20.00
Inferior uplands “ .....	5.00 to 10.00
“ lowlands “ .....	10.00 to 15.00

The overflowed lands, including about 3 per cent. of all the lands in the county, generally sell for from \$3 to \$5 per acre.

*Products.* Cotton is the principal staple, though corn, wheat and hay are raised in considerable quantities. The land produces tobacco well, but very little is raised. There are other products which are raised in limited quantities, but they cannot be classed with the staples. The following averages of yield per acre may be relied on:

Average yield of cotton per acre.....	800 lbs. seed.
“ “ corn “ .....	40 bushels.
“ “ tobacco “ .....	900 pounds.
“ “ wheat “ .....	7 bushels.
“ “ hay “ .....	1,500 pounds.

Stock peas do excellently well and are generally grown, but it is difficult to estimate the average yield per acre, as they are used principally as fertilizers.

*Grasses.* The farmers throughout the county are beginning to pay much more attention to the growing of grasses than formerly, timothy being the favorite. However, clover and herds-grass (red top) are quite extensively grown. Timothy grows to advantage only on rich lands, while herds-grass will do well on any land. Clover will also do pretty well on any kind of land, but as it makes the best fertilizer, except stock peas, it is more frequently sown on poor lands for that purpose.

*Labor.* Since the war there has not been a sufficiency of labor to cultivate all the open lands, and it is still very scarce. The laborers are generally negroes, who are very uncertain and unreliable. There are some white laborers, but they are also uncertain. People are anxious to welcome good laborers, and though there is a greater demand for whites than for negroes, all will be able to find employment at good wages. The following wages are readily paid in the county:

For farm hands	per year.....	\$200.00
“ “ “	per month.....	20.00
“ “ “	per day.....	1.00
“ harvest “	“ .....	2.50
“ cooks	per month.....	8.00
“ house servants	“ .....	8.00

When \$200 are paid to farm hands per year, it should be observed that they are also boarded at the expense of the person hiring them.

*Fruits.* Gibson is not a first-class fruit county. Peaches do very well, but for several years apples have done poorly. Plums and the standard varieties of pears also do tolerably well, but dwarf pears are subject to blight and are generally short-lived. Cherries, strawberries and raspberries are said to grow luxuriantly, and the wild varieties of grapes are reliable, but the domestic varieties are very subject to rot.

*Stock and Stock-raising.* Although Gibson has good natural advantages as a stock country, little or no attention is paid to this important branch of industry. “Cotton is King,” and the farmers seem to be entirely under its rule, and can with difficulty be made to believe that money can be made in any other way than by planting cotton.

*Markets.* Memphis is the best cotton market, but, to a limited extent, St. Louis, Louisville, Cincinnati, Mobile, and even New Orleans, are patronized.

*Population.* Since 1870 no official estimate has been made of the population of the county. At that time, according to the census re-

port, there were of whites, 18,801; colored, 6,865; total, 25,666. Since that time about one-seventh of the county has been cut off from it, but the increase of population has been at the rate of a little upward of 5 per cent., which will give as the population of 1873: Whites, 17,026; colored, 6,179; total, 23,205.

*Immigration and Emigration.* The immigration to the county during the past few years has not been heavy, though quite a number of families and individuals have moved in, principally from the counties of Middle Tennessee. A considerable number has also left the county, going principally to Texas and Arkansas.

*The People.* The people are generally law-abiding, industrious and thrifty, and though to some extent embarrassed by reason of the war and its attendant troubles, they are hopeful, and will ere long "be on their feet" again. They are manifesting considerable enterprise, and are evidently imbued with the spirit of progress.

*Roads.* The county roads are in bad condition, though they are in better condition than are the roads in most of the adjoining counties. The new road law is not in force, and in all probability will not be. In the low places of the county some leveeing has been done, but the levees are not kept in good condition.

*Railroads.* At present there are but three railroads passing into and through the county—the Mobile and Ohio, which enters the county from the south-east about fourteen miles from Trenton, and passes out into Obion county about sixteen miles north-west of Trenton; the Memphis and Louisville, which enters the county about fourteen miles due south of Trenton, and passes out into Carroll county about ten miles due east of Trenton; and the Mississippi Central, which passes through the entire eastern part of the county. Scarcely a county in the State has more railroad facilities. The Tennessee Central, which is to run from Fulton, on the Mississippi River, and tap the Nashville and Northwestern Railroad at Huntingdon, will pass through Trenton, thence onward to Huntingdon. It is now under contract.

*Towns and Villages.* Trenton, the county seat, is located near the center of the county, has about 2,700 inhabitants, six churches for white people, representing the following denominations: Methodist, Baptist, Presbyterian, Cumberland Presbyterian, Episcopal and Christian; two colored churches, representing the Baptist and Methodist; two foundries, one planing-mill, two grist-mills and cotton-gins, two

wagon factories, &c. It is also the seat of Andrew College, which has been converted into a first-class high school. A very good female school is also in this place, which is in a flourishing condition. Humboldt is at the junction of the Mobile and Ohio and the Memphis and Louisville railroads, has about 2,250 inhabitants, a number of churches, good schools, workshops, mills and other industrial enterprises, among which is a woolen mill. Among the schools is the Odd Fellows' College, which is for the benefit of young ladies, who are patronizing it very liberally. Humboldt is eleven miles south of the county seat. Milan is twelve miles east of Trenton, has about 1,250 inhabitants, is at the junction of the Memphis and Louisville and the Mississippi Central railroads; is well supplied with churches and schools, and is quite a growing place. Dyer Station is on the Mobile and Ohio Railroad, seven miles north of Trenton, and has about 275 inhabitants. Rutherford Station is on the Mobile and Ohio Railroad, ten and three-quarter miles north of Trenton, and has about 700 inhabitants. Yorkville is fourteen miles north-west of Trenton, and has about 125 inhabitants. Eaton is eleven miles west of Trenton, and has about 135 inhabitants. Brazil is nine miles south-west of Trenton, and has about 80 inhabitants. Pickettsville is ten miles south-east of Trenton, and has about 60 inhabitants. The foregoing are the only towns and villages in the county which are deserving of notice.

*Milling Facilities.* There is very little good water-power in Gibson county, and mills are very scarce, the average milling distance throughout the county being about four and a half or five miles. The streams are sluggish, and have very little fall.

*Schools.* No county in the State, in proportion to population, has done more for public schools than Gibson. For the year 1873-4, a tax of twenty-five cents on the one hundred dollars was levied, which, with the exception of Houston, is the largest county school tax levied in the State. Schools are kept up from six to ten months in the year, and their beneficial effects are clearly perceptible in the increase of enterprise and intelligence among the people. Scholastic population, 8,484; number schools organized, 96.

*Churches.* Almost every neighborhood in the county is supplied with comfortable church buildings, representing the various Christian denominations. The Methodists predominate, Baptists next.

*Newspapers.* There are three newspapers published in the county—the Trenton News, published in Trenton; Trenton Gazette, also pub-

lished in Trenton; and Humboldt Journal, published in Humboldt. All of these papers are Democratic, and are very creditable journals.

¶ *Farmers' Organizations.* The "farmers' movement" has gained considerable headway, and there is quite a number of Granges of the Patrons of Husbandry in the county. At Trenton there is a fair association, known as the Gibson County Agricultural and Mechanical Association, which is in a very prosperous condition.

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## HARDEMAN COUNTY.

### COUNTY SEAT—BOLIVAR.

Hardeman county is bounded on the north by the counties of Haywood and Madison, on the south by Mississippi, on the east by McNairy county, and on the west by the counties of Fayette and Haywood.

According to the census report of 1870, there were 138,112 acres of improved land in the county, 335,859 acres of woodland, and 22,042 acres of land that were otherwise unimproved than being in wood—in all about 775 square miles. Since 1872 there has been no change in the boundaries, and it is supposed that there is still, in 1873, about the same proportion of improved land, woodland, and otherwise unimproved land in the county that there was in 1870. Between the number of acres as given in the ninth census and the number returned for taxation there is a discrepancy of nearly 100,000 acres. There are eighteen civil districts in the county, and the same number of school districts, which coincide with the civil districts.

*Organization.* Hardeman county was established under an act of the General Assembly of the State bearing date October 10, 1823, and on the 17th day of October, 1823, the county was formally organized by the following named gentlemen, who were the regularly authorized commissioners for the purpose: Andrew Taylor, William Polk, Jacob Pirtle, John Y. Cockran, William P. Robertson, Nathan Stell, John Rosson, and one or two others whose names are not known and do not appear on record. The first County Court elected William Polk as its chairman and Thomas Jones Hardeman as its first clerk. The first settlers were principally from Maury county, in this State, and from Kentucky, and their descendants constitute to-day the leading citizens of the county.

*Physical Geography.* Hardeman county is included in the Plateau or Slope of West Tennessee, and is one of the best counties on the Slope. The country immediately around Bolivar, the county seat, is quite level. Northward toward the county line it is rather broken, with rich valleys and table lands; southward it is inclined to be hilly, but the lands are very good, and this section is regarded as an excellent farming district. Proceeding eastward to the county line, it is again hilly, but there are some rich and productive valleys. In a westerly direction it is generally level and rich. In fact, there are few counties in West Tennessee which present a greater variety of surface character, and but few afford better farming facilities. The prevailing color of the soil throughout the county is dark, and in most sections it is a mellow, siliceous loam, highly productive. The prevailing color of the subsoil is a red clay, which, when mixed with the soil, produces well, and responds readily to the application of manure. The average depth of the soil is about five inches, but in the valleys, which are numerous, it is deeper, reaching frequently eighteen inches. Along the ridges, however, it is very shallow, most of it having been carried off by water to the valleys. The bottom lands, and what are known as the table lands, are regarded as the best for corn and small grains, and also for vines, and the uplands are the best for cotton. Where the lands are level they wear well, and are easily tilled, but in the more broken and hilly sections of the county, though easily tilled, they are easily worn, and require good handling, especially deep subsoiling, to make them last well.

*Formations.* Some indications of iron ore are observed in this county. On Spring Creek, more particularly described hereafter, and also on Hatchie River, there are frequent indications of iron. Beds of lignite have also been discovered, which furnish a tolerable fuel. In several sections of the county outcroppings of sandstone occur, and on Muddy Creek there is a bed of limestone. Formations of limestone are also discoverable at several points on what is known as Cypress Creek. In the *Geology of Tennessee*, Dr. Safford says: "In the vicinity of the Memphis and Charleston Railroad, in Hardeman county, there are in the Ripley Group of the Cretaceous series, two local beds, interesting on account of the fossils they contain as well as for other reasons. The first is a bed of buff gray, impure limestone, from two to six feet thick. It is found on both sides of the railroad, near Muddy Creek. It abounds in two or three species of *Turritella*,

*Ostrea Vomer*, Mort., claws of a *Calianassa*, and other species." The second is a bed of clayey sand with green grains. This has been seen west of the limestone at two exposures—one in a small cut on the railroad, about two miles east of Middleton, the other about two miles south or south-east of Middleton, on a branch of Cypress Creek (of Hardeman) and near the old stage road. The lands in Hardeman resting on the Cretaceous strata are very good, the soil being generally mellow, and a siliceous loam with a compact clay subsoil, well adapted to the growth of corn and cotton. It should also be observed that in many districts of the county the soil is heavily mixed with sand, which is sometimes found in beds ranging in thickness from three to ten inches. These beds, however, are generally some distance below the surface, and are only occasionally seen cropping out above the surface. In the sections where these sand beds are more frequently seen, the lands are especially adapted to the growing of cotton. The Cretaceous formations are confined to the eastern part of the county. Much the larger portion is based on the Lagrange Sands, but all the stratified formations are very frequently concealed by the Orange Sand Drift.

*Rivers, Creeks, etc.* It is claimed by the people of Hardeman county, and not without reason, that they have the best watered region in West Tennessee. The streams which are more deserving of mention are as follows: Big Hatchie River enters the county near its south-eastern corner, runs north-west, passing through the county. Little Hatchie River enters the county from the east, and empties into Big Hatchie, about twelve miles east of Bolivar. Wade's Creek rises a little north of east from the county seat, empties into Big Hatchie River, about nine miles east of the county seat. Piney Creek rises in the north-eastern part of the county, and empties into Hatchie River, about three miles east of Bolivar. Gray Creek rises in the north-eastern part of the county and empties into Hatchie, two miles north of Bolivar. Mill Creek rises in the same neighborhood, ranges nearly west, and empties into Hatchie six miles north-west of Bolivar. Cloon Creek also rises in the north-eastern section of the county, runs west, and empties into Hatchie nine and a half miles of Bolivar. Hickory Creek rises ten miles west of Bolivar, and empties into the Hatchie sixteen miles north-west of Bolivar. Clear Creek rises eight miles south-west of Bolivar, ranges east and north, and empties into Hatchie seven miles north-west of Bolivar. Pleasant Run rises six miles south-west of Bolivar, and empties into Hatchie two miles north-west of Bolivar. Spring Creek rises south of the county seat, runs north,

and empties into Hatchie one mile north of Bolivar. Cub Creek rises south-east of Bolivar, and empties into Hatchie six miles south-east of Bolivar. Porter's Creek rises south-east of Bolivar, and empties into Hatchie eight miles south-east of Bolivar. Muddy Creek rises in the southern part of the county, and empties into Hatchie about seven and a half miles south-east of Bolivar. Besides those mentioned, there are numerous other but smaller, streams which ramify throughout the county, watering not only every civil district, but almost every neighborhood. These, as well as the larger streams, are lasting, and afford a plentiful supply of water, especially for stock purposes, throughout the entire year. They are fed by never-failing springs, which are numerous and very bold, and the water all over the county is well tasted and generally clear. Pools and cisterns are easily made, and hold water well, but are not much needed, hence are not frequently seen. The wells vary in depth from twenty to eighty feet, the average depth being about forty-five feet. The water throughout the county is freestone and chalybeate. About two and a half miles south of Bolivar are the Dunlap Chalybeate Springs, the water of which is held in high estimation.

*Timber.* The best varieties of timber are white oak, red oak, hickory, gum, poplar, and much pine. Large quantities of lumber are shipped annually for staves, and are sent to New Orleans, and a great many cross ties are annually cut for railroad purposes. Saw-mills are numerous. The lumber they make is of pine, cypress, poplar, and oak.

*Land Statistics.* In 1873 about two-thirds of the open or cleared lands in the county were worked by the land-owners, or under their immediate control, and the other one-third was worked by renters. The usual terms of rent are as follows: When money rent is required the price asked and obtained is \$4 per acre. When part of the crop is required, the land-owner furnishes everything but the labor, and gets one-half of the corn and cotton, or the renter furnishes everything but the land, and gets two-thirds of the corn, and three-fourths of the cotton. Not less than one-third of the land can be purchased at reasonable prices and on reasonable terms, the usual terms of sale being one-third cash, the balance in one and two years, without interest, for improved lands; for unimproved lands, the general rule is to give one, two and three years' credit. The prices charged are as follows:



Best improved lands, per acre.....	\$25 00
Medium " " " " .....	10 00
Inferior " " " " .....	5 00
The average being about, per acre.....	15 00
Best unimproved lands " " .....	15 00
Medium " " " " .....	7 50
Inferior " " " " .....	1 00
The average being about " " .....	8 00

*Farm Statistics.* The following statistics, taken from the census report of 1870, will give the reader a pretty fair idea of the sizes and numbers of the farms of Hardeman county, as there has been but little change since 1870 :

Total number of farms of all sizes in county.....	2,217
Number having 3 and under 10 acres.....	257
"        "        10 "        "        20 "        "        .....	406
"        "        20 "        "        50 "        "        .....	709
"        "        50 "        "        100 "        "        .....	515
"        "        100 "        "        500 "        "        .....	303
"        "        1,000 "        over.....	7

Corn, cotton, peas, and potatoes are grown more extensively in the county than any other crops, though there are also yearly crops made of tobacco, wheat, oats, rye and beans, and a considerable quantity of clover is also grown. The following figures will show the average yield, per acre, of

Cotton in seed.....	800 pounds.
Corn .....	5 barrels.
Wheat.....	12 bushels
Tobacco.....	900 pounds.
Oats.....	25 bushels.
Hay.....	1 ton.
Irish potatoes.....	150 bushels.
Sweet " .....	200 "

The cotton shipped ranks generally as "strictly middling," and the tobacco is said to be of a superior quality, though the quantity is quite limited.

Since the war very little attention has been paid by the farmers to the growing of grasses. Clover is being used to some extent as a fertilizer, but hay cannot be regarded as in any sense one of the staples of the county. As a fruit region, Hardeman takes a front rank among the West Tennessee counties. Stone fruits, seed fruits and berries do well in every neighborhood. Apples are the most certain fruit, but peaches also thrive. The following figures taken from census returns will give a pretty accurate idea of the crops grown :

Value of orchard products.....	\$12,101
“ “ products of market gardens.....	4,183
Bushels of spring wheat.....	8,175
“ “ winter “ .....	24,755
“ “ rye.....	1,180
“ “ corn.....	586,508
“ “ oats.....	19,799
Pounds of tobacco.....	5,600
Bales cotton.....	7,884
Bushels of peas and beans.....	5,412
“ “ Irish potatoes.....	15,138
“ “ Sweet “ .....	32,143

The following statistics may also prove of interest :

Value of forest products.....	\$ 7,915
“ “ home manufactures.....	21,119
Pounds of butter.....	83,872
Gallons of Sorghum.....	6,817
Pounds of honey.....	7,142

It should be stated that there are not as many large farms in the county now as before the war, but the farms are generally much better improved. The most profitable products are, 1st, cotton; 2d, corn; 3d, potatoes.

*Stock and Stock Raising.* Hardeman is generally regarded as an excellent county for stock-raising, and a considerable number of the farmers are paying special attention to this branch of industry. Those who are devoting most time and attention to the raising and breeding of horses prefer, as a general rule, the native breeds of horses, which they claim, thrive better in this county than thoroughbreds, and are more generally useful. The breeders of fine cattle are divided in their opinions as to the merits of the Short-horn and Alderny breeds, but it is certain that these breeds are the favorites over others. Some of the best stockmen of the county are devoting especial attention to crossing of blooded cattle on the native stock. The breeders of fine hogs almost universally prefer Berkshire, and the Cotswold are preferred to other breeds by the sheep men.

Total value of all live stock in county in 1870.....	\$793,203
“ “ “ animals slaughtered or sold for slaughter.....	64,399
Number of pounds of wool saved.....	9,920
“ “ horses in the county.....	2,684
“ “ mules and asses.....	2,202
“ “ milch cows.....	3,146
“ “ work oxen.....	1,007
“ “ sheep.....	7,139
“ “ other cattle.....	6,291
“ “ swine.....	34,936

*Game and Fish.* Sportsmen who hunt in this county have to content themselves with shooting only such small game as turkeys, partridges, squirrels, rabbits, etc., but fishermen find that the rivers and creeks abound in fish, such as are usually found in the western waters.

*Markets.* Memphis and New Orleans are the principal markets. The former is reached by the way of the Memphis and Charleston, Railroad which passes through the county, and also by the way of the Hatchie and Mississippi rivers, the former of which is navigable to Boliver and empties into the latter; the latter by the way of the Mississippi Central Railroad, which also passes through the county, and by the way of the Hatchie and Mississippi rivers.

*Labor.* The people are not more fortunate than their neighbors in the matter of labor. They sorely feel the want of reliable and energetic laborers, and are willing to offer substantial inducements to such to settle in the county. At present there are more white laborers than colored, and they are preferred by a large majority of the people, but there is no prejudice against colored laborers, and if they will work and behave themselves, they may be certain of constant employment and good wages. The most pressing want just now is for good farm hands, but mechanics are in good demand, and good cooks and house servants can always get good homes and will be well paid for their work. The following are the average prices paid to laborers: Farm hands per year, \$200; per month, \$18 and board; per day \$1.50; cooks per month, \$8 to \$10; house-servants per month, \$6 to \$10; mechanics per day, \$2.50 to \$5.

The population of the county in 1870 was, white, 11,220; colored 6,854; total, 18,074.

*Immigration and Emigration.* Since 1870 the influx of actual settlers has not been great, but the estimated increase of the population during the past three years has been a little upwards of fourteen per cent. The immigration has been principally from North Carolina, Virginia and Mississippi and some settlers have come Sweden. The number of persons who have left the county since 1870 has been small and most of these went to Texas with the view of finding cheaper lands than they could find at home. Very few of the land owners have moved away.

*The People.* The people generally, are hardworking, thrifty and properly appreciate an education. They are conservative in policies and religion, and are to an encouraging extent, readers of newspapers. As a class, they are above the average.

*County Roads and Railroads.* The county roads are not improved pikes, corduroys, etc., but they are generally kept in pretty fair condition. Across most of the bottoms levees have been thrown up which answer a good purpose. The only two completed railroads passing through the county are the Mississippi Central and the Memphis and Charleston. The former enters the county from the south-west and passes through it in a north-easterly direction, the latter passes through only the southern district of the county, entering it from the west and ranging almost due east. The Memphis and Knoxville Railroad is now in the course of construction and will pass from east to west through nearly the center of the county.

*Towns and Villages.* The following are the most important towns and villages: Boliver, the county seat, is located near the center of the county, has about 1,400 inhabitants, two large and flourishing female schools, two good male schools, one foundry, one steam cotton gin and press and one steam mill. Teague's Station, on the Mississippi Central Railroad, is eleven miles from Boliver and has about forty inhabitants. Toon's Station, on the same road, is seven miles north-east of Boliver and has about ninety inhabitants. Middleburg, on the same road, is seven miles south-west of Boliver, and has about forty inhabitants. Hickory Valley, on the same road, is fifteen miles south-west of Boliver, and has about forty-five inhabitants. Grand Junction, at the junction of the Mississippi Central and the Memphis and Charleston railroads, is twenty-three miles south-west of Boliver, and has about 300 inhabitants. Whiteville is eleven miles west of Boliver and has about 175 inhabitants. Newcastle is ten miles north of Boliver and has about ninety inhabitants. Centerville is sixteen miles north of Boliver and has about ninety or one hundred inhabitants. Salsbury, a station on the Memphis and Charleston Railroad, is twenty miles south-west of Boliver and has about 375 inhabitants. Middleton, on the same road, is eighteen miles south of Boliver and has about 400 inhabitants. Poehontas, on the same road, is nineteen miles south-east of Boliver and has about 350 inhabitants. Youbet, on the same road, is eighteen miles west of south-west of Boliver and has about fifty inhabitants. Cranesville is thirteen miles east of Boliver and has about fifty inhabitants. Leatherville is on the Memphis and Knoxville Railroad, (now being constructed) is three miles west of Boliver and has about 100 inhabitants.

*Mills and Factories.* The water-power is good, but is as yet undeveloped. The average fall of streams per mile is from one and a half

to two feet. At Grand Junction there is a large and flourishing steam flouring mill. At Leatherville there is an extensive wool and cloth factory, and in almost every district there is one or more steam or water-mills. The average distance which the people of the county have to go to get to mill, it is thought, will not exceed two miles.

*School Statistics.* Hardeman county has given but little attention to public schools. The county levies a tax of 50 cents on dogs and 50 cents on polls for school purposes. The following statistics will show the operations of public schools for the year 1873-4: Scholastic population between 6 and 18—white male, 1,660; female, 1,682; total white, 3,342; colored male, 627; female, 664; total colored, 1,291; total, 4,663. Number white schools organized, 29; colored, 10; total, 39. Number white pupils between 6 and 18 enrolled, 1,740; colored, 590; total, 2,330. Number white pupils between 18 and 21 enrolled, 60; colored, 10; total, 70. Number of teachers licensed—white male, 35; female, 21; colored male, 5; female, 5; total, 66. Number of teachers employed—white male, 27; female, 15; colored male, 2; female, 1; total, 35. Average per month paid teachers, \$46.42.

*Churches.* In almost every neighborhood there are houses of worship, representing some of the various Christian denominations. The denominations rank in numerical strength in the following order: Methodist, Baptist, Presbyterian and Cumberland Presbyterian. There are still other denominations represented in the county, but not numerously.

*Newspapers.* The only newspaper published in the county is the Bolivar Bulletin, published in the town of Bolivar. It is Conservative in politics. The people are generally readers of and subscribers to newspapers.

*Agricultural Organizations.* Since the war there has not been a fair association. The "farmers' movement" is creating considerable excitement among the farming class.

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## HARDIN COUNTY.

COUNTY SEAT—SAVANNAH.

This county at the time of its organization in 1819, contained territory enough to make a small State. The boundaries extended "westward to the Mississippi River." It was named in honor of Col. Jo-

seph Hardin. The southern boundary of the county coincides with the State boundary. The States of Alabama and Mississippi "corner" on the Tennessee line at a point which bisects the Hardin line. At this point, also, the Tennessee River, after flowing in a westerly direction through northern Alabama, re-enters the State. Hardin is separated into an eastern and western portion by the river, which has in general a northerly direction, but sweeps through the county in a considerable curve. Politically, Hardin belongs to West Tennessee; physically, its western portion pertains to this division of the State, but its eastern part to Middle Tennessee. From a local report to the State Bureau of Agriculture, we find that the county contains 371,400 acres, equal to 580 square miles. According to the Comptroller's report for 1873, it embraces 317,656 acres, or nearly 496 square miles. In the census of 1870 the lands of Hardin are thus reported:

Improved.....	51,005
Woodland.....	103,363
Other unimproved.....	58,927
	<hr/>
Total.....	213,295

These figures of the census are of course much below the mark. Most probably including town lots and river and creek beds, the area will be found to be fully equal to the estimate made for the State Bureau.

*Characteristics.* Were we asked, what is the especial characteristic of the natural features of the county we are considering, our answer would be, *variety*. This is true of its topography, geology, and necessarily of its soils, or agricultural features. Its geological formations are more varied than any county as yet described in West Tennessee. Its topography includes such features as cypress bottoms, the gravel-covered areas, the sand bluffs, etc.

*Topography, Water-courses.* The valley of the Tennessee River extends in a northerly direction through the county, and of course is a leading feature of its topography. This valley is comparatively rough and broken, presenting by no means such a country as we should expect to find bordering so beautiful and large a stream. We do not mean to say that there are no rich bottoms, nor good agricultural areas in it, for there are many of these, not a few of which are most excellent and worth a hundred dollars per acre, but, in the aggregate the amount of good arable land is less than we would look for. Perhaps the whole bottom of the Tennessee

River in this county would embrace 140 square miles. On the eastern side of the river there are four large creeks, namely: Horse, Turkey, Indian and Hardin's creeks. The upper part of the latter however, is in Wayne county. The others are mainly in Hardin. They all flow in a north-westerly direction into the Tennessee River, have long valleys, and are well bordered with farms. On the western side of the river are a number of streams, among which are White Oak River, Snake, Owl, Yellow, Mud, Beaison's, Chambers' and Lick creeks. These rise, for the most part, in McNairy county, and flow eastward through the western part of Hardin into the Tennessee. The country through which they flow is made up of sandy and clayey formations, and in consequence the topographical features attending them are quite different from those characteristic of the creeks first mentioned, and in the eastern part of the county, where limestone bluffs abound. All of the streams afford sites for mills, many of which have excellent water power. In the eastern and south-eastern parts of the county there are many high, flat-topped ridges between the valleys of the creeks. In the northwestern part are many limestone ridges and knolls, upon which are occasionally glady places showing gravel, rocks and young cedars. Approaching the McNairy county line, on the western side of the river, the country becomes rolling. In McNairy is a high ridge dividing the waters of the Tennessee from those of the Mississippi, from which spurs and broken ridges extend eastward more or less into Hardin county.

*Geology.* It may be startling to some, nevertheless we have good reason for asserting that along a line running in a northerly direction through the county, and coinciding in part with the present channel of the Tennessee River, was once a shore of a salt-water gulf, or the shore of an arm of the Gulf of Mexico, which extended far northward into the very bosom of the Mississippi valley. The reader may inquire what evidences exist for believing it to have been a salt-water gulf. To this we answer, that the first or lowest deposits are full of marine remains, such as oyster-shells, shark's teeth, corals, etc. Overlying this marine deposit is a fluvial deposit, which is first sandy, terminating with loess or silt. Altogether, it is one of the most interesting exhibitions of geological changes to be met with in the United States, marking the period when mighty continental changes were effected, and when gradual elevations caused the ocean to retire and give place to the grandest river in North America. Along this old shore we have the western boundary of the limestones, slates and sandstones (the

hard rocks) of Middle Tennessee, or the line separating these rocks from the sandy and clayey beds (the soft rocks) of the Western District. The horizontal limestones and other hard strata are here suddenly beveled off, and their edges are overlapped by the sand and clay beds of the west, which are of far more recent age. In the northern and southern parts of the county the hard rocks extend a short distance to the west of the Tennessee, but for a distance equal to half the length of the county the river coincides with the line of the old shore, so that on the east side the bluffs are limestone, while on the west they are made up of strata of gray and yellowish sands, interstratified more or less with dark and white seams of clay. The rocks east of the old shore line belong to several formations. The lowest seen at many points in the bed of the Tennessee River below Savannah, and also in the beds of several of the creeks, is a group of blue, thinly laminated limestones, which when burned yield a fair article of hydraulic cement. At a number of points in Hardin cement has been manufactured from this rock. This formation belongs to the Nashville rocks, and may reach at some points a hundred feet in thickness. The formation is not of much agricultural importance, as it is mostly confined to the channels of the streams. Above the hydraulic rock is a series of gray limestones about two hundred feet in maximum thickness, which are the principal, and form, in an agricultural point of view, the most important limestones in the county. They are seen in many bluffs on the Tennessee and on the creeks and are the rocks of the most valuable parts of the valleys, and outcrop on the glades. We have said they are gray, but many are reddish, and some few make a handsome marble. These rocks belong to the formations called by geologists Niagara and Lower Helderberg, both of which, together with the hydraulic limestone, belong to a larger division called Silurian. Above these, and making the topmost formation of the eastern part of the county, is a series of flinty layers, interstratified with more or less limestone, and presenting a few beds of sandstone, which a geologist would call the Siliceous Group, or the base of the great Carboniferous Formation. This group caps the high ridges for the most part. In the southern part of the county, however, near the State line, it dips down and appears in the bed of the Tennessee River. On the western side of the old shore line, we have a very different set of formations. The first and lowest is a bed of laminated sand, showing many thin clayey seams. This formation is well seen in the now historic bluff at Pittsburgh Landing, as well as in the bluffs at Crump's and Coffee landings. The



formation has been called the Coffee Sand. A considerable belt of country lying west of the river, and extending through the county, is underlaid with this formation. Next above this, and outcropping principally near the McNairy line, is a formation of clayey material containing sand and abounding in fossil shells. It also contains dark green grains, which frequently give a dark appearance to the mass, for which reason the formation is known as the Green Sand. When freshly dug this material is used as a fertilizer, often with good results, its effects being attributable to the shells, small quantities of phosphoric acid and of potash present in the mass. The two formations just mentioned, the Coffee and the Green Sands, are members of the Cretaceous system of geologists.

Such are the principal formations of Hardin. In addition to these, however, a superficial formation of gravel is seen at many points on both sides of the river. When present the gravel is always on top. It is seen on the high ridges of the eastern part of the county, and now and then on the lowlands; it caps the sand bluffs of which we have spoken, on the west side of the river, and appears at other points on uplands and hills.

*Soils and Lands.* We have already said something about the soils. The geology being so varied, they are of course of many kinds. The best are those of the bottom lands, and many of these are unsurpassed in fertility. The soils of the Tennessee bottom, on the west side of the river, are of three distinct kinds, arranged in strips nearly equal in width and parallel with the river. The first of these next to the river is a deep black alluvium, highly productive; the second is sandy, and in point of productiveness is about equal to the uplands; the last is swampy, bluish in color, "crawfishy" and cold, the home of green-briers, but it is usually heavily timbered. In the southern end of the county on the west side sandy hills prevail. The country is rough and the hills are covered with pine timber and oaks. These hills extend seven miles down the river, after which the country becomes more level and the soils better, running into the Green Sand belt. The soils in this hilly region wash easily by reason of the predominance of sand, and are moderately productive. The soils on the creeks on the east side of the river are limestone, and the best in the county, and especially those in the bottoms lying on Indian Creek, which cover in the aggregate about twenty-two square miles. The soils of the uplands on the east side of the river are thin and unproductive. Much of this

upland is high and rolling, but covered with an abundance of excellent timber. Three miles east of Savannah there is a belt of flat or barren land. It has a white subsoil, shading off into yellow. Some of this land is quite productive when first opened, but its fertility is soon exhausted. This flat region covers about fifty square miles. The summits of the ridges in the eastern part of the county have sometimes a tolerably good soil, but more frequently a thin one. On many of these ridges chestnut oaks abound, and can be made to furnish much bark for tanning purposes. The value of the lands in Hardin county, according to the local report, is as follows:

First quality, improved.....	\$100.00	per acre.
Second " .....	50.00	" "
Third " .....	20.00	" "
Fourth " .....	6.00	" "
Fifth " .....	50	" "

Rents are as follows: Best bottom, per acre, \$6; best uplands, \$5; medium, \$3; one-third of the crop is usually given. According to the census report, the number of farms in the county is 1,059, the sizes of which are as follows:

Three and under 10 acres.....	31
Ten " 20 " .....	213
Twenty " 50 " .....	435
Fifty " 100 " .....	255
One-hundred and under 500.....	125

One hundred thousand acres are for sale, the rates being one-third cash, the balance in one and two years.

*Crops.* The principal crops of the county are corn, cotton, wheat, oats, peanuts, Irish and sweet potatoes, hay, apples and peaches. The following are the products of the county for 1870, as reported in the census of that year:

Corn.....	484,721	bushels.
Wheat, spring.....	15,904	
"    winter.....	19,662—	35,566 "
Oats.....	15,151	"
Rye.....	131	"
Cotton.....	2,026	bales.
Tobacco.....	310	pounds.
Potatoes, Irish.....	5,338	bushels.
Potatoes, sweet.....	10,472	"
Hay.....	107	tons.
Sorghum.....	12,456	gallons.
Maple-sugar.....	80	pounds.
Honey.....	9,491	"
Butter.....	86,918	"
Cheese.....	20	"

The census report omits peanuts. This crop for the year 1872 was given at 112,500 bushels, which we think must be too high. The crop of buckwheat for the same year is stated to have been 1,000 bushels. Fruit (especially apples and peaches) is an important product of the county. Figs ripen in the open air. Plums are not troubled with curculio. The experiments made with the pear have proved entirely satisfactory. Nuts, blackberries, raspberries, etc., are to be found everywhere. Muscadines grow with unparalleled luxuriance on river bottoms. Grapes have been grown with success on the flat barren lands. On the best river bottoms the yield of corn reaches sometimes 75 and 100 bushels per acre. The best lands for the production of cotton are on Mud Creek, where the quantity raised is sometimes as much as 1,200 pounds of seed cotton per acre. The raising of cotton and stock is regarded as the most profitable branches of husbandry. The great amount of bottom lands in the county afford excellent soils for meadows. Wheat is usually sown too late to do well, the largest sowing being in November and December, and sometimes in January. The average is about ten bushels per acre. Some farms have been known to yield thirty bushels per acre. Tennessee bottoms sometimes yield the latter amount, but the fields are liable to late overflows. Irish potatoes yield bountifully on bottoms—black sandy land.

*Stock.* In the census report the stock is given as follows:

Number of horses.....	1,993
“ mules and asses.....	870
“ milch cows.....	2,670
“ working oxen.....	1,383
“ other cattle.....	4,094
“ sheep.....	8,044
“ swine.....	21,235
Value of all live stock.....	\$502,919
“ animals slaughtered and sold for slaughter.....	140,018

*Population, Labor.* The population of the county was in 1870 as follows: White, 10,321; black, 1,447; total, 11,768. The people are intelligent, hospitable and open-hearted, and would welcome industrious, well-disposed immigrants of any nationality. There is ample room in this county. Many of the river bottoms are yet dark with forests of heavy timber, and considering the character of the soil, the amount of timber and the means of transportation, it is the most thinly settled county in West Tennessee. Colonies could be formed and moved to this county, as land is cheap and a large quantity is for sale. We know of no county that offers greater inducements to working

men. According to the late Judge Walker, a hard-working man can make on the farm from \$500 to \$600, and keep on hand a full supply of provender for stock and food for family use. In speaking of this subject he said to the writer, just before his death: "If the same industry and economy were practiced in Hardin county that is practiced in the North-west, our farmers would grow rich in spite of themselves."

A healthful moral tone pervades the county. The principal religious denominations are Methodist, Cumberland Presbyterian and Baptist, the first having about 1,300 communicants, the second 1,100, and the third 600. There is considerable demand in the county for farm hands. Wages are as follows:

Farm hands (with board) per year.....	\$150
"    "    without "    "    " .....	250
"    "    with "    "    month.....	17.90
"    "    without "    "    " .....	27.00
Harvest " with "    "    day.....	2.00
"    "    without "    "    " .....	2.50
House servants, cooks and washers, per month.....	5.00

For picking cotton \$1 per day is paid; carpenters are worth \$2.50 per day; blacksmiths, \$2.50; bricklayers, \$3; for splitting and putting up rails, \$1 per day. Farm hands are usually hired for the season of cultivation.

*Minerals.* In addition to the hydraulic rock (from which thousands of barrels of cement were made formerly at Laden's Mill, on Indian Creek), and green sand heretofore mentioned, there is a bluff of quartz sand a mile and a half long, which furnishes excellent material for the manufacture of glass. The sand has been tested and pronounced very superior. Iron ore is found in many parts of the county, but it is too siliceous or sandy for profitable working. There was one furnace in operation on Hardin's Creek before the war. Drift lead has been picked up in the bottoms of streams, but no regular deposits have been discovered. Mineral waters are abundant. Two miles from Saltillo more than twenty years ago a well was bored in search of salt water to the depth of 890 feet. From this well a large stream of sulphur water flows. It is very clear and cool. There are some good mineral springs (white and red sulphur) in the hilly parts of the county west of the Tennessee River, which were resorted to before the late civil contest. Several sulphur and chalybeate springs are also found on the east side of the Tennessee River, but they have never been improved.

*The Fair Grounds* in Savannah were first improved in 1859, but the buildings were destroyed by the Federal soldiers. They were rebuilt in 1872, and two successful fairs have been held.

*Manufactories.* The only establishments for manufacturing in the county are tanneries and saw-mills. There were in 1873 six tanneries in operation, turning out leather to the value of \$60,000 annually. The county offers very superior inducements for the building up of spoke and hub factories, and for saw-mills. All kinds of timber abound—red and white oak, pin oak, hickory, gum, sugar-tree, cypress, walnut and box-elder. One of the finest pine forests to be found in the State is in this county.

*Towns.* Savannah, the county seat and principal town in the county, is midway between Nashville and Memphis. It has a population of about 500. The business houses of the place consist of eight stores, one drug-store, two confectioneries, three saloons, one tanyard, two hotels and two blacksmith shops. There are three churches—Methodist, Presbyterian and African. Savannah College is located here, and has about one hundred students in attendance. The quantity of cotton annually shipped from this point is 1,200 bales. Lumber, corn, wheat and leather are shipped in considerable quantities. Hamburg is on the Tennessee River, ten miles south of Savannah, has about 100 inhabitants, is a steamboat landing, has two stores, a grocery, post-office and church. Saltillo is also a landing on the Tennessee River, and is twelve miles north of Savannah; has about 300 inhabitants, four or five dry-goods stores, one drugstore, two or three groceries, one blacksmith shop, one good school, post-office and one church. About 1,500 bales of cotton are annually shipped from this point. Coffee Landing, on the Tennessee River, north of Savannah, ships about 1,500 bales of cotton annually. The other villages and landings are, Boyd's Landing, 13½ miles from Savannah, Economy, Lowryville, Monticello and Nelson. Each has one or more stores. All, except Economy, Lowryville and Monticello, are landings on the Tennessee River.

*Antiquities.* Many curious Indian mounds are met with near the Tennessee River, several of them within the town limits of Savannah.

## STATISTICS.

Number of acres assessed for taxation in 1873.....	317,656
Value.....	\$1,609,050
Number of town lots 89, valued at.....	43,225
Value of personal property.....	278,695

Total valuation.....	\$1,30,9970
Number polls.....	1782
State tax.....	40c
County tax.....	20
State (school) tax.....	10— 70
Poll tax.....	1.50

One dollar of the poll-tax goes to schools, and fifty cents to county purposes.

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## HAYWOOD COUNTY.

### COUNTY SEAT—BROWNSVILLE.

No county in West Tennessee, Shelby excepted, has improved more rapidly in population and wealth than Haywood. Since its organization in 1824, its growth has been marked. The census of 1830 reported a population of 5,334. Within the succeeding decade it increased 160 per cent., for we find in 1840 the population to have been 13,870; in 1850, 17,259; in 1860, 19,232; and in 1870, notwithstanding the war, 25,094. Between 1850 and 1860, the white population decreased 546, while the slaves increased 2,528; but within the last decade, we find that while the negroes have increased 2,806, the white population has been increased by 3,096. In 1870, of the population then in the county, 11,261 were white, and 13,832 were colored. Since 1870, about one-fourth of the county has been taken to form Crockett, so that the estimate at present of the population is—white, 9,459; colored, 11,661; total, 21,120.

Haywood county comprises at present about 460 square miles, and occupies, with Madison, a central position in West Tennessee. The number of acres assessed for taxation, exclusive of town lots, was, in 1873, 296,958, valued at \$3,700,937, or nearly \$12.50 per acre.

The first settlers of Haywood county were principally from North Carolina, and even to this day the descendants of these old settlers largely predominate, and constitute an element in the society of the county distinguished for conservatism and a due regard for all the rights of the community.

*Health.* As a general rule, the health of the county is good, but the question of health depends greatly on the kind of water which is

used. Cistern water is regarded as being better than well water, while well water is better than spring water. In the summer, bilious and intermittent fevers occur, and in the winter, pneumonia and lung diseases. Persons subject to pulmonary diseases complain much of the severe weather in winter, and of the sudden and severe changes to which the temperature is subject. There are said to be, by the physicians, fewer cases of sickness during the winter months than at any other time of the year, but they are generally of a more malignant type, and deaths at this season are much more frequent.

*Physical Geography.* The country immediately around Brownsville is gently undulating, the town itself being on a perceptible elevation, which is part of the dividing ridge separating what is locally known as the Forked Deer country from the Hatchie country. The courthouse is on the very backbone of this ridge, and rain water falling from it on the north side runs into the Forked Deer River, while that falling on the south finds its way into the Hatchie River, the first named stream being ten miles north of Brownsville, and the last named five miles south. This ridge passes entirely through the county from east to west, and upon it there is no level plain, but the slope begins from the center of the backbone and continues to the southern boundary line of the county on the one hand, and to the northern boundary line on the other. There is very little or no slope from Brownsville, either toward the eastern or western boundary line. But the slopes mentioned are intersected frequently by very low ridges, and sometimes by small hills, so that the face of the country as a whole is gently undulating. Along the rivers and creeks are many fine bottoms. Those on the Forked Deer River will average three miles in width, while those on the Hatchie River will not average less than four miles. The creek bottoms are not so wide, but they, with the river bottoms, are nearly all subject to annual overflows. Under a system of drainage they are becoming more valuable.

*Formations.* All of Haywood county is on the Plateau or Slope of West Tennessee, in which there are very few or no regular strata of hard rock, such as limestone, slate or sandstone. However, there are occasionally found isolated masses of sandstone and calcareous rock in some of the counties of the Slope, such, for instance, as that found in Haywood county, on the north side of Hatchie River, about seven miles south-east of Brownsville. Here is a quarry which furnishes a red sandstone of medium quality, as may be seen from specimens of

it which were used in laying the foundation of the court-house in Brownsville. The effect of the atmosphere upon it is to harden it, but it is easily worn when subjected to friction. Formations of this same stone are found in most if not all of the small slopes which fringe the banks of the Hatchie River, the depth at which they are generally found being from five to ten feet below the surface. In a few places, however, they crop out above ground, constituting surface formations. The quarry mentioned above is not now worked. In many places in the county are found beds of sand, associated to some extent with clay and loams. In fact, the Lagrange Sands and the overlying drift, the Orange Sand, are almost entirely the formations found in Haywood. The Lagrange formation appears as a stratified mass of yellow, orange, red or brown, and white sand, with an occasional interstratified bed of white, gray or variegated clay. The best cotton lands in the county rest upon these sand beds, the soil being a mellow, siliceous loam, which is easily tilled, but is easily washed away, requiring careful draining and general good farming to keep it up. The prevailing color of the soil of Haywood is a dark gray, with a yellowish subsoil, upon a bed of yellow clay. The clay has no sand in it, holds water well, and makes superior brick. It is also very favorable for cistern purposes, good cisterns being made without walling, the cement being applied directly to the clay. There is very little land in the county which cannot be reclaimed, one of the best features being that it answers readily to the application of manures and fertilizers. Other features worthy of notice are, that it is very lively, and when tired is greatly improved by rest. Most of it, however, will wear well, but in spite of its moisture-retaining qualities, during the long seasons of dry weather to which the county is subject in summer, it suffers considerably.

*Rivers, Creeks and Springs.* There are numerous streams running through the county, but very few of them are lasting. They furnish a plentiful supply of water during the winter, early in the spring and very late in the fall, but at other seasons they do not afford running water. They have generally along their beds ponds which hold water during the greater part of the year. The following are worthy of mention: Nixon's Creek rises four miles north-east of Brownsville, runs rather north of west, and empties into Forked Deer River ten miles north-west of Brownsville. Welch's Creek rises one-half mile north of Brownsville, runs north, and empties into Nixon's Creek four miles north of Brownsville. Walker's Creek rises two miles south-west



of Brownsville, ranges north-east, and empties into Welch's Creek two miles north of Brownsville. Meridian Creek rises four miles west of Brownsville, ranges north, and empties into Nixon's Creek eight miles north-west of Brownsville. Brier Creek rises eight miles north of Brownsville, ranges north-west, and empties into Meridian Creek nine miles north-west of Brownsville. Otter Creek rises twelve miles west of Brownsville, ranges north, and empties into Forked Deer River fourteen miles north-west of Brownsville. All these streams are on the north side of the ridge, and with the exception of Meridian Creek, which is perennial, they afford running water only during the winter and late in the fall.

The following streams are on the south of the ridge, and are either directly or indirectly tributaries of Hatchie River: Brown's Creek rises twelve miles south-east of Brownsville, runs south-west, and empties into Hatchie River eight miles south-east of Brownsville. Lick Creek rises a few miles south-east of Brownsville, ranges south-west, and empties into Hatchie River seven miles south-east of Brownsville. Sugar Creek rises near the south-eastern corporation line of Brownsville, ranges south-west, and empties into Hatchie River six miles south-west of Brownsville. Bradford's Creek rises six miles south-west of Brownsville, runs south-west, and empties into Hatchie River ten miles south-west of Brownsville. Lagoon Creek rises ten miles west of Brownsville, ranges south-west, and empties into Hatchie River fourteen miles south-west of Brownsville, in Lauderdale county. Poplar Creek rises about fourteen miles south-east of Brownsville, near the Fayette county line, runs south-east, and empties into Hatchie River five miles south of Brownsville. Big Muddy Creek rises in Fayette county, fifteen miles south of Brownsville, ranges north-west, and empties into Hatchie River twelve miles south-west of Brownsville. Little Muddy Creek rises ten miles south-east of Brownsville, runs north-west, and empties into Big Muddy Creek eight miles south-west of Brownsville. Richland Creek rises in the edge of Hardeman county, fifteen miles south-east of Brownsville, ranges north-west, and empties into Hatchie River seven miles south-east of Brownsville.

The following rivers are the only two which pass through the county: Hatchie River enters the south-eastern corner of the county from Hardeman county, ranges rather north of west, and passes out of the county so as to form the dividing line between the counties of Lauderdale and Tipton. North Forked Deer River enters the north-

eastern corner of the county from Madison county, ranges north-west, and passes out of the county so as to form the dividing line between the counties of Lauderdale and Dyer.

There are very few springs in the county, and none are large, or afford mineral water. In the vicinity of Brownsville they are more frequent than in any other section.

*Lakes.* Haywood county abounds in lakes, as will be seen from the following enumeration and description: Wesley's Lake, eight miles south-west of Brownsville, is about one and a half miles long, 300 yards wide and from three to ten feet deep; it is three-fourths of a mile from Hatchie River, is full of clear, cold water, and is surrounded by a vigorous growth of cypress trees, though the lake itself is free from trees. Powell's lake is six miles south-east of Brownsville, is one mile long, 150 yards wide, and from three to ten feet deep. Swan Lake and Hardwick Lake are smaller bodies of water, in the same neighborhood as Powell's Lake. All of the lakes mentioned are south of Hatchie River, but the following are north of that stream: Horseshoe Lake, five miles south-west of Brownsville, is one mile long, 100 yards wide, and from five to twelve feet deep. Long Lake is half a mile below Horseshoe Lake, is three-fourths of a mile long, 100 yards wide and from three to eight feet deep. Drain Lake is one-fourth of a mile below Long Lake, is about one mile long, 150 yards wide and from four to twenty feet deep. All of these lakes abound in fish, of which the predominating varieties are buffalo, blue cat, white, black and sun perch, drum and jack. Another very singular body of water is Moore's Lake, which is four and a half miles south-west of Brownsville, is half a mile long, 100 yards wide, and from four to eight feet deep. Its bottom abounds in springs, and the water of the lake is icy cold; in fact it is so cold as to be unpleasant for those who might wish to swim in it. It is not regarded as favorable for fishing, as it abounds in pike fish, which are not much esteemed, and are very destructive to other fish. The rest of the lakes are much frequented by picnic and fishing parties. They are very clear and attractive, are surrounded with beautiful grasses and grateful shade, and in the neighborhood of all of them are numerous springs which, in a great measure, feed them.

*Timber.* There is an abundance of good timber all over the county, the different varieties of oak being regarded as the best; there are also poplar, gum, and along the rivers cypress and other varieties. The principal undergrowth is pawpaw and hazlenut.

*Statistics.* Since 1870, no perfectly accurate report has been made giving the land statistics of the county. It is stated, however, by residents of the county, that allowing for the four civil districts (one-fourth of the whole number) which were taken off of Haywood in part to form the county of Crockett, the figures returned to the census bureau for 1870 will still be approximately correct. The following are the figures of the census returns less one-fourth :

Cash value of farms.....	\$ 889,347
“ “ farming implements and machinery.....	82,167
“ “ all farm productions.....	1,052,622
“ “ orchard products.....	800
“ “ home manufactures.....	6,829
“ “ animals slaughtered or sold for slaughter.....	121,979
“ “ all live stock .....	497,129
Number horses.....	1,629
“ mules and asses.....	1,417
“ milch cows.....	2,011
“ working oxen.....	264
“ other cattle.....	3,506
“ sheep .....	3,905
“ swine .....	15,386
Bushels of spring wheat.....	159
“ winter “ .....	38,722
“ rye.....	339
“ Indian corn.....	392,191
“ oats.....	7,288
Bales of cotton .....	7,883
Pounds of wool.....	7,589
Bushels of Irish potatoes.....	10,014
“ sweet “ .....	23,278
Pounds of butter.....	67,305
Tons of hay.....	247
Gallons of sorghum.....	2,375
Pounds of honey.....	13,638

The following table will show the number of farms in the county, and the relative size of each :

Total number of farms .....	722
Number having 3 and under 10 acres.....	3
“ “ 10 “ “ 20 “ .....	75
“ “ 20 “ “ 50 “ .....	244
“ “ 50 “ “ 100 “ .....	211
“ “ 100 “ “ 500 “ .....	179
“ “ 500 “ “ 1,000 “ .....	9
“ “ 1,000 “ over .....	1

About ten per cent. of all the lands in Haywood are subject to over-

flow, or are otherwise untillable. Not less than fifty per cent. of the improved lands are annually rented out, and twenty-five per cent. of all the land in the county can be purchased at reasonable prices. The following facts may be of interest to those who may desire to rent land in the county: Average rental of best lands, per acre, \$5; of other lands, \$3.50. Some farmers rent out their cotton lands for fifty pounds of lint cotton per acre, but this price is not often obtained. When the land-owner furnishes only the land, and crops on shares, he gets one-third of the cotton and one-third of the corn. When everything is furnished but the labor, the laborer feeding himself, the land-owner gets one-half of the crop.

The following average of the prices of land in the county may be relied on: Average price of best lands, per acre, \$25; medium, \$20; inferior, \$7.50. There is very little inferior land in the county. The usual terms of sale are one-third cash, the balance in one and two years, with interest on deferred payments, and lien reserved to secure payment.

*Crops.* The staple is cotton, but a sufficiency of corn to supply the home demand is generally raised. Much more attention is paid to the growing of wheat than to the growing of any of the other small grains, though some attention is paid to oats. Haywood is not, in any sense, a tobacco county, and little or none is raised. The great object is cotton. The following average of the yields are as nearly correct as can be made: Average yield of cotton, per acre, 750 pounds; corn, 25 bushels.

*Grasses.* There is not much attention paid to the growing of grasses, though some herds-grass and clover are grown, and do reasonably well, yielding about one ton of hay per acre. German millet is being introduced and promises well, but as yet there has not been sufficient attention paid to it to justify an estimate of its average yield.

*Labor.* There is, and has been since the war, an abundance of farm labor in Haywood, principally colored, though in some sections there are a few white laborers. The native negro labor is regarded as reliable, especially the old and middle aged men; the young men are too fond of city life. The white laborers are not, as a class, regarded as reliable; though there are said to be young white men from North Carolina and East Tennessee, who have recently settled in the county and are making good character as laborers. The following prices are paid for hands:

For farm hands, per year.....	\$200
“ “ “ per month.....	18 to \$20
“ “ “ per day.....	1 50
“ hands in town, per day.....	1 00
Cooks, per month.....	7 to 10
House servants, per month.....	5 to 8

The demand for good cooks is especially great, and house servants are wanted in town and country.

*Fruits.* This county is not a first-class fruit region; peaches thrive well, and so do the standard varieties of pears, but they are short-lived. Apples are very uncertain, and the dwarf varieties of the pear are subject to blight, and live but few years; cherries are not much grown, nor are any of the other kinds of stone fruit not mentioned. Grapes, both the domestic and wild varieties, yield with reasonable certainty, and especially is this true of the Scuppernong.

*Forest Products.* Lumber is not a staple of the county; in fact there is not enough sawed to supply the home demand, and more than half that is used in the county is imported from other sections of the State. Saw-mills are very few.

*Stock and Stock Raising.* But few persons are paying attention to the raising and improvement of stock. Those who have been and are engaged in the business, have been at heavy expense, and have even imported fine stock from Europe, but their labors, while individually remunerative, are not appreciated.

*Markets.* Memphis, via. the Memphis and Louisville Railroad, is the principal cotton market for the county. In fact it is *the* market, since there is little of anything else shipped.

*Immigration and Emigration.* Immigration to the county since 1870, has not been heavy, though a goodly number of families have moved in, principally from North Carolina, though some were from Virginia, Mississippi, Georgia and East Tennessee, and a few from the northern States. Some families and individuals have left the county since 1870, going principally to Texas, a few to Arkansas and some to Kansas.

*Manufactories.* The principal manufacturing establishment in the county is the large cotton factory at Brownsville. The building is of brick, 160 feet long and 80 feet wide, two stories high, with ample wings, and is supplied with the very best machinery. The factory has, or will have in a short time, 100 looms in operation, and will turn out 5,000 yards of domestics daily. The hands employed are mostly native

white girls and women, who earn a handsome support by their industry. A barrel factory is in operation in the city.

*Roads.* But little attention is paid to the county roads, the overseers working them before the opening of each Circuit Court (three times a year), just enough to save themselves from being indicted. The result is, they are in bad condition at all times, but in the winter they are frequently almost impassable. The new road law is not in force.

*Railroads.* The Memphis and Louisville Railroad enters the county from the east, very near its north-eastern corner, extends south-west, passing entirely through the county and out of it very near its south-western corner. The Holly Springs, Brownsville and Ohio Railroad has been chartered to run from Brownsville, near the center of the county, ranging north, passing through Newbern in Dyer county, and on to a point opposite Cairo, Illinois. But as yet little progress has been made in the construction of this road, and the people are not sanguine as to its success. The Denmark, Brownsville and Durhamville Railroad Company has a charter to build a road from Denmark in Madison county to Durhamville in Lauderdale county, but very little work has been done as yet. The two last named roads are to be narrow gauge.

*Towns and Villages.* The following are the towns and villages in the county, with their several locations given: Brownsville, the county seat, is located near the center of the county; had at the close of the war about 1,200 inhabitants; has now about 6,000; is well supplied with churches, there being two Baptist, two Southern Methodist, one Northern Methodist, one Cumberland Presbyterian, one Old School Presbyterian, one Christian, one Catholic, one Episcopalian and three colored churches; has one foundry, two planing mills and sash factories, two carriage factories, one flouring-mill, one barrel factory and one cotton-gin factory. It has also excellent schools for males and females. It is the center of a heavy trade and is really one of the best business points in West Tennessee, excelling as a cotton market, buying and shipping from 20,000 to 25,000 bales of cotton annually. Daneyville is twelve miles south of Brownsville, and has about 200 inhabitants. Stanton is twelve miles south-west of Brownsville and has about 400 inhabitants. Woodville is sixteen miles north-west of Brownsville and has about fifty inhabitants. There are other small villages in different parts of the county, where people can buy dry-goods, groceries, etc., but the principal trade of the entire county is done in Brownsville.

*Mills.* There is no first-class water-power in the county, but there are some good mills mostly run by steam. The average milling distance throughout the county is about five miles.

*School Statistics.* Heretofore but little interest has been manifested in public schools in the county. This indifference is in a good degree attributed to the fact that the negro population in the rural districts is largely in excess of the white. In fact, there are but few neighborhoods in which the white population is large enough to sustain good schools, consequently farmers have been compelled to send their children from home to be educated. The present scholastic population, between the ages of six and eighteen years, is 6,401, of which nearly two-thirds are black. There are no private institutions of learning in the county outside of Brownsville, where there are two chartered female schools and one chartered male school, besides other institutions, generally with small numbers of pupils.

*Churches.* Every neighborhood has good church advantages, and the different denominations rank in numbers and wealth as follows: 1st, Baptist; 2d, Methodist; 3d, Old Presbyterian. The other denominations are numerically and financially weak.

*Newspapers.* There are two newspapers published in the county, the Brownsville Bee and Brownsville States, both of which are Democratic weeklies.

*Agricultural Associations.* There is one fair association in the county known as the Haywood County Fair Association, which is in its second year, and promises to succeed.

*Indebtedness.* The bonded debt of Haywood, created for railroad purposes, and originally \$100,000, is now \$88,000, the difference having been retired. The bonds bear eight per cent. interest and are quoted at 97c. The proceeds of the bonds were expended on the Holly Springs, Brownsville and Ohio Railroad, of which only twenty-two miles have been graded, the work being stopped because of exhaustion of means.

## HENDERSON COUNTY.

COUNTY SEAT—LEXINGTON.

The act of the Legislature creating this county was passed November 7, 1821, and the organization took place shortly afterwards. Henderson county embraces about 590 square miles, and contained a population in 1870 of 14,217, of which only 2,408 were colored. This shows a great sparseness of population, there being only twenty-four persons to each square mile in the county. The number of acres assessed for taxation in 1873 was 374,287, valued at \$2,812,860, or about \$7.50 per acre. The census returns give as the whole number of acres in the county 330,132, of which 92,250 were improved.

*Health.* The people of Henderson county enjoy a fair measure of health, the principal diseases during the summer and spring months being chills and fever and bilious fever, and during the fall and winter months typhoid fever and pneumonia. The mortuary list of the county is not unusually large, and indeed will compare very favorably with that of the adjoining counties.

*Physical Geography and Geology.* There is a great variety of surface in Henderson county, which renders it, in appearance, one of the most interesting counties in the State. There is also a great variety of soils, which enable farmers to raise many kinds of products. The country immediately around Lexington, the county seat, is very rough and hilly. For a distance of four or five miles east and west of Lexington this hill country extends, and going north or south it reaches to the extreme limits of the county. The Tennessee Ridge, of which frequent mention has been made, extends through this section of the county, and the high lands which constitute this ridge include probably the roughest and most picturesque country in West Tennessee. This ridge, the reader will remember, divides the waters of the Mississippi from those flowing into the Tennessee River, and proceeding to the east or west the surface of the country very perceptibly declines. In either direction the boldness and height of the hills decrease until the country becomes simply undulating before the county lines are reached. On the east side of the ridge the country breaks away more rapidly, and is much rougher than on the west. In fact, the west side is the upper part of the great Slope which gradually declines to the bluffs facing the Mississippi bottoms. Doubtless the highest land in



West Tennessee is in Henderson and the northern part of McNairy counties. Many different streams, flowing to all parts of the compass, take their rise in the portion of the ridge in this section. Notwithstanding the general roughness of the surface, Henderson has much superior farming land. The highland ridges are generally poor, and produce badly, but in all low places, and even upon the highlands where the ground is level, the soil is good and produces well. From the tops and sides of the spurs which run out from the ridge the soil has been washed away to a great extent, and having lodged in the lower and flat lands between them, have produced some of the best farming lands in the State. There are several river and creek bottoms in the county, but the valleys which are everywhere met with owe their existence principally to the main water-shed and its minor branches or spurs. These valleys generally are neither very long nor very wide, but they are sufficiently extensive to admit of good farms, which are more valued than any others in the county.

With the exception of the Orange Sand Drift, which spreads its rolled sand and gravel beds over portions of the county, the formations are nearly all Cretaceous. In the eastern part the belt of Green Sand extending northward from McNairy and Hardin, is met with. At some points wells are bored in this. Its outcrops are known by the large fossil oyster shells which it contains. Overlapping the Green Sand on the west, and running through the middle of the county, is the belt of Ripley Sands, which in turn is succeeded by the outcrop of the Flatwood clays and sands. The north-western part of the county appears to show, resting upon the formations mentioned, a limited area of the LaGrange Group.

*Rivers, Creeks, etc.* Henderson county is as well watered as most of the adjoining counties. The principal stream is Beech River, which rises about ten miles west of Lexington, runs east, passing nearly through the center of the county, and also through Decatur county, and empties into the Tennessee River. Big Sandy River rises about ten miles north of Lexington, runs north, and passes out of the county into Carroll county at a point about fourteen miles from the extreme north-east corner of the county. North Forked Deer River also rises in Henderson county, about twelve miles north-west of Lexington, runs north-west, and passes into a corner of Carroll county at or very near the point where the extreme southern line of Carroll touches the western line of Henderson. North Branch of the South Forked Deer

River also rises in the county about twelve miles south-west of Lexington, runs thence almost due west, and passes into Madison county at a point about half way between the north-west and south-west corners of the county. South Forked Deer River has also a beginning in Henderson county, rising about seventeen miles south-west of Lexington, ranging thence a little west of south until near the south line of the county, when it turns, thence ranging north-west and passing into Madison county at a point about five miles north of the south-west corner of Henderson county. Almost every neighborhood has good stock water, which lasts all the year. Unlike most of the streams of West Tennessee, they generally have a good fall, and run rapidly. They have sandy beds and clear, sweet water.

*Land Statistics.* From the census report of 1870 the following figures are taken, which will show the number of farms in Henderson county at that time, and the relative size of each :

Whole number of farms in the county.....	1,923
Farms having 3 to 10 acres.....	141
“ “ 10 to 20 “ .....	335
“ “ 20 to 50 “ .....	755
“ “ 50 to 100 “ .....	466
“ “ 100 to 500 “ .....	223
“ “ 500 to 1000 “ .....	3

Though these estimates were made for 1870, they will nevertheless give a pretty correct idea on the subject at present. Included in those 1,923 farms are 92,250 acres of improved land, of which, in 1873, about one-third were rented out, the remaining two-thirds having been worked by the land-owners or under their immediate supervision. The usual terms of rent are for one-third of the crops, the land-owner furnishing only the land; or two-thirds of the crop, he furnishing everything but the labor. When money rent is required, the following prices are usually paid :

Best land.....	\$4.00 per acre.
Medium land.....	3.00 “
Third-class land.....	2.00 “

One-half of the land in the county can be purchased at reasonable prices and on reasonable terms. The usual terms of sale are for one-third or one-fourth cash, the balance in one and two or one, two and three years, with lien reserved upon the land. The following will show the prices asked and paid for land in the county :

First-class improved lands, per acre.....	\$30.00
Second-class improved lands " " .....	20.00
Third-class " " " " .....	10.00
First-class unimproved " " " " .....	20.00
Second-class " " " " .....	10.00
Third-class " " " " .....	5.00

The following table will show the productiveness of the soils:

Average yield per acre in corn.....	30 bushels.
" " " " " wheat.....	10 "
" " " " " oats.....	15 "
" " " " " cotton, (in seed).....	700 pounds.
" " " " " tobacco.....	\$800 "
" " " " " hay.....	3,000 "

In spite of the hills, Henderson county farms produce well, and the land commands good prices, either from renters or buyers. With careful culture, the same lands that now produce as much as thirty bushels of corn per acre can be made to produce one-third as much more, and so with other products. But the farmers pay little attention to fertilizers. With millions of pounds of fertilizers (Green Sand) almost at their very doors, they are allowing their land oftentimes to fall below remunerative yields of the staple crops.

*Stock and Stock-raising.* Henderson is naturally a very good stock county, but the advantages which nature has given to the farmer in this respect, are not improved. Every farmer raises annually some stock, and many of them raise some to sell, but no attention is paid to pure breeds. Indeed, there has been made, so far, but little effort even to introduce blooded males, with the view of improving the native breeds. The following from the census report of 1870, will show what the people were doing then in the way of stock-raising, and will give, also, a very fair idea of what they are now doing:

Value of all live stock in the county.....	\$732,519
" animals slaughtered, or sold for slaughter.....	232,186
Horses.....	Number 2,816
Mules and asses.....	" 1,679
Milch cows.....	" 3,649
Working oxen.....	" 1,308
Other cattle.....	" 5,308
Sheep.....	" 10,168
Swine.....	" 32,559
Pounds of wool saved.....	15,923
" butter made.....	142,847

These figures speak for themselves, and show that taking as the basis of the estimates, quantity or numbers and not quality, Henderson ranks as one of the leading stock counties in West Tennessee.

*Labor.* The same complaint is heard in this county as in the other counties of West Tennessee, of the scarcity of reliable laborers. A majority of the laborers, at present, are white. They are preferred by the farmers, and while they will be glad to welcome good laborers of any color, they will prefer whites. The following prices are paid: Farm hands, per year, from \$150 to \$200; per month, \$15 to \$20; per day, \$1 to \$1.50; cooks, per month, \$6 to 10; house servants, \$5 to \$8.

*Markets.* There being no railroads in Henderson, the people are compelled, in a great measure, to depend upon river navigation. At least those in the eastern districts depend upon the Tennessee River, which is reached through Decatur county. Those persons living in the northern and north-western districts are convenient to the Louisville and Memphis Railroad, while those in the south-western and southern districts are nearer to the Mobile and Ohio Railroad. The markets of Henderson county are therefore Cincinnati, Evansville, Paducah and St. Louis by water, and Louisville, Memphis and Nashville by rail.

*The People.* The people of Henderson county are honest, intelligent, and social, but not very enterprising, thrifty, or educated. The farming community especially is wanting in enterprise. Most of the farmers are pursuing the same routine upon their farms followed by their ancestors before them. They are satisfied with a comfortable subsistence, and being away from the highways of commerce, they are not stimulated to any extraordinary exertions. They have but little regard for conveniences, and so far as labor-saving implements are concerned, they are but little known, or at any rate, but seldom seen.

*County Roads.* The same facts are true of the roads here as of those of the adjoining counties. Little or no attention is paid to keeping them in good repair, and as a natural result, at certain seasons of the year they are almost impassable, when a very reasonable amount of labor and money properly expended would keep them in excellent condition. There is no railroad running into or through the county, and but little prospect of one.

*Towns.* Lexington, the county seat, is the principal town. It is located very near the center of the county, in a hilly and picturesque

country; has about 250 inhabitants, and controls the principal business of the county. The country around it is very healthy, and is a fair farming area. Booth's Point, Center Point, Crucifer, Jack's Creek Juno, Mifflin, Scott's Hill, Shady Hill, and Wildersville are all small, villages, with from three to ten business houses each. Mifflin, in the western part of the county is the largest, having a population of 150.

*Mills and Manufactories.* Henderson is not a manufacturing county, though a good deal of cloth is made in families. According to the census report of 1870, the value of its home manufactures was \$132,-767. It is well supplied with mills, and the average milling distance throughout the county will not exceed four miles. There are also a few woolen factories.

*School Interests.* Schools are scarce. No tax has been levied for the support of common schools. The county has been divided into twenty school districts, they being co-extensive with the civil districts, and the superintendent expects, before the close of the year 1874, to succeed in completing the necessary arrangements for accommodating all who, under the law, are eligible, and desire to share in the benefits of the common school system. The following facts will show what has been done: Scholastic population between 6 and 18: white male, 2,218; female, 2,088; total white, 4,306; colored male, 412; female, 418; total colored, 830; total, 5,136. Number white schools organized, 8; colored, —; total, 8. Number white pupils between 6 and 18 enrolled, 245; colored, —; total, 245.

*Churches.* The people of Henderson county are a church-going people, and almost, if not quite every neighborhood, has one or two, or more churches convenient to it. The leading denominations represented in the county are the Methodist, Baptist, Cumberland Presbyterian, and Christian.

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## HENRY COUNTY.

COUNTY SEAT—PARIS.

Henry county embraces about 570 square miles, and had a population in 1870 of 20,380, of which 5,204 were colored. The number of acres, exclusive of town lots, assessed for taxation in 1873 was 357,-705, valued at \$2,812,860, or \$7.86 per acre. The county is the ex-

treme north-eastern county of West Tennessee, and is bounded on the north by Kentucky, on the east by Stewart, Houston and Benton, on the south by Benton and Carroll, and the west by Weakley. The Tennessee River forms the boundary between Henry on the west, and Stewart and Houston on the east, and Big Sandy, on the east, separates this county from Benton. This county was organized in the year 1822.

*Geology.* The eastern edge of Henry county rests on some of the older rocks, Upper Silurian limestones and Carboniferous rocks showing themselves. The variegated marble on Big Sandy has been mentioned in the introduction to West Tennessee. Bluffs of blue flaggy and fossiliferous limestones of the Lower Helderberg epoch (which together with the marble, belong to the Upper Silurian) are also seen on Sandy. The middle and western parts of the county rest on much more recent formations, members of the Cretaceous and Tertiary divisions. The latter formations are great strata of sands and laminated clays. The line of separation between the older and newer formations marks the position of the old shore line, of which mention has been made in another part of the Report. Over all the rocks patches of the gravel and sand of the superficial formation, or drift, called the Orange Sand, are often met with. A few fine specimens of pot and gravel iron ore have been found in the hills on the dividing ridge, and some think that there are rich beds of it, but if so, their location is unknown. There are many rich beds of potter's clay of the finest quality. One of these, near the mills of Palmer & Thomas, through which their race is cut, was profitably worked before the war, but the proprietor, losing his property, has not been able to resume operations. A small capital invested here would pay a very large dividend. It is in a mile or less of Porter's Station on the Memphis and Louisville Railroad.

*Topography, Soils and Lands.* The Tennessee Ridge, which divides the waters running into the Tennessee River and those running into the Mississippi, passes through the central part of the county, entering near Macedonia, runs north, and passes out near Conyersville. Along the course of this ridge there is a narrow strip of land that is hilly, so much so that the soil, which is thin, when cleared off and subjected to cultivation, soon washes away. By proper care, however, it will last a good many years, and produces fine crops of wheat, corn and cotton. It is well adapted to the growing of apples, peaches, pears, etc., and so far as the grape has been tried, it does finely. The native musca-

dine, from which a dinner wine is made, flourishes to perfection. The lands along this line are well timbered, can be bought cheap, and if in the hands of enterprising fruit-growers, could be made to yield highly remunerative crops. East of "the ridge" the surface soon becomes level, or gently undulating, the soil being a light sandy loam, underlaid with a stratum of sandy or gravelly clay. The more level uplands have good depths of soil, are underlaid with red clay, more or less mixed with sand, and are capable of indefinite improvement. West of the "divide" the surface, at first gently sloping, soon becomes quite level, the soil more compact, often mixed with gravel, underlaid with red, and in some spots, whitish clay, exceedingly fertile, and is as pretty farming lands as can be found in Tennessee. Taking into consideration all the advantages of soil, of climate, variety of productions and facilities for transportation, the prices of lands in this county are very low. Stimulated by the prospect of several new railroads being built through the county at an early day, the price is advancing, and will, some think, continue to advance until it reaches something near its worth. Improved lands are worth from \$10 to \$50 per acre, and unimproved from \$5 to \$20. The average price for good improved land is about \$20 to \$25. The usual land payments are one-third cash, the balance in equal payments on a credit of one and two years.

*Timber.* But little over half of the lands being improved, there is an abundance of very fine timber. All kinds of oaks abound—white oak for sawed lumber for fences, floors, laths, felloes, spokes, etc.; the post oak for posts and railroad ties, and the red oak for boards, rails, tanbark, etc. There is an abundance of the finest of hickory, suitable for axletrees, spokes, hubs, handles, hoops, etc., also poplar, walnut, gum, beech, cherry, and chestnut for building and cabinet lumber. There are also elm, ash, birch, maple, locust, mulberry, hornbeam, dogwood, redbud, haw, sassafras, plum, pawpaw, persimmon, hazel, huckleberry, etc. Some of the white oaks will measure six and eight feet in diameter, three feet from the ground. There is an excellent opening here for the location of a factory to manufacture this timber into handles, axletrees, felloes, spokes, etc.

*Crops.* The soils are well adapted to the production of cotton, tobacco, corn, wheat, rye, oats, clover, the grasses, peas, beans, potatoes, sorghum, etc. The great staples are cotton and tobacco, both of which grow nearly or quite as well here as in any portion of the State. Clover has been sown extensively since the war and does well. Even on lands nearly exhausted by long cultivation, a "catch" is easily obtained

by sowing seventy-five pounds of plaster to the acre. The grasses do well, especially red top, timothy, orchard and Hungarian. Many of the farmers could profitably turn their attention exclusively to the production of hay, and raising improved stock, and no doubt would have done so, to a greater extent, but for the fact that in farming on shares; cotton and tobacco at present prices pay well. As soon as the prices of these great staples get too low to be remunerative, a great change will take place in this particular. On lands that are well adapted to raising hay, stock, fruits, vegetables, etc., the farmers should turn their attention in this direction, and then a new era of prosperity will dawn upon them and they will become a more wealthy and happy people. All varieties of hardy fruits succeed well, and large quantities of trees have been planted since the war. Many, however, have erred in buying from northern nurseries, and getting varieties that will not do well in this climate. This error is not likely to occur again, however, as the West Tennessee Nurseries, located some seven miles southeast of Paris, are now propagating everything in the nursery line, and take especial pains to recommend nothing that has not been tried and found to do well.

*Rotation of Crops—Method of Culture.* The farmers, like those in other sections of the State, have not given sufficient attention to the rotation of crops. The system practiced by most good farmers is corn, wheat, clover; tobacco, wheat, clover; or cotton, wheat, clover; sometimes rye or oats taking the place of wheat. The land is usually broken up with two horses or mules, the after cultivation being done by a single horse or mule. Usually the farmers do not plow deep enough, but are beginning to realize the importance of doing so. Subsoiling is practiced to a limited extent, but so far there is not an underdrain in the county.

*Streams and Mills.* The Tennessee River on the east divides this county from Stewart, but a wide difference obtains in the rocky formation of the two counties. Stewart is characterized by hills of white and blue limestone, flint and slate, and her waters are impregnated with lime, constituting hard water. Henry has local sandstone, in unstratified masses, these masses being beds of sand consolidated by siliceous and ferruginous cements. The waters are free from lime, and is what is called freestone or soft water. From the dividing ridge already mentioned as passing through the center of the county, many fine streams issue which traverse the county in all directions, affording water-power in abundance. Obion River proper is composed



of three "forks," known as the South, Middle and North Forks of Obion. The Middle Fork rises and runs for some distance in this county, and has on it several mills. The North Fork runs through the north-western portion of the county and drives two flouring-mills and one saw-mill. West Sandy runs through the eastern part of the county and has several fine mill sites. Its tributaries, Hally and Bailey's Fork, afford the finest water privileges in the county. On Hally Fork there is a woolen factory, and at the same place is a large saw and flouring-mill. There are three other good mills below, within five miles. On Bailey's Fork are situated the finest mills in the county. There are also several cotton factories and one woolen mill and gin. Big Sandy River, which divides this county from Benton on the east, has several fine mills, the most important of which are the "Sandy Mills." Here a canal from the pond above has been carried around the mill into the river below, a distance of three hundred yards. It is dug through a stiff gravelly marl, which seems as little susceptible to the action of water as rock itself. It affords a head of ten feet, and has power to run, without interfering with the mill, a 44-inch turbine wheel. Other streams with mills on them are Clark and Blood rivers, Terrapin, Bear, Eagle, Gwin's, Bird's and Spring creeks. There are also numerous small streams and springs affording an abundance of water for man and beast.

*Mineral Water.* About four miles from Springville, on the Louisville and Memphis Railroad, is the great artesian well, familiarly known as the Sulphur Well, or Mammoth Spring. In the early history of this county, and even before any permanent settlements were made on this side of the Tennessee River, pioneers resorted to "licks" in this vicinity for the purpose of making salt. This indispensable article in household economy had, at that time, to be transported from great distances on the backs of horses—hence the early settlers were stimulated to dig wells in these "licks," from which they procured a brackish water, and by evaporating this they obtained a crude article of salt. During the late war these were re-opened for the purpose of making salt. For the benefit of those who are not familiar with licks, it will be well to mention that they are excavations in the ground caused by immense herds of ruminants continually trampling over and licking up the briny earth. Ere the advent of the white man, vast numbers of buffalo, elk and deer, resorted daily to these licks, and the result is excavations sometimes extending over an acre or more of ground and several feet in depth. Here, at an early day, the hunter

erected scaffolds on the spreading branches of the surrounding trees, and at the usual hour of the day, when the untamed denizens of the forest were wont to congregate, the crafty woodsman, elevated on his lofty eyrie above their visual range, would, from his unerring rifle, send a leaden messenger of death through the heart of his unsuspecting victim. Remnants of these ancient scaffolds may still be seen. Those were the days of vension steak and bear meat—hominny and hoe-cake. About the year 1821, Major John Randle, Wm. Randle, Geo. D. Randle and James Miller conceived the idea that by deep boring they possibly might reach the fountain head of the salt water. Some of the parties having strong faith in the divining rod, went to Kentucky and employed a gentleman skilled in the mystery of finding hidden streams. He came, and his unerring rod soon pointed to the place where, at the depth of 100 feet or less, was to be found the fountain head. The work was commenced and progressed rapidly until they had dug some twenty-five feet, when they struck a brown marble mentioned below, which was found of very great thickness. Here was an unlooked for difficulty, for which the diviner, with all his skill, had not prepared them. But they were not to be discouraged by small difficulties. Instruments for boring, of rude construction, were made, and the work went on. One hundred feet was reached, but no water; 200 feet gave the same result; but on they went, discouraged, “east down, but not overwhelmed,” until at the depth of some 400 feet they struck a powerful stream of water, which, to their great disappointment, proved to be sulphur instead of salt water. The well affords a very abundant supply of water, sufficient to turn a good sized mill. The water has obtained reputation as a healing agent, having proved beneficial in many chronic affections, particularly of the skin, kidneys, bladder, etc. This water is said to be superior to all others for making coffee. The premises have been fitted up for the accommodation of invalids and pleasure-seekers and is a popular summer resort. There are several large springs of sulphur water within a few hundred yards of the well, and the attractions of the place are enhanced by some fine chalybeate springs, one quite near the well. The gentlemen who bored this well, sunk another with the same object at a liek about two miles south of Big Sandy Switch on the Memphis and Louisville Railroad, on the premises of General J. S. Dawson, where they likewise failed to obtain salt water, but again struck a stream of sulphur water. This well affords but a scanty supply of water, owing, it is said, to the fact that the auger was broken off and suffered to remain in the bore. The

water has quite a saline taste. About a mile west of this, on the same property, is a spring known as the Copperas Spring, which is remarkable for the large amount of gelatinous matter which is deposited in the spring and along its course. The water has an exceedingly styptic and ferruginous taste.

*Railroads.* The Memphis and Louisville Railroad passes through the county from the northeast to southwest. Before the completion of this road the Tennessee River afforded the only facilities for transportation, the Mouth of Sandy and Paris Landing being the rival shipping points. There is still some business done at these places, but nothing to compare with former times. There are three other lines projected to pass through Paris, but the chances are rather bad at present for their construction.

*Towns and Villages.* Paris was laid off about 1825, and is built on the "ridge," near the center of the county, in a remarkably healthy location, as an evidence of which, with a population of some 2,000, it has only five physicians. There are sixteen lawyers, six ministers, nine dry-goods stores, six family groceries, five whisky shops, two shoe and hat stores, two milliner's stores, two cotton and tobacco factories, two merchant tailors, three drug stores, two each of baker, silversmith, gunsmith, barber, shoe, saddle and harness, buggy and carriage, undertakers, and furniture shops, three hotels, and the Paris Intelligencer, one of the best country papers in the south. It is blest by having an intelligent and industrious population, with but few loafers. The Agricultural and Mechanical Association is located at this place. The Odd Fellows' Male and Female College is an institution of sterling worth, and is in a prosperous condition. Besides this, there are several other schools that are doing well. The Methodist Episcopal Church South has just completed a fine and commodious house of worship. The Presbyterians, Baptists and Christians also have houses of worship, and a large number of communicants. Cottage Grove, twelve miles north-west of Paris, is situated in a fine section of country. It has three dry-goods stores, two groceries, two blacksmith shops, one buggy shop, one cabinet shop, one wool factory, two churches, and a large school. Como, twelve miles west of Paris, has six or eight business houses, and supports a fine school. Spring Hill, eight miles north-west of Paris, has two dry-goods stores, one tanyard, shoe and saddler shop, and a prosperous school. Mansfield, eleven miles south-west of Paris, has two stores, grocery, etc., and is the location of a cotton fac-

tory. There is also a good school at this point. Other towns of equal importance are Manlyville, Henry Station, and Springville Station. Those of less importance are Bellview, Buchanan, Mouth of Sandy, Paris Landing, Conyersville, Mt. Olivet, and Live Oak, with one or more stores, churches, etc.

*Manufactories.* Cotton and tobacco being the staple products, have caused the erection of a number of factories for spinning the first and stemming and prizing the second. These factories give employment to a large number of hands. None of the cotton factories have any looms. The largest factory in the county is known as the Embryo Cotton Factory. It is located in Paris and runs 1,120 spindles, using 800,000 pounds of seed cotton annually, and turning out 400,000 dozen first class cotton yarn. This factory employs thirty hands, and it has capacity enough to double the machinery. It is said to pay a handsome dividend, but this could be largely increased by utilizing the unoccupied space in the building, either with additional spindles or with looms. The property at present is worth \$60,000. Oakley, White & Co., are the owners. The next in importance are the Mansfield Cotton Mills, at Mansfield, eleven miles south-east of Paris. They were erected by Wm. H. Thompson in 1856, being the fifth cotton factory erected in the county. The present owners, Messrs. A. C. Etheridge & Co., purchased the property in 1863, since which time it has been under the management of M. C. Cheek and A. C. Etheridge, both practical machinists and cotton manufacturers, of whom it might be said they are almost products of our cotton mills, as they went into the cotton mills of this county when quite small, and grew up to men's estate, being seldom out of hearing of the musical whirr of running spindles, of which they are now running 640, consuming 350,000 pounds of seed cotton per annum, producing some 175,000 dozen of cotton yarn. They have also, in connection with their factory, a grist mill and dry-goods store. Besides these, there are the factories of N. Currier near Paris, and Messrs. Dinwiddie & Co., near Henry Station, of about the same capacity of the Mansfield mill. There is also near Conyersville a mill for the manufacture of woolen goods, that is paying a handsome dividend. There are nine tobacco factories in the county, which manufacture a large quantity of tobacco. There are also several tanneries.

*Good Schools* are common throughout the county. Twenty free schools were in operation in 1873, for about three months, five of which were for colored children.

*Labor.* One of the principal drawbacks to the prosperity of the county is a want of reliable labor. It being almost impossible to hire farm hands at reasonable prices, the farming is generally done on shares, the owners of the land furnishing stock, implements, etc., and receiving one-half the crop, which consists principally of cotton, tobacco, corn, wheat and oats, here named in the order of their profit and importance. The people are kind, hospitable and industrious, and gladly welcome immigrants from any quarter of the globe who desire to settle permanently among them, make useful citizens and aid in developing the natural resources. The principal immigration since the war has been from East Tennessee and North Alabama. As an illustration of what economy and industry can do in the county, a case is mentioned of a gentleman who came to the county six years since. On his arrival he had nothing but a wagon and team and money enough to buy his supplies for the year. The first year he farmed on shares, supported his family and made, clear of expenses, some \$600. He bought a farm, making a small cash payment. He now owns 400 acres of the best farming land in the county, all paid for, and planted last season over 100 acres in cotton and a large crop of corn and tobacco. He is very justly regarded as one of the most substantial citizens. There are but few counties that offer more inducements to immigrants than Henry. The great variety of crops grown will give them a wider field for selection. With the growth of a proper manufacturing spirit, the county is destined to take a high rank in the State. It has always exercised a potent influence in the administration of the State government, and has probably furnished more executive officers than any county in West Tennessee.

*Statistics.* Value of taxable property in 1873, \$3,656,340; quantity of tobacco shipped by railroad in 1873, 1,028 hogsheads; quantity raised in 1869, 1,715,001 pounds; quantity of cotton shipped by railroad in 1873, 6,314 bales; quantity raised in 1869, 2,385 bales. No. of white voters in the county, 3,090; colored, 694; total, 3,784. Scholastic population, 6,530. Other statistics may be found by consulting Part I, of this report.

The Secretary is indebted to Dr. John T. Irion, for the main portion of this report of Henry county.

## LAKE COUNTY.

COUNTY SEAT—TIPTONVILLE.

Lake county is the extreme north-western county of the State, and is hemmed in by the Mississippi River on the west and Reelfoot Lake on the east. In territorial extent it is by far the smallest county in West Tennessee, and the smallest in the State, with the exception of Trousdale. It comprises about 135 square miles. The number of acres assessed for taxation is 84,360, valued at \$755,883. The population in 1870 was 2,428, of which 393 were colored.

*Organization.* On the 9th of June, 1870, a law was passed establishing the new county of Lake out of that portion of Obion which lies west of low water mark of Reelfoot Lake,\* the county to be bounded as follows: Beginning at a stake at low water mark on the west bank of Reelfoot Lake, at a point where the dividing line between Kentucky and Tennessee crosses said west bank; running thence in a southern direction with the meanderings of said western bank at at low water mark to the Dyer county line; thence west with Dyer county line to the State line (Mississippi River); thence with said line up the Mississippi River, in a northern direction, to an intersection with the Kentucky line; thence east with the Kentucky and Tennessee line to the beginning. The organization was effected in September, 1870.

*Topography, Geology and Soils.* Lake is the most level county in the State, there being nothing worthy of the name of hill in it. The lands are rich, the prevailing character being alluvial, and the color black. In a small section of the county, however, as in the western part of Madrid Bend, on the river, some sandy land is found, and near the center of the bend, in civil district No. 2, is land which is more clayey. Madrid Bend includes the section of country which would be north-west of a line extended directly from Tiptonville to Island No 10, rendered famous during the late war. All of Lake county is in

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\*This lake, formed during the convulsions of 1811-12, is about eighteen miles long and from three-quarters to three wide. Its origin appears to be due to the disturbance in the bed of Reelfoot Creek, which dammed up the water that before flowed without impediment into the Mississippi River. This damming up produced an overflow, and formed the lake as we now find it. Generally it is very shallow, especially at low water mark. It is a noted place for fishing and hunting. During the fall months numerous parties are seen encamped on its banks, spending whole weeks in their sports.

what are called the Mississippi Bottoms, and belongs to the most recent formation, technically called Alluvium. No regular strata of hard rock, as limestone, slate or sandstone, occur. The whole country was originally covered with heavy forests, and except along the banks of the river there is little or no sand. The soil is impregnated with lime and is very productive. The lands of Lake county are unusually rich, and the agricultural resources of the county, when fully developed, will make it, in proportion to its area, the wealthiest county in the State, agriculturally. Mr. R. S. Bradford, a very intelligent citizen of the county, says in a communication: "You will probably not be prepared to give your assent to the statement which I am about to make. Lake county, though the least among all the counties in territorial extent, is on the whole the richest. It is about thirty-five miles long, and from three to twelve broad. We are in a measure cut off from the rest of the State by lakes and bayous. Were it not for the great Mississippi, along which our county stretches for so many miles, we might be said to be out of the world, but this brings us fairly into communication with the rest of mankind, and more especially with the markets of the Mississippi Valley. No proper highlands, or hills, are seen. Our soils are based on alluvial formations, and are almost necessarily deep and fertile."

*Timber.* There is probably no county in the State which is better timbered than Lake. The varieties usually found in Tennessee are found in the county, and there are also large tracts of country covered with the best cypress and cottonwood. The principal undergrowth is cane, but in some sections of the county there is some pawpaw.

*Land Statistics.* The following facts in regard to the agricultural wealth, etc., of Lake county are taken from the census report of 1870, and though not precisely, are at least approximately correct:

Cash value of farms.....	\$882,411
"    "    farming implements, etc.....	14,698
Number of farms of all sizes.....	912
"    "    having 3 and under 10 acres.....	1
"    "    "    10    "    20    "    .....	7
"    "    "    20    "    50    "    .....	81
"    "    "    50    "    100    "    .....	55
"    "    "    100    "    500    "    .....	45
"    "    "    500    "    1,000    "    .....	2
"    "    "    1,000 or over.....	1
Value of forest products.....	\$5,578
"    home manufactures.....	1,235
"    animals slaughtered or sold for slaughter.....	32,124

Value of all live stock.....	125,802
Number of horses.....	511
“ mules and asses.....	381
“ milch cows.....	615
“ working oxen.....	256
“ other cattle.....	1,048
“ sheep.....	816
“ swine.....	5,853
Bushels corn.....	414,570
“ oats.....	1,892
“ winter wheat.....	1,000
“ Irish potatoes.....	7,435
“ sweet “.....	4,382
Pounds of butter.....	23,548

It will be seen that the farms are small, being generally under 100 acres in size. In proportion to the size of the county, the value of forest products is unusually large, which is owing to two facts, *viz*: there is a bountiful supply of the very best timber, and the timber is easily transported to good markets, immense rafts being made, and floated down the Mississippi River to New Orleans. The value of animals slaughtered or sold for slaughter is comparatively large, owing to the fact that the ranges for cattle are superior, consisting of large areas of bottom lands covered with a dense growth of cane, which is very nutritious and is greedily eaten by stock of all kinds. The citizens are therefore able to raise large numbers of cattle at comparatively little expense or trouble. In proportion to the number of acres of improved land reported, the number of bushels of corn exported is large, while the same report shows that the yield of oats and wheat is small. In the matter of forest products and of animals slaughtered or sold for slaughter, Lake county takes a leading position, and it is certainly one of the best corn counties in the State. In the census report of 1870, it appears that the yield of cotton was very insignificant. Since that time the culture of that staple has greatly increased. In 1873 a large proportion (at least one-fourth) of the improved lands were planted in cotton, and the yield of 1872-3 justifies the belief that Lake will soon rank high, not only as a corn, but also as a cotton county. The smaller grains, however, do not thrive very well, and are sowed in limited quantities. Mr. Bradford, in a letter dated November, 1872, says: “We usually make from eight to twelve barrels (40 to 60 bushels) of corn per acre. We are now picking out from 1,200 to 2,000 pounds of seed cotton per acre. The cotton is not so good as it was last year. Then, on our best cultivated farms we made 2,500 pounds. As we have no wheat mill in our county, we



make but little wheat. As to Irish potatoes, the soil is admirably adapted to their growth. I have one neighbor that made 400 bushels to the acre without using any manure. He planted and cultivated seven or eight acres without any help. The Early Rose is the favorite here, and I think by far the best potato. Our fruits, with the exception of cherries, are all fine. Clover and the grasses grow with great luxuriance. The land is too fertile for oats, causing them to grow so high that they fall down before ripening and are destroyed. Since the war we have usually shipped from 400,000 to 600,000 bushels of corn. The price of corn has got so low that we have been compelled to quit it and go to raising cotton, which is paying us finely. We are just beginning to realize that our summers are almost equal to those of Georgia and Carolina, and as the country is opened the sun has a greater effect upon it and forces the cotton to an early maturity. We are now satisfied that our section is fully a third better for the growing of cotton than any other in the State. Prior to the war no cotton was raised in the county, but since that time the planting of it has rapidly increased, and we have never raised less than 1,000 pounds to the acre."

The following will show the average yields of different crops, and may be relied on:

Cotton, in seed, per acre.....	1,100 pounds.
Corn " " .....	8 barrels,
Wheat " " .....	17 bushels.

About one-third of the open land in the county is annually rented, terms generally being as follows: When rent is paid in money, the price asked is \$5 to \$8 per acre; when part of the crop is charged, the land-owner gets of the cotton, in seed, 200 lbs.; corn, one-third. Though there is little disposition manifested on the part of land-owners to leave the county, about 30 per cent. of the open land can be purchased at reasonable prices, a fair average being about \$20 per acre. What are known as the sandy lands, located in the north-western part of Madrid Bend, on the Mississippi River, generally sell for about \$10 per acre. The clay lands, principally in civil district No. 2, near the center of the Bend, generally sell for about \$30 per acre. The "prime" or first-class lands, principally in civil district No. 1, near Island No. 10, generally sell for about \$50 per acre. The lands in districts Nos. 3 and 4, which are subject to partial overflow, generally sell for \$25 per acre. The overflowed lands, some of which are in district

No. 4, but lying principally in districts Nos. 5 and 6, generally sell for about \$5 per acre. The usual terms of sale are, one-third cash, the balance in one and two years.

*Grasses.* But little attention is paid to grasses. The range for stock is good throughout the year, and the people think the soils are so rich as not to need clover or grasses or any kind of fertilizers. However, there is some German millet grown, and there are a few fields of timothy, the average yields, per acre, being, German millet, 2½ tons; timothy, 2 tons.

*Labor.* There is now, and has been since the war, a great scarcity of laborers of all kinds. At present there are more white than colored laborers. The people are anxious to welcome good hands, and will pay the following prices:

Farm hands per year.....	\$200.00
“ “ “ month.....	18.00 to 25.00
“ “ “ day.....	1.00

Cooks and house servants are in demand at the following prices: Cooks, per month, \$10; house servants, per month, \$8 to \$10.

Mr. Bradford, on the subject of labor, says: “We need more people. We want more men who will work. Our laborers are of all kinds and colors, but few are reliable. We have many men of energy and capacity, but they are looking after the dollar by the nearest way, and pay but little attention to those public improvements that go to enrich and build up the whole country. So they are individually making money they are satisfied. The greatest need of the county is capital to develop its agricultural wealth. We have the finest timber in the greatest abundance, yet, would you believe it, we have to buy at least two-thirds of the sawed lumber we use out of the county.”

*Fruits.* Lake is not a first-rate fruit county, though the more common fruits, such as apples, peaches and pears, are grown to some extent. There are no market orchards, however, and the disposition seems to be to raise only enough to supply the home demand. The atmosphere is too damp for grapes, which do not thrive.

*Stock and Stock-raising.* But little attention is paid to the breeding of fine stock and the raising of stock of any kind. Almost every farmer has horses, mules, cattle, hogs, and even sheep, which he allows to run at large upon the wild canes. They are only looked after in times of overflow and when wanted for market. A few men are crossing the common stock of hogs with Berkshires.

*Game and Fish.* In the river and in Reelfoot Lake there is the greatest abundance of excellent fish, such as trout, perch, cat, buffalo and the other varieties usually found in western waters. In fact, the fish trade between Lake county and St. Louis especially, is a very extensive one, and is yearly becoming larger. In the southern and north-eastern sections of the county a few bears, deer and turkeys are found, and on the river and lake there are immense numbers of geese and ducks and a good many swan, all of which are hunted by professional hunters, who annually send many tons of them to market. Trappers, too, are very successful in trapping beavers, raccoons, otters and wild-cats, all of which are found in considerable numbers, especially in the lake and along its banks.

*Markets.* St. Louis and New Orleans are the principal markets for Lake county, though much cotton was sent in 1873 to Memphis. Every thing that is shipped is by the Mississippi River, which is the only outlet for the produce of the county.

*Immigration and Emigration.* Since 1870 the immigration to the county has not been heavy, though families are frequently moving in, principally from the counties of Middle and East Tennessee. Some persons have left the county since the war and have gone to Texas, but at present there seems to be but little disposition on the part especially of land-owners to leave the county. Those who have left recently have been principally laborers and young men without families and property. The county having long been, comparatively speaking, cut off from active communication with the outside world, the people have had fewer advantages than those living in more fortunate sections, hence they are not as progressive nor as well educated as those in some other counties of Tennessee.

*Roads.* The roads throughout the county are generally in a miserable condition, and during the winter months they are almost impassable. However, the people do not travel a great deal, and do not feel the need of good roads as they might under other circumstances. There are no improved roads and no railroads.

*Streams, etc.* The Mississippi River laves the entire western boundary of Lake county, and Reel Foot Lake the eastern boundary, but there are no rivers or creeks passing into or through the county. For domestic purposes cisterns and wells are depended on, as there are very few springs. As to stock-water, pools are easily made and are

much used. The work of making cisterns is generally regarded as a light one, the cement being applied directly to the clay without the intervention of rock or brick. The average depth of wells is about thirty-five feet, and they are numerous throughout the county, but the water is not good. Fully two-fifths of the county overflows during high water. In the great freshets of 1858, 1862 and 1867, thousands of acres were under water. About one-half of the two-fifths overflows so as to prevent settlements and cultivation. These overflows come into the head of the lake by eight or nine sloughs which exist below Hickman, Kentucky. Almost every year efforts are made to build a levee from the high lands in Lake county to Hickman, Kentucky, a distance of sixteen miles, but up to the present time these efforts have been unsuccessful, though the people believe they will be able to build this levee before long, in which event it is more than probable a branch railroad will be run on top of the levee from Hickman to connect with the Nashville and Northwestern Railroad.

*Towns and Villages.* There are but three villages in Lake county, as follows: Tiptonville, the county seat, is located on the bank of the Mississippi River, not far from the longitudinal center of the county, and has about 100 inhabitants. Mooringsville is a very small place six and a half miles south of Tiptonville, and has less than 40 inhabitants. Cronansville is very little larger than Mooringsville, is four miles north of Tiptonville, and has less than 50 inhabitants. At each of the above named places are stores, etc., but the principal trade of the county is done at Tiptonville.

*Mills.* There are but few grist-mills, and the average milling distance is not less than five miles. There are several saw-mills, and an unusually large number of cotton-gins, considering the size and population of the county.

*Schools.* Schools are scarce. The scholastic population between the ages of six and eighteen years is 899, of which 111 are colored. During the scholastic year of 1873-4 ten white schools were organized. The county showed its appreciation of schools by levying an additional tax of ten cents on the \$100, one dollar on polls, and one per cent. on privileges.

*Churches.* The county is well supplied with churches, there being one in every civil district, and district number four, in which is located the town of Tiptonville, has four churches. The Methodist is the

largest denomination represented in the county, in fact every church in the county but two is the property of that denomination, the two being, one at Cronansville, which is under the control of the Cumberland Presbyterians, the other in district number two, which belongs to the Baptists.

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## LAUDERDALE COUNTY.

## COUNTY SEAT—RIPLEY.

This county has an area of about 430 square miles. The amount of land assessed for taxation in 1873, exclusive of town lots, was 272,445 acres, valued at \$2,442,623, or nearly \$9 per acre. The total valuation of taxable property is \$2,829,185. The population in 1870 was 10,838, of which 3,484, or not quite one-third, were colored. We have often had occasion in this report to mention the inaccuracy of the census returns, and in no county is this inaccuracy more apparent than in Lauderdale. The number of acres of land given for this county by the ninth census was 158,217, which is not two-thirds of the amount returned for taxation. The county was organized in May, 1836, the act authorizing its establishment having been passed the previous November.

*Physical Geography.* The eastern part of Lauderdale is on the Plateau of West Tennessee; the western part is low, and lies in the Mississippi Bottom. The escarpment of the Plateau or high lands runs in a general north-easterly and south-westerly direction nearly through the middle of the county, and is a part of the line of bluffs extending from Hickman, Kentucky, to Memphis, to which the general name of the "Mississippi Bluff" has been given. The Plateau portion of the country is considerably cut up by the streams and their valleys, and in some parts is quite rough and hilly. Between the valleys, however, wide, comparatively level areas are met with. The surface in the Bottom is flat and low. Along the creeks which are in every part of the county there are always level bottoms, some of which are from one-half to one and a half miles in width, and are from three to fifteen miles in length. As some of these creeks approach the Bluff their banks become steep and sometimes high, but the banks of the streams after they pass the Bluff are generally very low. The soil in

that part of Lauderdale included in the Mississippi Bottom is generally dark, and is a rich, alluvial loam, remarkably productive. A large proportion of this section of the county is covered still with forests of immense timber, which will not be cleared off for many years. There is a belt, however, bordering on the Mississippi River which is now in a good state of cultivation. The depth of the soil in this Bottom is at least as much as from ten to twenty feet. Below the soil is a good clay, which, when mixed with the soil, produces well. The soil of the uplands is of a mulatto color, and has a good clay foundation. It is, however, much shallower than that of the bottoms, the average depth being about nine or ten inches; it is very mellow and fertile. The best corn lands are in the bottoms, but corn and cotton grow well on the highlands.

*Geology,* The geology of the county is quite simple. The surface of the highlands is generally underlaid by the "Bluff Loam" or Loess described in the first part of this report. On the steep slopes of the bluffs the gravel and sand of the Orange Sand formation crops out from under the Loess, but they are not important with reference to the agricultural features of the county. Several interesting beds of lignite are met with. These also crop out on the sides of the bluffs, and are sometimes four or more feet in thickness. The formation of the bottoms is of the most recent age, and is known as Alluvium.

*Rivers, Creeks, etc.* Lauderdale is one of the best watered counties in West Tennessee, as will be seen from the following statement in regard to the streams which water it: The Mississippi River washes the entire western border of the county, and receives the water from numerous smaller streams which flow through the county. Forked Deer River, the dividing line between Lauderdale and Dyer counties, enters from Haywood county, at the point where the lines of Haywood, Dyer, and Lauderdale counties come together, ranges thence north, or rather in a north-westerly direction, thence in a curve south-westward, and empties into the Mississippi River. Hatchie River enters Lauderdale from Tipton county, and is the dividing line between Lauderdale and Tipton counties, ranges westward, and empties into the Mississippi River. Cane Creek rises about six miles north-east of Ripley, runs south-west, passes within one mile of Ripley, and empties into Hatchie River, about twelve or fifteen miles above its mouth. Knob Creek rises about nine miles north of Ripley, ranges westward about eight miles, and then passing into the bottoms, makes its way into the Mis-

Mississippi River. Cold Creek rises about seven miles from the county seat, runs westward, and empties into the Mississippi River above Fort Pillow. There are numerous smaller streams, some of which empty into Forked Deer River, some into Hatchie, and still others into the Mississippi River. Those emptying into Forked Deer range generally northward, those emptying into Hatchie range south-west, and those emptying into the Mississippi range generally westward.

*Timber.* That part of Lauderdale county included in the Mississippi Bottoms, is particularly well timbered with the most superior quality of lumber trees. Upon the highlands there is also a good supply of timber. The principal growths are poplar, white oak, hickory, ash, and cypress. A large number of saw-logs are rafted and taken, not only out of the overflowed lands, but from various points along the Mississippi, Hatchie and Forked Deer rivers.

*Land Statistics.* According to the census of 1870 there were in the county 1,113 farms, valued at \$2,536,980, and divided as follows:

Number having 3 and under	10.....	12
“ “ 10 “	20.....	205
“ “ 20 “	50.....	552
“ “ 50 “	100.....	206
“ “ 100 “	500.....	136
“ “ 500 “	1,000.....	1

The number of farms has been increased since that time. In 1873 about one-half of the farms were worked by the land-owners themselves, or under their immediate supervision, while the remaining half were rented out. The terms of rent are very varied, and it is difficult to decide what is the general rule. Some demand money rent, in which case the following prices are charged and obtained: Best lands, per acre, \$5; second-class, \$4; third-class, \$3. There are others, however, who crop out their lands, furnishing everything except labor, in which case the following are the general rules: Cotton lands, two-thirds of the crop; corn lands, three-fourths of the crop. But when the land-owner furnishes only the lands, he generally gets for cotton and corn lands, one-half of the crop. In some instances, however, special arrangements are for a definite amount of the crop. In such cases the usual rents are for cotton lands, per acre, fifty pounds cotton; for corn lands, per acre, seven bushels corn. But these prices are only obtained for first-class lands. Of all the lands in the county, improved and unimproved, it is supposed that at least one-half can be purchased on reasonable terms and at the following prices:

Best improved lands, per acre.....	\$40 00
Second class improved lands, per acre.....	25 00
Third " " " " .....	10 00
Inferior " " " " .....	5 00
Best unimproved " " .....	15 00
Second class " " " " .....	10 00
Third " " " " .....	5 00
Inferior " " " " .....	2 50

There are considerable bodies of land in the bottoms which are subject to overflow, and which can be purchased at from fifty cents to two dollars and a half per acre. The usual terms of sale are one-third cash, the balance in one and two years, with lien reserved. The next table in order, is one showing how these lands produce, though it must be remembered that very little of the land is cultivated as it should be. The following are the average yields per acre:

Corn.....	25 bushels.
Cotton.....	750 pounds seed.
Tobacco.....	950 pounds.
Wheat.....	10 bushels.
Oats.....	20 "
Hay.....	2,000 pounds.
Irish potatoes.....	75 bushels.
Sweet " .....	100 "

The cotton that is shipped from Lauderdale generally ranks in the market from low middling to middling, while the tobacco ranks generally as medium leaf. Cotton is the peculiar staple of the county, and every farmer is engrossed in his attention to it; but the other products named above are also raised, though principally for home consumption, with the exception of tobacco, which is raised for market, but in limited quantities.

Though Lauderdale county is naturally a first-rate county for grasses, but little attention is being paid to the growing of them. Herds-grass and timothy are the favorites with those farmers who raise grass at all, though clover is grown also for grazing and mowing purposes, but it is seldom or never used as a fertilizer.

*Fruits.* The more common varieties of fruits would probably thrive, but little attention is being paid to the business of fruit-growing. The Bluff country is the only part of the county really suited to fruits, and it is said that the orchards there have not failed in forty years.

Since 1870 there has been, on the whole, a substantial improvement in Lauderdale county. But even now the farming interests are not in



as good condition as they were before the late war; the fencing is not so good, the farm-houses are in a worse condition, and owing to the demoralized condition of labor, it will still take years for the farmers to get fully up to their ante-bellum standard. The disposition to improve, however, is manifesting itself to a very limited extent, and it is hoped that before the census report of 1880 is taken, Lauderdale county will have fully recovered all the ground she lost by reason of the war. The farmers, for the most part, still adhere to the old system of farming, and as yet but few labor-saving agricultural implements have been introduced; a few reapers, threshers, etc., constitute the sum total of the improvement in this direction. In regard to the matter of stock and stock-raising, there is a faintly perceptible improvement, but as yet few of the farmers in the county are devoting special attention to this branch of business; there are few or no thoroughbreds in the county of horses, cattle, sheep or hogs, and there seems to be but little disposition to invest in the purchase.

*Labor.* The question of labor is a very serious one in the county, and there is a great demand for really good laborers. At present there are more white than colored laborers, but neither class is regarded as being reliable—of course there are some very notable exceptions to this the general rule. The principal demand, at present, is for farm hands, but house servants and cooks will have no difficulty in securing homes and good wages. The following prices are offered in the county for laborers:

Farm hands per year, with board.....	\$150.00
“ “ per month.....	15.00
“ “ per day.....	1.00
Cooks per month.....	9.00
House servants “ .....	7.00
Mechanics per day .....	2.50

These are the average prices; of course sometimes much higher wages are paid, and again they are much lower, but good hands may always depend upon getting good wages for their work.

*Game and Fish.* In the river bottoms there are bears, deer and turkeys, and upon the highlands there are such small game as rabbits, squirrels, foxes, raccoons, opossums, patridges, etc. In the rivers and creeks there are plenty of fish, and in cold weather there are large quantities of geese and ducks upon the waters.

*Markets.* Memphis is the principal market for all the products

shipped from Lauderdale county. There are three routes by which such products are shipped—one by the way of Brownsville, in Haywood county, which is twenty miles from Ripley, thence by the Memphis and Louisville Railroad; a second by the way of Covington, in Tipton county, which is seventeen miles from Ripley, thence by the Memphis and Paducah Railroad; the third by the way of the Mississippi River from any of the landings in the county.

*Immigration and Emigration.* Every year some settlers move in, principally, during the past few years, from North Carolina, South Carolina, Georgia and Virginia, and but for the heavy work demanded in opening the farms, the influx would be still greater. Occasionally one is found leaving for some fabled land of the West.

*County Roads and Railroads.* There are no improved county roads. At present there is no railroad completed through the county, but the Memphis and Paducah Railroad has been already graded from Ripley to Covington, and will doubtless be completed in a short time. There is not on the continent a more productive soil tilled by a better agricultural population than that on the Memphis and Paducah Railroad. Tables might be readily collated showing the wealth, population and annual products of each of these counties, as exhibited in the census report of 1870. But these tables, in the face of progress such as has distinguished this portion of Tennessee, would be as antedeluvian records used in illustration of the present number of the world's people. Three years have almost doubled the wealth, if not the population of some of these counties, and as the railway line advances, property values are augmented, population grows dense, and farms are multiplied. No population, in proportion to numbers, possessed greater wealth anterior to the war between the States, than those dwelling in the low lands along the eastern shore of the Mississippi. The country is unharmed by floods that overwhelm adjacent districts of Arkansas, and every incident of exuberant soil, delightful climate, variety of products, a magnificent river, and now a perfectly constructed railway, parallel with and near the river, make the extreme western counties of West Tennessee supremely blest. The people along this highway adopt no measures in promotion of immigration. The world will soon traverse this delightful district, and such farms as those now burdened with corn, wheat and cotton, and along the northern confines of Tennessee, and within those of Kentucky, with tobacco, will soon attract, when the railway line is finished, the most enterprising farmers of the continent.

*Towns and Villages.* The following are the principal towns and villages in the county: Ripley, the county seat, is located about seven miles east of the center of the county, has about 559 inhabitants, does a good country trade, has good school and church advantages, and is altogether a very prosperous little town. Double Bridge is fifteen miles north of Ripley, has about 70 inhabitants, contains post-office, stores, churches, Masonic hall and a mixed school. Durhamville is six miles south-east of Ripley, has about 75 inhabitants, post-office, stores, church, and a good school. Fulton is a shipping point on the Mississippi River, twenty-five miles south-west of Ripley. It has a large planing-mill, post-office, stores, church, and does a good business. Hale's Point is also a shipping point on the Mississippi River, about eighteen miles north-west of Ripley, has very few inhabitants, and does but little except a shipping business.

*Mills and Manufactories.* There is quite a number of steam saw and grist-mills, but no regular manufactories. The average milling distance throughout the county is about three or four miles.

*School Statistics.* The county levied for the support of schools in 1874 ten cents on the \$100 worth of property, one dollar on polls and one dollar on each marriage license. For 1873 the levy was fifteen cents on the \$100 and one dollar on polls. The scholastic population between six and eighteen are, white, 3,219; colored, 1,082; total, 4,301. Number white schools organized, 28; colored schools, 2; total, 30. Number of scholars enrolled—white, 1,372; colored, 172; total, 1,544. Number between eighteen and twenty-one enrolled, 48. Number of teachers employed—white male, 24; female, 11; colored male, 2; total, 37. Average per month paid teachers, \$48.50. There is a great want of school-houses in the county.

*Churches.* In every civil district of Lauderdale county there is one or more churches. The Methodist is the strongest denomination, the Baptist ranks next, and then the Presbyterians.

*Newspapers.* The only newspaper published in the county is the Ripley News, which is published in Ripley. It is a Conservative paper, and has a good circulation.

## MADISON COUNTY.

COUNTY SEAT—JACKSON.

Madison county, in wealth, population, quantity of products and political influence, will compare favorably with any of the counties in the Western Division of the State, with the exception of Shelby, in which Memphis is located. In the number of acres assessed for taxation it stands seventh, having on the tax list, exclusive of town lots, 361,842 acres, valued at \$3,863,124, or \$10.67 per acre, while in the value of taxable property it stands fourth—Shelby, Gibson and Fayette ranking it. The whole value of taxable property for 1873 was \$6,248,727. It has an area of about 575 square miles, and a population of nearly 23,000. In 1870 its population was 28,480, of which 10,152 were colored. Since that report was made, a fraction of the county, about twenty-five square miles has been cut off and given to the new county of Crockett. The act creating Madison county was passed on the 7th of November, 1821, and on the 17th of the following month, the organization of the county was effected by the following commissioners, who also constituted the first County Court: Adam R. Alexander, Bertholomew G. Stewart, David Jarvett, Wm. Atchison, Robert H. Dyer, John Thomas, Duncan McIvor, Joseph Lynn, James Trousdale, Herndon Harelson, Wm. Braden, Samuel Taylor and Wm. Woolfork. The first court was held on the 17th of December, and Herndon Harelson was chosen chairman, and Roderick McIvor clerk. The original settlers were Virginians and North Carolinians, and the high social virtues which distinguished them, have been preserved by their descendants. In no county can there be found more prosperity, a more generous appreciation of merit, a more cordial sympathy with intelligence, or a more self sacrificing devotion to duty. Courteous by nature, with an inherited love for the truthful, it is much more common for the citizens to give credit to the stranger for virtues that are wanting than to withhold what is his due. There is no better society to be found anywhere than in the county of Madison.

*Physical Geography—Soils.* The country immediately around Jackson, which is near the center of the county, is gently undulating, going north or north-west to the county line, it is more level, although still undulating. The same thing is the case toward the west, but the southern and extreme eastern sections of the county are very rol-

ling. The prevailing color of the soil is dark chocolate, with mixture of clay and sand. In the northern and western districts the subsoil is dark yellow, while in the southern and eastern it is red. Both soil and subsoil are very porous, without being very thirsty, the subsoil generally commencing about eight inches below the surface, though it produces well to a depth of at least eighteen inches. The clay which is below the surface, forming the beds upon which the subsoil rests is from three to four feet deep; then comes a formation of what is called Orange Sand, which is in beds or strata and extends over the greater portion of the county. Sometimes, instead of this sand are found calcareous formations or indurated clay, called locally "hard pan clay." North of Jackson this clay, when found, is harder than it is in the other counties. The whole of Madison county is on the Plateau or Slope of West Tennessee, and no regular strata of the older and hard rocks are to be looked for. In the southern part of the county local masses of red ferruginous sandstone are occasionally met with. Iron ore is sometimes associated with this, but to no considerable extent. The sandstone is generally found near the surface, but is confined principally to the hills and bluffs along the banks of the Forked Deer River and of the creeks in the southern part of the county. The lands of Madison produce freely and stand droughts well. The best cotton lands rest upon the beds of Orange Sand. The general appearance of the county is good. The scenery is subdued and pleasing rather than wild and romantic.

*Artificial Mounds.* Pinson's mounds, in the south-eastern portion of the county, near Pinson's Station, on the Mobile and Ohio Railroad, are curiosities worthy of mention. Several of them are from 50 to 60 feet long, from 45 to 50 feet in height and from 50 to 75 feet in diameter, being nearly hemispherical in shape. Around these is a semi-circular enclosure made by throwing up earth, as in building fortifications. This enclosure, if completed, would form a circle not less than 600 feet in diameter. It is supposed that these mounds were ancient burying grounds, but who were the builders we know not. A little west of Jackson are several mounds very similar in appearance, but much smaller in size.

*Rivers and Creeks.* There are other counties in West Tennessee which are better watered than Madison, but it has running through it a goodly number of streams, which supply plenty of water for ordinary purposes. The following are deserving of mention: Middle Fork of Forked Deer River enters the county in the north-eastern cor-

ner, from Carroll county, runs south-west, passes almost entirely through the northern part of the county and enters Gibson county about sixteen miles north-west of Jackson. South Fork of Forked Deer River enters the county from Henderson county, near the south-east corner, runs nearly west, and passes into Haywood county, fifteen miles north-west of Jackson and near the boundry line of Crockett. Little Middle Fork of Forked Deer River rises in Henderson county, passes into Madison a little south of the center of the line dividing Henderson and Madison, runs west and empties into the South Fork of Forked Deer, four miles east of Jackson. Greer's Creek rises about eight miles north-east of Jackson, ranges south and empties into Little Middle Fork of the Forked Deer, seven miles east of Jackson. Jones' Creek rises about three and a half miles north-east of Jackson, runs south and empties into the South Fork of Forked Deer, one and a fourth miles south-east of Jackson. Johnson's Creek rises about one and a half miles south of Jackson, runs north-west and empties into the South Fork of Forked Deer, six miles west of Jackson. Cub Creek rises about eight miles south-west of Jackson, runs north-west and empties into the South Fork of Forked Deer, thirteen miles north-west of Jackson. Big Black, Clover and Turkey creeks do not rise in the county, but pass through portions of it, the two first emptying into Hatchie River in Haywood county, the last named emptying into the Forked Deer, twelve miles south-east of Jackson. Dyer Creek rises two miles north of Jackson and is a tributary of Middle Fork (locally North Fork) of Forked Deer River. The larger streams in the county are lasting and afford milling facilities, though a majority of them have sluggish currents with unstable banks. The water of the county is freestone. On Turkey Creek in the south-east part of the county chalybeate springs are met with.

*Timber.* Oaks are plentiful all over the county, and there was formerly much good poplar, but it is becoming scarce. There is also plenty of good hickory, and on the river banks there is very fair cypress. Ash, beech and the other varieties usually found in Tennessee are met with to a limited extent, with the exception of pine, which is not found in this or any of the northern counties of West Tennessee.

*Land and Crop Statistics.* An estimate for 1873 has been made by several gentlemen, of the crops, which will be found to be approximately correct. It will be seen that the amount of products is not so

great as in 1870, but since that date a portion of the county has been taken off. We give the estimate only as an approximation.

Value of farms.....	\$3,024,203
“ “ farming implements and machinery.....	163,510
“ “ orchard products.....	2,078
“ “ market garden products.....	3,312
“ “ forest products.....	940
“ “ home manufactures.....	6,875
“ “ all live stock.....	876,993
Number of horses.....	2,612
“ mules and asses.....	2,927
“ milch cows.....	3,044
“ other cattle.....	6,182
“ sheep.....	3,262
“ swine.....	28,246
Bushels of winter wheat.....	44,367
“ corn.....	635,168
“ oats.....	8,966
Bales of cotton.....	11,000
Pounds of wool.....	7,876
Bushels of Irish potatoes.....	2,715
“ sweet “.....	8,914
Pounds of butter.....	23,673

No estimation is made of the quantities of spring wheat, rye and barley, or of tobacco, for the reason that the production of these is so limited as to make it almost impossible to be at all accurate. The following estimates are made by some of the leading men and best farmers in the county and may be relied on :

Per cent. of improved lands rented in 1873.....	10
“ “ “ lands for sale at reasonable prices.....	25
Average rental of best lands per acre.....	\$5.00
“ “ “ other “ “ “.....	3.00
“ price of best lands “ “.....	25.00
“ “ “ medium lands per acre.....	12.00 to \$20
“ “ “ inferior “ “ “.....	5.00 to 12

The low prices of lands in the county is owing to the fact that there are a great many large bodies which the owners are anxious to sell, being unable to cultivate so much profitably. When the land is rented on shares, the land-owner gets one-third of the crop if the laborer supplies himself, otherwise he gets one-half. The usual terms of sale are one-third cash, the balance in one and two years, with lien reserved to secure the payment of the second and third installments; interest is generally charged on the deferred payments, especially the last. The proportion of swamp land in the county is very small, and this can be reclaimed by drainage.

*Labor.* There is a fair supply of labor, principally colored, though there are some white men who are willing to work for wages. The colored labor is better than in many other counties, probably because it is directed by more intelligence. The farmers of this county are unusually well informed, and act with justice and moderation toward their ex-slaves. The following wages are paid for labor:

Farm hands, per year.....	\$150.00 to \$200.00
“ “ “ month.....	15.00 to 20.00
“ “ “ day.....	1.00 to 1.50
Cooks “ month.....	12.00 to 15.00
House servants, per month.....	10.00 to 12.00

The demand for good cooks in town and country is great, and house servants are much wanted in the towns.

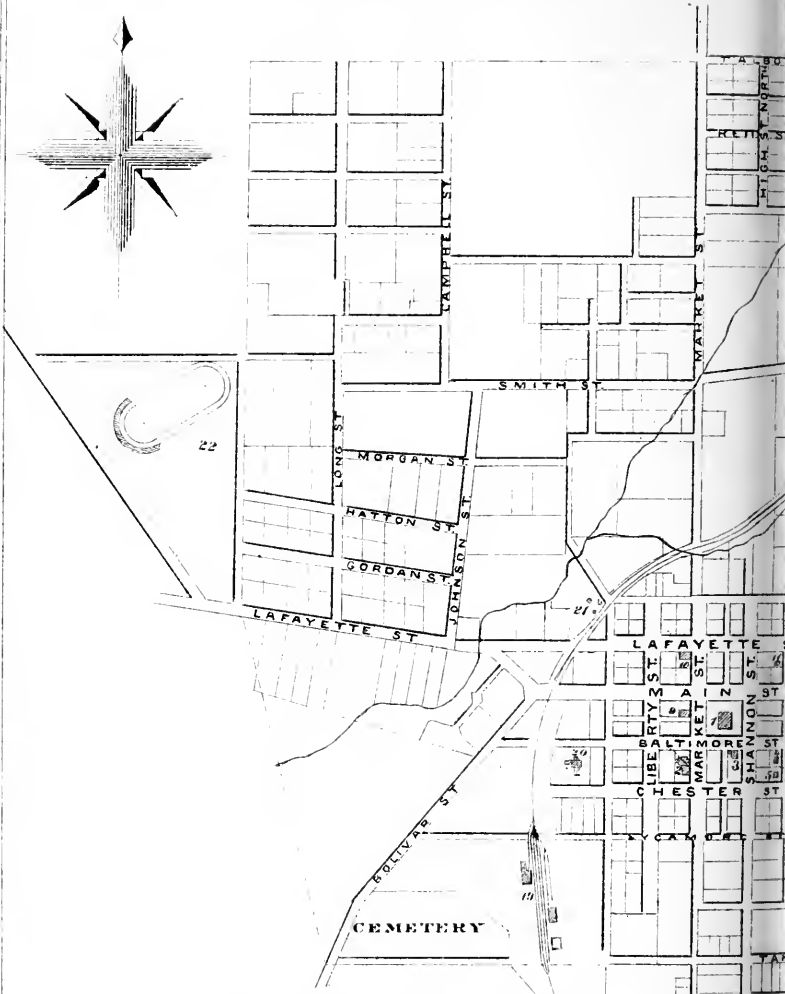
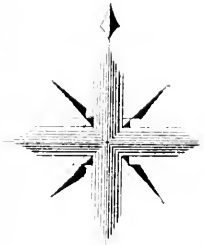
*Products.* Cotton is the great staple in the county. It absorbs almost the entire attention of the farming community. Only a home supply of corn is raised. Wheat (winter) and oats are raised to a limited extent, but the other small grains are not raised in any quantities. There is little or no tobacco grown, though the soil is said to be well adapted to its growth. The best cotton lands yield one-half bale of 500 pounds to the acre, while the medium lands yield from one-fourth to one-third of a bale. The average yield is about 600 pounds in the seed per acre, but it must be observed that only good land is planted in cotton. The average yield of corn is about thirty bushels per acre; of wheat from six to twelve bushels. Vegetables of all kinds (especially roots) grow well in the county.

*Grasses.* Clover grows well upon soils in which there is considerable clay, and herds-grass and timothy (especially the former) grow vigorously and yield abundantly. There is hardly lime enough in the soil for blue-grass, and the experiments that have been made are not very satisfactory. A few farmers have been trying orchard-grass, and report favorably as to its growth. Timothy and clover yield on best lands, per acre, 4,250 pounds; herds-grass, 3,750 pounds.

*Fruits.* Peaches and the standard pears are the most reliable fruits, though the others (especially the small fruits) do well; the peaches, however, and the dwarf pears are short lived, and the latter are subject to blight. Some persons have met with considerable success in the growing of grapes. The Isabella, which has proved a failure in Middle Tennessee, is said to do well in Madison county. The Scuppernong, however, is the most reliable, and gives general satisfaction. The woods are filled with wild grapes, which grow in wanton profu-







MAP  
OF THE  
**CITY OF JACKSON**  
TENNESSEE.

Scale 400 Feet to 1 Inch.

J. I. WILLIAMS. C. E.



- 1 COURT HOUSE.
- 2 STODDERT HOUSE.
- 3 MADISON BANK.
- 4 MASONIC HALL.
- 5 TEMPERANCE HALL.
- 6 M.E. CHURCH.
- 7 EPISCOPAL CHURCH.
- 8 M.C.F. INSTITUTE.
- 9 KING'S OPERA HO.
- 10 SHROPSHIRE HO.
- 11 R.C. CHURCH.
- 12 PRESBYT. CHURCH.
- 13 C. PRESBYT. CHURCH.
- 14 W.F. COLLEGE.
- 15 EAST. J.M.E. CHURCH.
- 16 ACADEMY E.M.
- 17 M & O R.R. DEPOT.
- 18 M.O.R.R. MACHINE SHOPS.
- 19 M.C.R.R. DEPOT & M. SHOPS.
- 20 P.F. COLLEGE.
- 21 GAS WORKS.
- 22 FAIR GROUNDS.



sion, and thousands of bushels may be gathered any fall. Berries of almost every variety are found in the fields and in the woods.

*Forest Products.* Lumber is not one of the staples, not a sufficiency being made to supply the home demand; a large proportion of that used is imported from the adjoining counties.

*Stock and Stock-raising.* The people of Madison county pay very little attention either to the breeding or fattening of stock, though a few men are converting their farms into stock farms with the view of engaging in this branch of industry.

*Markets.* Nearly everything that is raised in the county is sold at remunerative prices in Jackson, and a good deal of cotton and produce is brought to Jackson from other counties. In cotton alone, Jackson does a large business, buying annually from 15,000 to 20,000 bales, which are shipped to New York and New Orleans, and some to Cincinnati, and some is shipped every year direct to the factories in New England. The city of Jackson has improved more in proportion than any other portion of the county, but this is partially owing to the fact that a great many persons from the country have rented out their farms and have moved into the city to secure advantages which they could not enjoy in the country. In no city in the State is there found a better society than in Jackson.

*Immigration.* The principal immigration since 1870 has been from the counties of East and Middle Tennessee, though a good many families have moved into the county from the Southern States.

*Roads.* The roads are generally in bad condition and will admit of very great improvement. Across the river and creek bottoms there are improved roads, which are kept in only tolerable condition. The new road law is in force in the county, and is giving general satisfaction.

*Railroads.* There are but two railroads in operation in the county, the Mobile and Ohio and the Mississippi Central, both of which run through the suburbs of Jackson. Efforts are being made, with fair prospects of success, to build roads from Jackson to Huntingdon, from Jackson to Birmingham, Ala., and from Jackson to the Tennessee River by the way of Lexington, Tennessee.

*Towns and Villages.* Jackson, the county seat, is one of the best laid off towns in the State. It includes within the corporate limits four square miles. The streets are wide and the residences neat and taste-

ful. It is located near the center of the county; has about 7,000 inhabitants; is at the junction of the Mobile and Ohio and the Mississippi Railroads; has four female schools, or colleges, under the supervision of the following churches: Methodist, Presbyterian, Baptist and Catholic. The Baptist University has been located here, which will be richly endowed. There are ten churches, representing the following denominations: 2 Methodist, 1 Old School Presbyterian, 1 Cumberland Presbyterian, 1 Baptist, 1 Christian, 1 Episcopalian, 1 Catholic, 1 colored Methodist and 1 colored Baptist, the Methodist being the strongest church numerically and financially; 3 planing-mills, 1 foundry, 1 barrel factory, 1 brewery, 1 soda-water factory, 1 tannery, and the two railroads centering here have located their workshops in the town. The following is the estimated trade of Jackson: The dry-goods, clothing, boots, shoes and hat business aggregated \$753,000; the grocery business, \$668,000; manufactures, \$210,000; hotels and restaurants, \$145,000; the marketing business of licensed dealers, including pork dealers, \$301,000; the drug business, \$73,000; hardware business, \$90,000; liquors, wholesale and retail, \$175,000; confectioneries, fancy and notion stores, \$33,500; jewelers, \$50,000; livery and sale stables, \$45,000; coal trade of the city, \$25,000; sewing machine business, \$25,000; ice trade of the city, \$13,000; lumber trade and builders' material, by dealers in the city, \$130,000; salt sold, \$9,000; millinery and dress-making, \$45,000; cotton compress, \$2,800; barbers, \$7,500; gun-shops, \$5,000; bakers, \$15,000; receipts for telegraphing, \$3,500; printing business, \$57,000; banking business, gross, \$5,000,000; income of colleges, \$85,000, showing \$7,966,300 as the grand total of the business circulating medium of Jackson. Altogether, Jackson has about eighty business houses, including two banks, and is a thrifty city, with fair prospects for the future. The disproportion of manufacturing establishments is the only unfavorable sign. Cotton factories to work up the cotton grown in the county would add wonderfully to its wealth and prosperity. Medon is twelve miles south of Jackson, has about 300 inhabitants, and is a station on the Mississippi Central Railroad. It has ten business houses and does a good deal of country trade. Denmark is twelve miles south-west of Jackson, and has about 300 inhabitants. It has four or five stores. Spring Creek is thirteen miles north-east of Jackson, and has about 50 inhabitants. Cotton Grove is nine miles east of Jackson, and has about 100 inhabitants. Pinson is twelve miles south-east of Jackson, and has about 275 inhabitants. It ships about 1,100 bales of cotton. Carroll is on

the Mobile and Ohio Railroad, eight miles north of Jackson, and has about 50 inhabitants. Henderson, on the Mobile and Ohio Railroad, ten miles south of Jackson, has 300 inhabitants, and ships 2,500 bales of cotton. It has eight or ten business houses.

*Public Schools.* The people of Madison county have never taken a very great interest in public schools. No tax has been levied for that purpose. The State school fund has kept up a number of public schools for two or three months, but the number of private schools has served to give excellent educational advantages to the people. The scholastic population between six and eighteen is 7,566, of which 3,610 are colored. There are 804 between eighteen and twenty-one years of age, of which 308 are colored.

*Other Statistics.* In 1873 the number of town lots in the county was 1,059, valued at \$1,692,495; value of mills, \$8,800; stock in bank and insurance companies, \$51,568; notes, due-bills, etc., \$453,356; bonds, stocks, etc., \$4,875; value of horses mules and jacks, \$80,458; value of furniture, plate, jewelry, etc., \$66,983; value of wheel vehicles, \$12,962; machinery, presses, etc., \$29,269; all other property, \$181,837; white polls, 3,962. The exemptions of \$1,000 worth of property for the county amount to \$197,000.

*Churches.* Every neighborhood is convenient to churches, the Methodist being the leading denomination, the Baptists ranking second, and the Presbyterians third.

*Newspapers.* Jackson is a place of newspapers, the following being published in the city: Whig and Tribune, the Jackson Courier, the Jackson Herald, and the Jackson Dispatch, all of which, except the first named, have recently been established. They are all Democratic, and conducted with marked ability, exercising a potent influence in the politics of the State.

*Farmers' Organizations.* The West Tennessee Agricultural and Mechanical Association, with fair grounds near Jackson, is in its fifth year, and is in a very flourishing condition. It has handsome buildings, and is managed with skill and financial ability.

*The County since the War.* When the war closed Madison was in a very demoralized condition, but since that time it has very greatly improved. The town of Jackson then had only about 2,000 inhabitants, while it now has about 7,000. The character of the buildings throughout the county is better than formerly; fences are in a good condition;

improved agricultural implements are more extensively used; fertilizers are introduced; attention is paid to hill-side ditching, horizontilization, etc; the people are becoming more sociable; the school interests have improved, and, in fact, a spirit of enterprise is actively at work throughout the county.

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## McNAIRY COUNTY.

COUNTY SEAT—PURDY.

McNairy county is bounded on the north by the counties of Madison and Henderson, on the south by the line dividing Tennessee and Mississippi, on the east by Hardin county, and on the west by Hardeman county. This county in respect to area stands third among the counties of West Tennessee. It comprises about 645 square miles, or 412,800 acres. Exclusive of town lots, the number of acres assessed for taxation is 402,076, valued at \$1,753,550, or \$4.33 per acre. The whole value of taxable property for the year 1873 was \$2,161,269. The ninth census gives 316,140 as the number of acres in the county, or less than three-fourths of the whole, divided as follows: improved land, 64,596; unimproved woodland, 238,814; other unimproved, 2,730. Nothing, perhaps, shows more clearly the miserable guess work which was practiced in the State by the census-takers—a horde of men appointed for the most part because of their political proclivities, and not because of their fitness for the work to be done. Not only in this county, but in every one throughout the State, the same unpardonable errors were committed—errors that have a most damaging effect upon the position of the State, and sinks it beneath the level it should justly hold among the sister States of the Union.

*Organization.* The records of the county were destroyed during the late war, and it is impossible to find any record evidence in regard to the early history of the county. The act of the General Assembly of the State providing for the organization was passed on the 8th day of October, 1823, and the first County Court was held early in the year 1824. The oldest record now on file in the office of the County Court Clerk does not ante-date 1858. The first settlers in the territory now comprised in McNairy county were principally from North Caro-



lina, South Carolina, Virginia, and the counties of Middle and East Tennessee, and their descendants constitute in 1874 the most substantial settlers of the county.

*Physical Geography and Soils.* The country immediately around Purdy, the county seat, is hilly and poor; in a direction north from Purdy it is hilly for several miles, the extreme northern district of the county being comparatively level and the soil mellow and productive; going south from the county seat to the county line, the lands are level and rich, this section being a fine farming country; in an easterly course the country is hilly for several miles, but the extreme eastern districts are level and tolerably productive; to the west a hilly surface is passed over for about three miles, when a level country is reached which extends to the county line. This is one of the best farming sections in the county, the land being rich and mellow. The soil is moist, and, with local exceptions, produces well. The subsoil is much lighter than the soil, being often a grayish clay mixed frequently with sand. The depth of the soil varies from three to twenty-four inches, with an average of about seven inches. In the river and creek bottoms it is often twenty-four inches in depth, but on the hills which usually fringe these bottoms it is frequently less than three inches. The soil in the southern districts is almost universally dark in color, while in the northern and eastern districts it is often more mixed with sand, and of a lighter hue. In the western district there is a considerable strip of country in which the soil is also mixed with sand, and is of a brown color. The sandy lands are regarded as being best for cotton, while the dark lands are better for corn, though cotton and corn do well in every section of the county where the lands are at all good. Through the eastern section of the county, running north and south, is what is known as the "water-shed" by the people, and by scientists as the "Tennessee Ridge," which separates the waters flowing into the Tennessee River from those flowing into the Mississippi River. It runs parallel to the Tennessee River, and nearly through the center of McNairy county, throwing the greater portion of the county in what Dr. Safford calls the "Plateau or Slope of West Tennessee," the balance being included in the Western Valley of the Tennessee River. On these streams are productive valleys, which range east and west. The soils of the valleys are much stiffer than they are upon the benches and the lands extending back from them, and are better adapted to the growing of grasses than the higher sections of the county. The higher soils are generally more sandy, and are, as stated,

peculiarly adapted to the growth of corn and cotton. The valleys have also their siliceous matter, but to a more limited extent.

*Geology.* So far as one formation is concerned—the Green Sand, or Rotten Limestone, as they call it in Mississippi—McNairy county is classic ground. The best outcrops and the greatest thickness of the formation occur here. The bed has been described on page 43 of this Report. It outcrops in the eastern part of the county, and occupies a large area. At a number of points the strata of the Rotten Limestone come to the surface, there being no covering of soil. Where this is the case, glady spots are formed, which are known as “bald hills,” or “bald places.” These have long attracted attention on account of the large number of oyster-like shells that are found strewed over their surfaces. The method adopted for obtaining water in the Rotten Limestone region is worthy of note. Wells which terminate in the formation supply generally a water too impure to be used. By boring, however, entirely through the bed, water of good quality is obtained. In boring, a large augur, with a bit five or six inches in diameter, is driven down until finally perforating a hard, gritty layer at the base of the mass, it strikes a bed of white or gray quicksand, belonging to an underlying formation. As soon as this is done the water rises. The perforation thus made, excepting a few feet at the top, needs no protection, the Green Sand being compact enough to furnish a permanent wall. The formation under consideration supplies a fertilizer known as *green sand*. The substance contains calcareous matter often in the form of decaying shells, a green, soft mineral called glauconite, and sometimes decomposed bones. These, usually in small proportion, are mixed with sand. The mass is grayish, becoming greenish as the proportion of glauconite increases. The best green sand, if near a railroad, will bear transportation, and might be applied to the lands of West Tennessee with profit. Much of it, however, is not rich enough to pay the cost of handling. Many farmers in McNairy who live in the green sand region might use it to advantage.

Overlying the Rotten Limestone and outcropping in the middle and western parts of the county, are the Ripley and Flatwoods formations. The Ripley and the Rotten Limestone belong to the Cretaceous division. The Flatwoods is of later age. As in many of the other counties, the strata mentioned are often covered by the sand and gravel beds of the Orange Sand Drift.

*Rivers, Creeks, Springs, etc.* There are numerous streams run-

ning through and in the county, the following named being the most important: Snake Creek rises about twelve miles south-east of Purdy, the county seat, runs north-east, and empties into the Tennessee River. Owl Creek rises about eight miles south of Purdy, runs south-east and empties into the Tennessee River. Oxford Creek rises about nine miles south of Purdy, runs south-west and empties into Cypress Creek. Cypress Creek rises about four miles north-west of Purdy, ranges south-west and empties into Hatchie River. Moses Creek rises about eight miles south-west of Purdy, runs in a south-west direction, and empties into Hatchie River. Hatchie Creek rises about ten miles north-west of Purdy, and is also a tributary of Hatchie River. There are still others which have importance in the several districts in which they ramify, but it is not deemed necessary to mention them particularly. Let it suffice to state that almost every farm in the county has running through or near it, either a river, creek or branch which affords a plentiful supply of stock-water for ordinary purposes. The principal reliance for drinking water is upon wells, which when dug, are from twenty to seventy feet deep, the average being about thirty-five feet. In addition to these wells are the semi-artesian wells. In the section of country occupied by green sand, good water for domestic purposes cannot often be secured by digging. Unless the water is reached at a depth below the Green Sand formation (which is seldom done by digging) it is impure and very disagreeable to the taste. The method of procuring water in the Green Sand region has been mentioned. The success attending the boring of these wells has, at some points, nearly or quite doubled the price of land. Pools and cisterns are easily made, but are not generally needed, hence are but little in use. The water of the county is mostly freestone.

*Timber.* In the extreme western part of the county there is an abundance of pine timber; in the other parts are found oak, hickory, ash, chestnut and the other varieties found usually in West Tennessee forests. There are but few saw-mills in the county, and little or no lumber is shipped, the object of the mills being only to supply the home demand.

*Land Statistics.* The usual terms of rent are as follows: When money rent is required the price averages about \$4 per acre, payable on the 15th of November, though the best lands often rent as high as \$7 per acre, while the third-class lands rent for about \$2.50 per acre. When a part of the crop is required in the way of rent, the

land-owner gets one-third of the corn, and one-fourth of the cotton. About one-fourth of the lands in the county is for sale at reasonable prices and upon easy terms. The terms are generally on time to suit the purchaser, a lien being reserved upon the lands until the purchase money is paid. The following are the prices asked and given:

Best bottom lands, per acre.....	\$25 to \$30
Medium " " " " .....	20 " 25
Inferior " " " " .....	10 " 15
Best uplands " " .....	15 " 20
Medium " " " .....	8 " 12
Inferior " " " .....	3 " 6

The staple of McNairy county is essentially cotton, though a good deal of corn is raised; some wheat and tobacco are also grown, but they cannot be regarded as staples. Irish and sweet potatoes are raised for family use, but not for market. The following figures will show the average yield per acre of the leading crops:

Average yield of cotton per acre.....	500 lbs. seed.
" " corn " .....	20 bushels.
" " tobacco " .....	700 pounds.
" " wheat " .....	10 bushels.
" " hay " .....	2,500 pounds.

A very small quantity of hay was made in the county prior to 1873. There is a species of wild grass which grows well all over the county, which has served an excellent purpose, superseding generally, in the opinion of the farmers, the necessity of paying particular attention to the growing of grasses. But in 1873 there was an improvement in this respect. Some of the farmers are beginning to use clover as a fertilizer, and some of the domestic varieties of grasses are being introduced with satisfaction. The lowlands of the county are peculiarly adapted for meadows, and in time will doubtless be sowed down in grasses. The following farm statistics, carefully collected by a number of gentlemen, will be read with interest.

Total number of farms in the county in 1873 .....	1,268
Number having under 3 acres.....	2
" " 3 and under 10 acres.....	54
" " 10 " " 20 " .....	140
" " 20 " " 50 " .....	508
" " 50 " " 100 " .....	381
" " 100 " " 500 " .....	172
" " 500 " " 1,000 " .....	1

The following are the products for 1873 as near as could be collected. Though not strictly accurate, they are entitled to more regard in that particular than the census returns:

Value of orchard products.....	\$ 1,389
“ “ forest products.....	1,186
“ “ home manufactures.....	67,489
Bushels of wheat.....	35,015
“ “ corn.....	407,474
“ “ oats.....	22,034
Pounds of tobacco.....	7,605
Bales cotton.....	4,016
Bushels of Sweet potatoes.....	24,230
“ “ Irish “ .....	7,530
Tons of hay.....	333
Gallons of Sorghum .....	12,683
Pounds of honey.....	7,591

For the benefit of those who may feel especial interest in the stock statistics of the county, the following have been carefully calculated for 1873, but for manifest reasons, it is not claimed that they are more than approximately correct:

Value of all live stock.....	\$738,625
Number of horses.....	2,571
“ “ mules and asses.....	1,377
“ “ milch cows.....	3,597
“ “ work oxen.....	759
“ “ sheep.....	10,851
“ “ other cattle.....	5,710
“ “ swine.....	23,981
Value of animals slaughtered, or sold for slaughter.....	375,246
Pounds of wool.....	14,859
Pounds of butter.....	133,037

From the examination of the foregoing tables or figures the reader is invited to examine the census report of 1870 of McNairy county, and he will discover that in most respects there has been a small improvement in the matter of produce, except in very few crops. Among others, there was a falling off in the wheat product. There are more farms in the county than there were in 1870, but the increase in this respect has been small. The general disposition seems to be to cultivate less land, but cultivate it better, and the increased prosperity of the county proves the wisdom of the plan. Nearly one half of all the farms in the county contain twenty and under fifty acres, while nearly three-fourths of them contain as many as 20 but less than 100 acres. Another commendable feature is, that the laboring men are manifesting a disposition to buy homes for themselves and families, and it should also be observed that the few men who own large bodies of land are manifesting a disposition to encourage them, by selling them small tracts on convenient terms. The cotton shipped from Me-

Nairy county ranks in the market from low middling to middling. The farmers in 1873 devoted much more time and attention than usual to the improvement of their farms. Though cotton is still essentially the staple of the county, many of the best farmers contend that there is more money in raising corn and stock, and they are giving up cotton planting to some extent. It requires capital to furnish a farm with good stock. The consequence is that the small farmers, with limited means, will have to continue to devote their attention to cotton planting. In fact, even the wealthiest farmers are yet dealing but little in blooded stock. Some have blooded hogs, but a large majority of them are content with crossing blooded animals on the native breeds. They purchase good male animals and breed them to scrub females.

*Labor.* Labor is very scarce in McNairy county, and commands good prices. There are many more white than colored laborers and they are much more reliable and are greatly preferred. Farm hands are most needed, but cooks, house servants and mechanics of all kinds can find plenty of work and get good wages. The following prices are paid: Farm hands per year, with board, \$150; per month, \$15; per day, \$1; cooks per month, with board, \$8; house servants, per month, with board, \$8; mechanics per day, \$2.50.

*Fruits.* Apples, peaches, plums, cherries and grapes do well in all parts of the county; so, also do the berries usually raised in West Tennessee. There are no regular market orchards, the object being only to raise fruit enough for home purposes.

*Markets.* Memphis is the cotton market for McNairy county, though some of the products from the county go to Louisville and Mobile. The merchants purchase their stocks of goods in St. Louis, New York and Philadelphia. Mobile is about 400 miles from the county seat and Memphis is about 100 miles.

*Population.* The population in 1870 was, white, 11,226; colored, 1,500; total, 12,726. The increase since that time is thought to be five per cent.

*Immigration and Emigration.* Every year some families and individuals move into almost every district of the county, but they do not come in any considerable numbers. The yearly increase in the population is from one and a half to two per cent., the settlers since the war coming principally from Mississippi and Middle Tennessee. Occasionally persons leave the county and move to Texas and Arkansas, but

those who move to the latter State generally return within twelve months or two years.

*The People.* The people are generally hard-working, tolerable thrifty and moderately well educated. They are not very progressive or enterprising; are conservative in their religious and political views. About one-half of them are readers of newspapers, and towards new comers they are very kind and hospitable. They are simply a substantial people, who are satisfied, as a general thing, to "live and let live."

*County Roads and Railroads.* The roads are in pretty good condition. There are no improved roads, such as pikes or plank roads. Indeed there are no hard rocks with which to construct durable roads. The sandstones that occur are not suitable for that purpose. The Mobile and Ohio Railroad passes through near the center of the county, from north-west to south-east. The Memphis and Charleston passes through the extreme south-western districts from west to east, and a narrow gauge road is being built from Memphis, which will pass through the town of Montezuma.

*Towns and Villages.* Purdy, the county seat of McNairy county, is located a little east of the center of the county, and has about 500 inhabitants. It was almost totally destroyed during the war and has never been entirely rebuilt. It has nine general stores and six or eight other business houses. Adamsville is eight miles east of Purdy, and has about 125 inhabitants. This place has three general stores and one drug store. McNairy Station, on the Mobile and Ohio Railroad, is six miles north-west of Purdy, and has about 100 inhabitants. It ships about 800 bales of cotton annually, and has six or eight supply stores. Montezuma is fifteen miles north-west of Purdy, and has about 200 inhabitants; it is noted for the enterprise of its people, has a post office, three stores, a good school and churches. Bethel Springs, a station on the Mobile and Ohio Railroad, is four and a half miles west of Purdy, and has about 150 inhabitants. It has four dry-goods stores, two family groceries, one saloon, post-office, telegraph office, two churches and one school, and is noted for its healthy location and its springs of pure freestone water. It ships about 800 bales of cotton annually. Ramer's Station, on the Mobile and Ohio Railroad, is twelve miles south of Purdy, has a post-office, stores and churches, and about seventy-five inhabitants. Camden is ten miles west of Purdy, and has about fifty inhabitants. Chewalla is fifteen miles south-west of Purdy, has a post-office, three stores and churches, and about 125 inhabitants.

There are other very small villages in the county, but they hardly deserve mention.

*Mills and Manufactories.* The county is tolerably well supplied with grist-mills, principally water-power. There are no regular manufactories in the county, the nearest approximation being a few carding machines. Cotton-gins are very numerous, being scattered about every two or three miles, over the county.

*School Statistics.* Number of persons in the county between the ages of six and eighteen: white—male 2,224, female 2,193; colored—male 306, female 284. Total 5,007. Number of persons in the county between the ages of eighteen and twenty-one: Number of white, 516; colored, 96; total 612. The tax levied by the county in support of schools was ten cents on the \$100, and one dollar on polls. There are eighty-four school districts in the county and there were taught in 1873 sixty public schools. The school fund, however, is so small that they were kept open but a few months. The mass of the people are favorably disposed toward them, and will cheerfully co-operate in any measure that will be put on foot looking to their permanent improvement.

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## OBION COUNTY.

COUNTY SEAT—TROY.

Obion county is justly regarded as one of the most fertile in the State. It was created by an act of the Legislature passed October 24, 1823, and the organization was effected shortly after. The first court was held on the 19th of the ensuing March, and levied the following taxes for county purposes: on each 100 acres of land,  $18\frac{3}{4}$  cents; on each negro over twelve and under fifty years of age,  $18\frac{3}{4}$  cents; on each pack of cards sold, 25 cents. The first indictment in the county was against the Attorney-General, and at the very term of his appointment, the charge being assault and battery, to which he pleaded guilty, and was fined six and a quarter cents. There were four other indictments at the same term, all for affrays, and each defendant was found guilty and fined six and a quarter cents, which was doubtless looked upon as an enormous fine for the privilege of indulging in a free fight. In 1825 the taxes were raised, the following being the levy: on each



100 acres of land,  $18\frac{3}{4}$  cents; on each 100 acres of land, for jury tax,  $18\frac{3}{4}$  cents; on each white poll,  $12\frac{1}{2}$  cents; on each black poll,  $12\frac{1}{2}$  cents; on each 100 acres of land, for the improvement of navigation,  $12\frac{1}{2}$  cents.

The entire superficial area of Obion county embraces 560 square miles, but at least 36 miles of the surface is covered by Reelfoot Lake, of which more hereafter. The number of acres assessed for taxation is 296,278, valued at \$3,631,149, or \$12.26 per acre. The entire value of taxable property is \$4,529,800. The population of the county in 1870 was 15,584, of which 2,182 were colored.

*Physical Geography, Soils and Geology.* The physical geography of Obion county will be considered in relation to the Obion River, which runs through a considerable portion of the county. There may be said to be five distinct belts in the county. That portion lying for a distance of two miles on either side of the Obion River constitutes the first belt, and it is generally low and flat, with a comparatively thin soil, black on top, and lying upon a bed of whitish clay. The soils in this belt are all crawfishy, and subject to overflow, and are covered with a thick undergrowth of cane, the large timber being principally beech and cypress. The second belt comprises all that portion of the county, on both sides of the Obion River, beginning at the outer edges of the first belt and extending outward about three miles. The lands in this tier are not subject to overflow, though generally very level, and the soil is deep, rich, and remarkably productive. This soil has little or no sand, and rests upon a bed of dark clay, which is itself very fertile. In this belt there are really three kinds of soil, the mulatto, the black, and the ashen. Of these the black and mulatto are about equal in fertility—the mulatto being preferred for cotton and small grain, and the black for corn and orchard-grass. While the black will yield a larger number of pounds of tobacco per acre, the mulatto will grow a silkier and finer article. Both are well suited for the growth of timothy, clover and the grasses generally, though for the growth of timothy and herds-grass the ashen-colored soil is specially adapted. There is another difference in these varieties of soil worthy of mention. The black is very porous, drains easily, and for that reason may be worked earlier in the spring. It has also a greater depth. The mulatto is quick, lively, generous, but not deep. It holds fertilizers well, and is altogether very desirable. The ashen needs to be drained. It cannot be worked early in the season on account of its tendency to

hold water. The crops on it will withstand droughts longer than on either of the other varieties, and it holds manure well. The undergrowth is principally cane and pawpaw, the larger growth being principally of poplar, oak, gum, beech, sugar-tree and hickory. Some of these trees are of enormous size and height, fairly rivaling the mammoth trees of California. At the exposition held in Nashville in 1872 was exhibited a cut twelve inches long taken from a sassafras tree grown in this belt (near Union City) which measured inside the bark, which was about two inches thick, four feet eight inches in diameter. This cut was taken from the tree at a distance of twelve feet from the butt, and was perfectly solid. There are growing also on this belt mammoth poplars whose trunks, at a distance of three feet from the ground, will measure not less than seven feet in diameter. Union City, Kenton, Palestine and Crescent City are all situated upon this division, which is universally conceded to be the richest belt of land in the county, if not in the State. The third body, comprises all that country extending for a distance of about four miles from the outer edge of the third belt, though it should be observed that it lies in Obion only on one side of the river, the corresponding portion to the west and south of the river being in the counties of Weakley, Gibson and Dyer. In this third division, the country is rather hilly, though the lands are nearly all arable. The soil is generally dark, and with careful handling, will last and produce well, though more subject to washes than that in the second belt. The undergrowth is chiefly hazle and the principal timber is beech, hickory, oak and poplar. The fourth belt comprises all that country extending from the outer edge of the third belt to the immediate neighborhood of Reelfoot Lake, and is generally known as the "lake hills." Here there is a constant succession of hills, some of them high and steep, though there are also narrow valleys, some of which are from one to five or even ten miles in length. These lands are not very good for farming purposes, because it is difficult to get enough level or arable land in a body to make a respectable farm. They are, however, productive and easily cultivated. Persons of small means and those who desire small farms can here invest most profitably. This is the best fruit and vine section of the county, and the traveler passing through it will be astonished to see the vast number of grape and other vines clinging to every tree. It would also be a good sheep range, if it was not for the immense number of dogs in the county, which are worthless to their owners, and of incalculable injury to their sheep-raising neighbors. The western ter-

minus of this belt is made up of very high bluffs which are so steep that it is almost impossible either to ascend or descend them. In fact, it is only at a few points that it is possible to do so. The fifth and last belt of Obion county comprises the narrow strip of country lying between the bluff just mentioned and Reelfoot Lake, and locally known as the lake bottom. The greater portion of these lands are subject to overflow, but in spite of this fact, the farmers raise on them heavy crops of corn, and on the lands above overflow, they raise heavy crops of cotton. The soil is rich alluvial, very dark and deep, and rests upon a bed of dark-colored clay. The undergrowth is principally cane and the timber is cypress, ash, walnut and cottonwood, with a sprinkling of the varieties more commonly found in the other belts. The principal staples of the second and third belts are corn and cotton, and in the second are some of the very best grass lands in the State.

By far the larger portion of Obion county is included in the Plateau or Slope of West Tennessee; the remainder, that west of the Mississippi Bluff, being in the Mississippi bottoms. This bluff, the dividing line between these two divisions, is one of the most interesting physical features of the county. The steep hills or bluffs spoken of above are parts of this bluff, and its extraordinary steepness has already been mentioned. The name Mississippi Bluff has been applied to the entire line of steep escarpments extending from Hickman, Kentucky, through Obion to Memphis. Dr. Safford, in his report says of this: "The western escarpment of the West Tennessee Plateau or the line of bluffs in which it terminates, deserves especial notice. The escarpment, like the plateau, is cut by the river valley into sections, but the sections run lengthwise nearly in the same line, and for present purposes, may be regarded as continuous through the State. The whole line may be called the Mississippi Bluff. From its base the bottom of the Mississippi extend to the west, while from its summit, the flat uplands extend eastward. Its steep face is greatly in contrast with the bottoms, one of the principal circumstances that give it interest. The bluff rises at different points from 50 to 180 feet above the bottoms. The average elevation is perhaps about 130 feet. Some of the highest points command extensive views of the wild, timbered plains below. A view of this kind (the forests not concealing the Mississippi) is most beautiful. From the southern part of Kentucky down at least half way through Tennessee, the bluffs and the western margin of the Plateau has been much cracked or fissured by the well-known earthquakes of 1811-12. At many points in Obion and Dyer counties the

Bluff has been greatly rent. The traveler, in passing along its summit, frequently meets with earth-cracks, or groups of these, often several hundred yards long, and occasionally traceable for half a mile or even a mile. The cracks or fissures vary in width from two or three to twenty feet. Many of them originally were deep, but are more or less filled up, and in some cases look like artificial canal beds, with a depth varying from three to fifteen feet. This is especially the case where the earth has sunk between two parallel fissures. Sunken belts of this kind, 100 feet wide, are sometimes seen. The fissures often occur in complicated groups, the individual members of each group extending in the same general direction and in any given cross section, from two or three to fifty feet apart, but when followed out, separating in branches and curiously interlocking with each other. The belts of earth between the fissures are often inclined at considerable and various angles to the general surface. At many points within the region that has been thus disturbed, sand, fine gravel and fragments of lignite (coal) were blown up through the fissures, and are now found in little ridges or hillocks. The fine white sand of these hillocks is now sought for at some points for building purposes."

It should be mentioned that the bluff does not border the Mississippi River. It in fact touches the river at three points only, one of these being Memphis. In Obion county it borders on Reelfoot Lake. At various points along the sides of these bluffs have been found fragments, and even local strata or beds of lignite, which have been used for fuel by those living upon the lake shore. Capping the bluff and extending eastward over much of the county is the formation called Bluff Loam, or Loess, and described on page 45 of this Report. Immediately below this, and cropping out on the slopes of the bluff, is the Orange Sand, or Drift. This is represented in this region by beds of gravel, sand and clay. The gravel is conspicuous, and is seen in many parts of Obion. Below the Orange Sand lies the strata of the Lagrange Group. These outcrop at the base of the bluff, as well as in the eastern part of the county when not covered by the Orange Sand.

*Rivers, Creeks, Lakes, etc.* The following are the principal rivers and creeks, which ramify throughout the county: North Fork of the Obion River first touches Obion county from Weakley county, about three miles south of the north-east corner of the county; runs thence south-west along the east boundary of the county, until it gets about eighteen miles north-east of Troy, the county seat, thence into the

county in a direction west of south twenty-one miles, and forms a junction with the South Fork, about one-half mile south-west of Crockett Station. South Fork of Obion River enters the county near its south-east corner from Weakley county, runs thence west, and passes across the line into Dyer county, twelve miles south-west of Troy, having in the meantime formed a junction with the North Fork. Rutherford Fork of Obion enters the county from Gibson county, near Kenton Station, runs thence north-west, and forms a junction with the South Fork about one and a half miles above the point where the South Fork empties into the North Fork. Harris Fork of Obion River rises twenty-five miles north-east of Troy, runs south-west, and empties into North Fork of Obion probably sixteen miles north-east of Troy. Big Davidson Creek rises about eight miles north-east of Troy, runs south-east, and empties into the North Fork of Obion River six and a half miles south-east of Troy. Little Davidson Creek rises one and a half miles north of Troy, runs south-east, and empties into Big Davidson Creek four miles south-east of Troy. Mill Creek rises three and a half miles north-west of Troy, runs south, and empties into Obion River six miles east of Troy. Richland Creek rises ten miles west of Troy, near Wilsonville, runs south, and empties into Obion River fifteen miles south-west of Troy. Pawpaw Creek rises ten miles south-west of Troy, runs west, and empties into Reelfoot Lake nearly twenty-five miles south-west of Troy. Indian Creek rises about six miles north-west of Troy, runs south-west, and empties into Reelfoot Lake at Wheeling, twenty-five miles due west of Troy. Reelfoot Creek rises nearly fifteen miles north-east of Troy, ranges thence west and south-west, and empties into Reelfoot Lake about twelve miles west of Troy. Brown's Creek rises fifteen miles south-west of Troy, runs thence west, and empties into Reelfoot Lake twenty-four miles south-west of Troy. Housen Creek rises ten miles north of Troy, runs thence south-east, and empties into the North Fork of Obion River eight miles east of Troy. Clover Lick Creek rises twelve miles west of Troy, runs thence south, and empties into Obion River about twelve miles south-west of Troy. These are the only streams of much importance, and with the exception of the different forks of Obion River, none of them are perennials, but have water in them most of the year. Even when the weather is driest, and the water is not running in these streams, there are always holes in their beds in which water stands almost, if not quite, all the year.

The attention of the reader is now invited to the following brief de-

scription of the justly celebrated Reelfoot Lake, which now, with Reelfoot Creek, forms the western boundary line of Obion County :

Its length is about eighteen miles, extending as it does from a point just north of the Kentucky line, south to a point about seven miles north of the Dyer county line, and varying in width from three-fourths of a mile to three miles. Prior to the earthquakes of 1811-12 the lake had no existence, and "its origin appears to be due to the filling up of the old channel of Reelfoot Creek during the convulsions of that period. This dammed up the water that before ran without obstruction into the Mississippi, until it overflowed a large area and formed the lake as we now find it." *Geology of Tennessee*, p. 122. At the same time that the old channel of Reelfoot Creek was dammed up, it is supposed that the area of country now covered by the lake sunk several feet, and that this depression was gradually filled with the water which was prevented from flowing into the Mississippi. To any one who will visit this lake this theory will not seem unreasonable, for it is an indisputable fact that the bed of the lake is in some places not less than twenty, or even thirty, feet below the level of the surrounding country. Indeed the trunks of dead trees, which even now stand thickly over a greater portion of the lake, abundantly confirm this view, as upon examination, their roots are often found to be from ten to thirty feet below the surface of the water. The lake is a favorite resort of wild fowls in the fall and winter, and they may often be seen in countless numbers. Every year a few swans are seen. The lake is also a favorite resort for fish of all kinds. Tons of them are annually caught by the hundreds of fishermen who make their homes upon the shores of the lake, and shipped, with thousands of ducks and geese, which are annually shot, to the St. Louis, Mobile, New Orleans, Nashville and Memphis markets. In the course of a few years it is more than probable that Reelfoot Lake will be as fashionable a resort for pleasure-seekers during the winter and fall months as Long Branch and Saratoga are during the summer months. At present, however, the accommodations for visitors are very poor, and are not of themselves at all attractive. Nevertheless, crowds of sportsmen from Tennessee and the adjoining States yearly assemble there to enjoy the sports of hunting and fishing.

*Timber.* There is, probably, no county in Tennessee which is so densely timbered as Obion, and nowhere else in the State will there be found such mammoth trees, either in point of height or size. Along either side of Housen Creek, for a distance from the creek of not less

than five miles, and in what are known as the "Obion Bottoms," may be found poplar and even oak trees which will reach the enormous height of 150 feet, and will measure in diameter from five to eight feet. But independent of these extraordinary trees, the timber of the county is wonderfully large, and stands exceedingly thick upon the ground. Indeed, to these circumstances is due the slow progress which has been made in clearing the lands and getting them into cultivation. The principal growths are poplar, the different varieties of oak and gum, maple, ash, hickory, walnut and beech, and along the river, creek and lake banks are found in large quantities cypress and cottonwood. The prevailing undergrowth is cane, but in certain sections are found, also, hazle and pawpaw. There is a great number of saw-mills scattered over the county, which are annually sawing up thousands of logs into lumber, which is shipped to the St. Louis, Memphis, Mobile, Charleston, New Orleans and Nashville markets, and sometimes orders are received direct from Europe. Many staves are shipped to France from this county.

*Land Statistics.* According to the best information on the subject, there were in 1873 2,208 farms in Obion county, of all sizes, of which there were :

Farms having under 3 acres .....	2
“ “ 3 and under 10 acres.....	172
“ “ 10 “ “ 20 “ .....	713
“ “ 20 “ “ 50 “ .....	854
“ “ 50 “ “ 100 “ .....	289
“ “ 100 “ “ 500 “ .....	174
“ “ 500 “ “ 1,000 “ .....	2
“ “ 1,000 “ over .....	1

These estimates show that, since 1870, supposing the estimates of that year as given in the census report to have been correct, there has been an increase of seventy-eight farms of all sizes within the past three years. Included in these 2,208 farms are 78,641 acres of improved land, of which not exceeding one-third was rented in 1873, while the balance was worked by the land-owners themselves, or under their immediate supervision. The usual terms of rent are, for part of the crop, or "on shares," as it is termed, the land-owner furnishing the lands and getting as rent one-third of the crop raised, or furnishing everything but the labor, and getting two-thirds of the crop raised. Sometimes money rent is asked, in which case the following prices are asked and readily obtained :

First-class land.....	\$5.00 per acre.
Second-class land.....	4.00 "
Third-class land.....	3.00 "

Not less than one-half of the land in the county can be purchased at reasonable prices, and on reasonable terms, the terms generally being one-third cash, the balance in one and two years, with lien reserved on the land to secure the unpaid purchase money. The prices asked and obtained, are, on an average, as follows :

For the lands comprised in the first belt, per acre.....	\$ 2
" " " " second " " .....	25
" " " " third " " .....	20
" " " " fourth " " .....	5
" " " " fifth " " .....	6

There is such a variety of lands in the county that it is difficult to give figures showing what crops can be raised, on an average, per acre. The following estimate, however, have been made with much care, with the aid of local reports from every section of the county :

Average yield per acre, of corn.....	35 bushels.
" " " cotton in seed.....	1,200 pounds.
" " " wheat.....	10 bushels.
" " " oats.....	17 "
" " " tobacco.....	1,000 pounds.
" " " hay.....	4,000 "

*Stock and Stock-raising.* Although Obion county offers superior facilities for stock-raising, very few of the farmers are engaged in the business. More attention has, of late years, been paid to the introduction of blooded hogs (the Berkshire being the favorite) than of any other blooded stock, and those farmers who have turned their attention in this direction have met with a fair measure of success. Just after the war a few blooded rams were introduced into the county, and for a while it seemed that there was likely to be a permanent improvement of the sheep. But so destructive were the dogs to the flocks that the farmers became discouraged, and preferring to raise cheap sheep for the dogs, as they seemed determined to appropriate them, they have almost entirely abandoned the raising of blooded breeds. The favorites were the Southdown and Cotswold varieties, though there were a few persons who preferred the Merino. Within the last three years a few blooded bulls have been bought and brought into the county, but they have not as yet been in the county long enough to thoroughly prove their value. The disposition, however, seems to be to patronize them, and it is expected that there will be, in the course of a few years, a very



substantial improvement in the cattle of the county. There is but one, or may be two, thoroughbred stallions in Obion. In this respect the county is very much behind, and there is at present no speedy prospects of improvement. Many persons are engaged in fattening stock, and every year a large number of sheep, hogs, cattle and horses is shipped from Obion to various points in the south and west. This business pays well, and is worth a great deal to the county. Provisions are plentiful, and generally cheap, and the range is very superior, covered as it is in every direction with cane, the fattening qualities of which are little inferior to corn and grass.

*Labor.* The people complain of the scarcity of reliable labor, and express a desire to welcome any number of good hands. There are probably at present more white than colored laborers. Crops are so easily made that the tendency is to encourage laziness. At any rate this "disease" seems to have been encouraged substantially in some way, until it is almost all-prevailing. The great demand at present is for farm hands. Good cooks, house servants and mechanics can command good wages. The following prices are paid:

For farm hands per year.....	\$200.00
" " " per month.....	20.00
" " " per day.....	1.50
" cooks per month.....	8.00
" house servants " .....	8.00
" mechanics per day.....	3.00

Of course these figures will apply only in the hiring of good hands; other than good hands will not be able to command more than two-thirds as much.

*Markets.* The lumber trade of Obion is done principally with St. Louis and Nashville, the cotton trade principally with Memphis, the tobacco trade principally with New Orleans and Nashville, and the corn trade with the various points along the line of the Mobile and Ohio, and the Mississippi Central Railroad. The merchants buy principally in St. Louis, Louisville, Cincinnati and Nashville.

*County and Railroads.* The new road law has never been enforced, and even the old law was not enforced as it should have been. The result is the county roads are generally in a bad condition, and are but indifferently worked. The general rule seems to be to call the road hands together just before court convenes, and to work the roads just enough to save the overseer from punishment. There is quite a number of

bottoms in the county which, with comparatively small expense and labor, could be made pleasantly passable at all seasons of the year, but as it is, in wet weather, and generally during the winter months, they almost blockade travel. It is earnestly hoped that there will be a speedy and substantial improvement in this regard. The railroads already in operation in the county are the Mobile and Ohio, which passes through the eastern districts of the county from south to north, running from Mobile, Alabama, to Columbus, Kentucky, where it connects directly with the Iron Mountain Railroad of Missouri; the Nashville and Northwestern, which passes through the north-eastern corner of the county from south-east to northwest, running from Nashville, Tennessee, to Hickman, Kentucky; the Memphis and Paducah, which enters the county near the center of its southern boundary line, and passes through its south-eastern districts and out of it into Kentucky near its extreme north-eastern corner, running from Memphis, Tennessee, to Paducah, Kentucky; this road is not yet completed, though the work on it is progressing. The Holly Springs, Brownsville and Ohio Railroad Company has been organized; several surveys have been made, and work has been done upon some parts of the line, but at present the work has been suspended. This road is chartered as a narrow guage, to run from Brownsville to Union City, thence north to a point opposite Cairo, Illinois. At Brownsville it is proposed to connect it with a narrow guage road to run between that point and Holly Springs, Mississippi. There is another road projected to run from Union City to Reelfoot Lake, but as yet no charter has been obtained.

*Towns and Villages.* Troy, the county seat, is located near the center of the county, or rather a little west of the center, has a population of about 500, and does a very good business. If the Holly Springs, Brownsville and Ohio Railroad is ever completed, Troy will be a station on its line. Kenton, a station on the Mobile and Ohio Railroad, is about fourteen miles south-east of Troy, and has about 200 inhabitants. Crockett, also a station on the same road, is about ten miles south-east of Troy, and has about twenty-five inhabitants. Troy Station, the junction of the Mobile and Ohio and the Memphis and Paducah railroads, is about six and a half miles east of Troy, and has about one hundred inhabitants. Jordan Station, another station of the Memphis and Ohio Railroad, is directly on the State line between Tennessee and Kentucky, the major part of it being in Kentucky; it is about seventeen miles north-east of Troy, and has about seventy-five inhabitants. Paducah Junction, at the crossing of the Memphis and

Paducah and the Nashville and Northwestern railroads, is about thirteen and a half miles north-east of Troy, and has about twenty-five inhabitants. Woodland Mills, a station on the Nashville and Northwestern Railroad, is fourteen miles north of Troy, has something near 100 inhabitants, and does a good business. Pierce's Station, on the Memphis and Paducah Railroad, is twenty miles north-east of Troy, and has probably fifty inhabitants. Harris Station, on the same road, is some twenty-three miles north-east of Troy, and has about fifty inhabitants. Polk Station, on the same road, is three and a half miles south-east of Troy, and has about twenty-five inhabitants. Crescent City, a station on the same road, is seven miles south of Troy, and has about 150 inhabitants. Trimble Station, on the same road, is about eleven miles south of Troy, and has nearly 100 inhabitants. Wilsonville is ten miles west of Troy, has probably 100 inhabitants, and is the seat of a good trade. Wheeling is on the bank of Reelfoot Lake, about twenty-five miles west of Troy, and has about fifty inhabitants. Palestine is about nine miles south-west of Troy, and has about seventy-five inhabitants. Union City is at the junction of the Mobile and Ohio and the Nashville and Northwestern railroads, is about ten miles north of Troy, and has a population variously estimated at from 2,000 to 3,000. Union City is located in the center of the second belt of lands described in the foregoing section headed "Physical Geology," and must always of necessity command a good trade. When the late war ended there were not exceeding seventy-five people in the place, but owing to its happy location, its growth since then has been unprecedented in the history of Tennessee towns. It has now many large and handsome two and three story brick business houses, five handsome church buildings belonging to the Methodist, Cumberland Presbyterian, Baptist, Christian, and Presbyterian denominations. There are several good schools, two large steam flouring-mills, several steam saw-mills, two planing-mills and machine shops, one woolen factory, one cotton gin, two shingle and lathe mills, one wagon and carriage factory, workshops of the Nashville and Northwestern Railroad Company, and numerous other shops, etc. At a recent session of the District Conference of the Methodist Episcopal Church, South, it was decided to locate in Union City a college, to be under the patronage of the Conference, and a sufficient amount of money was speedily subscribed by the people of the town to erect the necessary buildings, and purchase furniture, scientific apparatus, etc. The Board of Trustees has been organized, but work on the building has not yet been commenced.

*Mills and Manufactories.* There are a few small manufacturing establishments now at work. The county is well supplied with steam saw-mills, which do an immense business, and almost every neighborhood has convenient to it a good grist-mill. The average milling distance throughout the county is about three and a half miles.

*School Statistics.* There are but few counties in the State that have made more earnest efforts to establish a good system of public schools than Obion. The county levied a tax of twenty cents on the \$100 worth of property, fifty cents on polls and a privilege tax for the support of schools. During the scholastic year of 1873-4, forty-five white schools and two colored schools have been in operation with over 2,000 scholars enrolled. The scholastic population amounts to 5,860, between the ages of six and eighteen, of which 874 are colored. Most of the private schools were absorbed by the public schools.

*Churches.* A traveler passing through Obion county will be astonished to see the great number of church buildings. Indeed there is scarcely a neighborhood in the county which has not one or more churches. The denominations, arranged in respect to numerical strength, are Methodist, Baptist, Cumberland Presbyterian, Christians and Presbyterians. There are several other denominations represented but their membership is very small.

*Newspapers.* At present there are but two newspapers published in the county, one the Signal, which is published in Troy, the other the Union City Herald, published in Union City. Both are Democratic.

*Farmers' Organization.* The "Central Agricultural and Mechanical Association of South West Kentucky and West Tennessee," with fair grounds near Union City, is now in its ninth year, and is in a very flourishing condition. It has very valuable real estate, upon which it has located its fair grounds, and its annual fairs are largely attended.

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## SHELBY COUNTY.

COUNTY SEAT—MEMPHIS.

Shelby is the wealthiest county in the State, and is one of the largest. It occupies the extreme south-western corner, and embraces an area of 720 square miles. The number of acres assessed for

taxation, exclusive of town lots, for 1873, was 442,534, valued at \$9,546,311, or \$21.57 per acre. The number of town lots was 8,455, valued at \$24,057,937. The total valuation for 1873 was \$38,553,951, or over one-third of the value of taxable property in West Tennessee, and over one-eighth of all the taxable property in the State. The population in 1870 was 76,378, of which 36,640 were colored. In 1820 Shelby county had but 364 inhabitants, which were increased to 5,648 in 1830; 14,721 in 1840; 31,157 in 1850; 48,092 in 1860; which shows an increase unparalleled in any other county in the State. During the last decade the colored population has more than doubled, while the white population has not increased quite thirty per cent. This was due to the immense swarms of negroes that poured into Memphis from Mississippi, Arkansas, and the adjoining counties during the period of hostilities. The law authorizing the establishment of the county was passed in 1819, and the county was organized early in the following year.

*Geology, Topography, Soils, etc.* In its geology, Shelby is like Obion, Dyer, and the other counties which border the Mississippi, and what has been said of them is applicable to this county. At the lowest points outside of the bottoms we have outcropping the Lagrange Sands, (page 44) in which occur beds of lignite, as at Raleigh, on the banks of the Wolf; then above this the gravel and sand of the Orange Drift, which appear on the slopes of the Bluff and at the surface in the eastern part of the county; then above all the Bluff Loam or Loess (page 45) upon which Memphis is built and much of the best soil of Shelby rests. To these may be added the Alluvium of the bottoms, the formation whose beds are the work of existing agencies, and are of the most recent age. The general surface of the county is that of a gently undulating plain, interspersed with some half dozen creeks, two rivers, and a number of water-courses, great gullies, dry half the year, miscalled bayous, which serve to rapidly drain off the excess of rainfall. There is a reasonable amount of flat alluvial soil along the creek bottoms and the rivers, especially that part facing the Mississippi River in the north-western quarter of the county. The hills or rolling lands are usually of a clay loam, resting on a reddish-yellow brick clay. When these were first cleared of the forest, they produced large crops for half a lifetime, but having been mostly butchered by the worst possible system of exhaustive slave labor, they now show signs of material decay. For all this, when treated rationally with a systematic application of stable manures, or especially

that of plowing under green crops of rye, clover or maize, the soil is recuperated in a rapid and thorough manner. In fact, the subsoils seem loaded with inert plant food, readily rendered digestible for any of the staple crops. But little attention is paid to the restoration of fertility by the farmers. These men, who own most all the general, or staple farming lands, have been brought up under the old export and slave system, have no longer the capital, credit or slave labor to clear away timber lands, but they continue to overcrop themselves, impair the remnants of their estates, and finally give, at the end of the year, the whole proceeds to the laborer and the commission merchant. Hence the farming community is not prosperous. The alluvial soils, composed of vegetable mould and sand, are as rich as any other in the world. Some of them have produced fifty consecutive crops of corn and cotton, yet show but little signs of impoverishment. So great is the amount of mineral plant food held in solution by the waters of the Mississippi, it may be doubted if any lands overflowed by this stream once in five years, ever can be exhausted.

*Health and Climate.* In the county there is very little swamp or marsh land, hence the people are not much troubled with miasmatic diseases. In a hygienic point of view, it may be said that Shelby county is not unhealthy. But being on the turning point between the steady cold of the northern winter and the geniality of that of the South, it is subject to sudden changes of temperature during winter time. A majority of the disorders is due to imprudence in clothing, but they are of a very temporary nature, and readily yield to proper medical advice. The sudden changes in the weather call for skill and care in the higher branches of agriculture; but on this account, are more remunerative to such treatment.

*Crops.* There is a moderate amount of warm, sandy soils, suitable for any sort of crops which flourish on such. In and around the village of Raleigh is a series of high, dry, sandy hills, most admirably suited, when fertilized and properly tilled, to produce orchard products, berries, melons and garden stuffs. Cotton, however, is the staple crop, and will continue to be until the system of farming is changed. The cabbage and cauliflower are excellent, and of course the warm weather, continued so long, matures in fine style lima beans, melons, cucumbers and other garden products native of the subtropical countries. Grains, including all food crops for man and beast, and also the root crops, do finely.

*Mills.* Although watered by a number of streams, they lack the

descent and rapidity of current necessary for use as water-powers; hence there are no mills save those run by steam. Outside of the city of Memphis, the county is not well supplied with mills. The general disposition seems to be to send the raw products to Memphis and purchase at that place the manufactured results.

*Price of Lands. Timber.* Around the city of Memphis the prices of lands vary from \$500 to \$3,000 per acre. In the more remote, or properly the staple farming portions of the county, the cost of improved places is from \$10 to \$50 per acre. Timber lands near the city are very costly, but farther away and not near a railroad, or a navigable stream, they may be purchased usually for from \$5 to \$10 per acre. Some of these soils are yet covered with walnut, ash, cypress, boxwood, (dogwood) and maple, and of course the value of them is rated rather on account of the timber than the productive qualities of the soil. The forests present quite a variety of valuable timber, and where not cut away, an immense amount of it. Among the sorts may be more generally reckoned some half dozen kinds of oak, three of maple, two of poplar, two of hickory, two of elm, two of locust, two of gum, the cottonwood, and also others not so common. Originally there was a heavy growth of underbrush, especially that of the hazelnut, but the cattle have browsed on it so freely that the uplands no longer present the dense thickets they once did. Likewise the once enormous crops of the summer and the winter grapes and the muscadine have mainly disappeared. No wonder the Indians fought long and hard to retain such a paradise for them as this section once was, for the forests supplied them bountifully with blackberries, mulberries, hazel-nuts, walnuts and hickory-nuts, chincapins, black and red haws, acorns, roots, barks, grapes, and three or four sorts of palatable plums. The boy of to-day can scarce form an idea of the once fruitful condition of the forests, and just in the fact of this fruitfulness lies the reason why such countless numbers of wild animals and Indians could be subsisted, and which enabled the pioneers to live so far from the centers of civilization. What wonder the red man scorned to till the soil when nature supplied his simple wants.

*Yield of Products.* Under the present slipshod culture of the farmers, the old uplands, fifty years under culture, average the yield of about 200 pounds of cotton passed through the gin and ready to bale for export; about from ten to twelve bushels of wheat, and from fifteen to thirty-five bushels of corn per acre. The yield of the rich sandy loams along Big Creek, the Wolf, Hatchie and Mis-

Mississippi rivers is of a character satisfactory to the most parsimonious. Hatchie and Wolf rivers enter the Mississippi on the northern confines of Memphis. Farms along these streams, and especially those north of Wolf River and along its tributary, Big Creek, in the northern and north-western districts of the county, are wonderfully productive, often yielding a bale of cotton per acre. The richest plantations on Big Creek are badly cultivated. In the poorest districts, where negroes are unknown, the little fields are robed in fleecy whiteness, and excellent corn and cotton crops are produced. The great plantations of the South, as of this county, are no longer productive. Slave no longer competes with free labor, and the poor whites of 1860 make the great bulk of the cotton crop. The negro is master on the great plantations; the white man on the little farms in narrow valleys, that now glut the imperial treasury with gold and clothe the nations.

*Drawbacks and Possibilities.* Owing to lack of cash capital, the want of an adaptability to present circumstances, of a knowledge of real farming, an absence of diversified crops, a proper attention to recuperating the soil, fast living, a desire to appear richer than the reality, the ignorance and unthrifty character of the negroes, who form nine-tenths of the laborers, and their positive refusal to make a contract for more than one year at a time, or to raise anything else than corn and cotton, and the absence of any law compelling them to fulfill their contracts, the farmers are not generally prosperous. Granted a goodly supply of intelligent and reliable labor, perhaps there is no section in all of the vast continent more attractive to the agricultural capitalist, or, as at present, to those who depend on their own strong arms and brave hearts to work out their personal salvation. There are multitudes of brave men lost in the wilds of the West, laboring away their lives for a mere subsistence, who, with the same energy and economy, would in this section soon acquire a fortune. Large farmers in Europe do not make as much money in a given series of years, as an intelligent laborer might accumulate here in one.

*Weather and Fruits.* All through the whole year, save on rainy days, work of some sort may be done on the farm. As for frost in the earth, it is rarely more than two or three inches deep, nor does it ever last above a week. Perhaps the number does not average more than three annually which penetrate deeper than a half inch. In regard to the snow, there are generally several falls of it, reaching the depth of from one to four inches, and lasting, in some extreme cases,



several days at a time. Once in five years or less comes a sleet, coating everything with a thin encasement of ice, sufficiently destructive to kill such fig trees as are exposed to the full fury of the blast and afterwards to the light and warmth of the sun. In all such cases, however, new shoots spring up again from the roots. Pomegranates have borne fruit in this county, but are not profitable unless protected by laying and covering with earth, or sheltered with stalks or boards. No sort of grape vine is killed by cold. The native grapes are quite productive, but none have been tried on a large scale except the Hartford, Concord and Scuppernong. There is no better country for peaches, summer apples, blackberries and raspberries. Apricots generally bloom out so early as to get the embryo fruit killed. Currants and gooseberries do not do well.

*Grasses.* When partially shaded as in a woods lot, blue-grass forms a lasting pasture, but does not succeed in the full glare of the sun. Timothy, red-top, millet, oats and Hungarian grasses are productive of large crops. Clover, when mowed twice a year after the first one, dies out about the third or fourth summer. As for winter pastures, nothing need be more luxuriant than the orchard-grass and the winter rye, both of which stay green and grow every day in the season. Orchard-grass does finely the whole year. Bermuda grass grows luxuriantly during the summer and furnishes in this way an inexhaustible pasturage. It does not get high enough or sufficiently tender for profitable mowing, and it dies down to the roots in winter. These are objections to it, but they are offset by certain inestimable virtues including the fact that nothing short of repeated summer plowings can kill it out, and that a few sprigs of it dropped here and there and covered by the foot will soon check washing in any lands.

*Waste Lands.* Perhaps about fifteen per cent. of the cleared lands have been abandoned since the commencement of the late war. One-half of the county is yet in forest.

The rolling clay loam soils which have been long abandoned, contain a certain proportion of sand, and have been scarified by ugly gullies, but these are readily checked and self-filled up by a cheaply adopted plan of staking down poles or brush, and putting behind them strips of Bermuda grass, or by sowing seeds of the plum, black locust and osage orange, and also by the driving down willow stakes and inserting the cuttings of locust roots.

*Labor—How Employed.* In regard to the contract usual between the

land-owner and the laborer, it may be said in staple farming, but few pay money wages, but where this is the case, the laborer gets about fifteen dollars monthly and his board and lodging. The great majority prefer the share system, in which the laborers get house-room free, but cook for themselves and are charged up with all provisions, clothing and cash furnished to them. At the end of the season they are credited with one-half of the product of their labor. The land owner in all cases furnish animals, implements, seeds, and feed for the animals. Country house servants are paid monthly fifteen dollars for men, twelve for women and from five to eight for children.

*Truck Farming.* Shelby county is admirably adapted to truck farming, or the culture of miscellaneous crops, and the Memphis market is all that could be desired by any producer who believes in the principle of "live and let live." There are several vineyards and fruit-farms, (see Part I, pp 165 to 167) and quite a number of good gardens around the city, but there is ample room for additions, especially in cases where capital is connected with skill. The appearance of a disorder somewhat resembling cholera, and the panic caused by the natural fears of the people, checked the sale of vegetables during the past season and cost the gardeners and truckers the loss of the greater part of their year's labor. In the main this class of agriculturists is doing very well, perhaps better than anywhere else in the State. The labor employed in these higher branches of agriculture is much more expensive than that procured by the common farmers. Gardeners get from thirty to fifty dollars a month and are also lodged and boarded. Laborers receive from twenty to thirty dollars and findings. Day laborers, who find themselves, get from one to two dollars a day.

*Rents.* Improved lands in country districts rent for from three to ten dollars an acre, perhaps averaging five dollars an acre annually. The usual terms of lease are very simple, the principal points being the keeping of fences in repair, the ditches open and responsibility for any wilful destruction of property. Where land is so cheap and surplus capital so scarce, there is of necessity an indisposition to make long leases, annual renting being preferred. Such being the case, those lands which are rented are cultivated in the most piratical style possible and soon sadly injured.

*Cotton vs. Stock.* Being cursed with an undue proportion of the draff and offal of society which gather about Memphis, the rearing, free of cost on the range, of sheep, hogs and cattle has declined since

the abolition of slavery. In fact there are but few of these animals now. The county is especially adapted to their production and it has been repeatedly demonstrated that they can be produced more cheaply than they can in climates so cold as to necessitate their being housed. But cotton rules. There is a fascination about cotton culture as powerful to the farmer as cards are to the gambler, or the bottle to the drunkard; once engaged in it he seldom, if ever, quits it. The reasons appear to be the absence of capital to pay money wages, the positive refusal of the negro to take a share in the products of general farming, and above all, cotton is always in demand and every one knows its daily value, and all are ready to purchase at a small discount, and pay cash for it or to exchange anything else for it. Other things must hunt a market and be sold, in part at least, at the discretion of the purchaser, while cotton is synonymous with cash.

*Mules and Oxen.* There are not many oxen in the county, but the number of mules, of the finest kinds too, is very great. This animal is greatly preferred for draught to the horse. He eats less, is stronger proportionally, is much hardier and longer lived. While the age and condition of the horse are scrupulously determined by the purchasers, there seems to be a general indisposition to pay any regard to these matters, when a mule is to be bought.

*Dairies.* There is a number of dairies about Memphis, but the country people make for sale but very little butter and cheese. Butter and milk always sell high in Memphis, and the dairyman, who attends to his business, always makes money at it. (See Part I, p 149.)

*Fencing* is becoming a serious matter. Timber is of value in a money point of view and farmers object to the destruction of the finest white oaks for this purpose. They have not yet resorted to hedging, as they must in the future. About twenty years ago some farms were enclosed with the Maclura, or osage orange, but the work was done so slovenly and the plants received so little attention they did not succeed in the purpose of forming an impenetrable barrier, and hence the opinion prevails that it does not suit the climate. But there never was a greater mistake. With proper care and culture it flourishes nowhere better, nor is there any perfect substitute for it.

*Mineral Springs.* There are two sets of mineral springs—one at Raleigh and the other at Nashoba—none of which are supposed to have any other properties than those given by sulphur and iron. Those at Raleigh have attracted considerable local attention, and have received a moderate share of summer patronage.

*Roads.* There is one short turnpike of gravel leading out from the city, but the county has no plank roads. The city of Memphis is paved with thin blocks of cypress timber laid on plank in the style called "Nicholson." With the exception of some gravel in the bed of the Mississippi, there is no other material for paving. There is no stone within the limits of Shelby, save a very little worthless sandstone; nor are there any minerals worth mining, nor any coal. The dirt roads are in a horrible condition, and stringent legislation is needed to compel laborers to work on them.

*Small Industries and Miscellaneous Observations.* Private domestic manufactures on the farms went out with slavery, and, sadly be it admitted, there is scarcely any attention paid to the marketing of fowls, pigs, lambs, feathers, honey, wax, etc. The country people, absorbed in the cotton crop, are prone to regard with contempt all minor objects. Many of them purchase in the city even their meat and breadstuffs. Most of these people were rich in *ante bellum* days, and contracted habits of extravagant expenditure of money, which they find difficult to shake off. The main thing wanting with them is that spirit of thrift which causes the barnyard, poultry-house, apiary, orchard, dairy, and everything else appertaining to good farming, to be productive of the greatest results. Of course these things are more easily pointed out than performed, and the lack of reliable labor, especially that of females, is some excuse for the present condition of affairs. The farms are also too large for the times, yet there are none of those huge plantations so common on the lowlands farther south. Most of the landowners would be glad to convert a portion of their estates into money, but there are but few purchasers. Plowing is performed with the common turn plow and the shovel plow. The sweep is also used in cotton culture. There is no great demand for improved implements, and but little sale for such as are needed in profitable culture of grasses and small grains, yet the demand for the latter is steadily improving. As yet the county is sadly deficient in pastures and meadows, but there seems a growing disposition to increase both. Hay and corn are always in great demand in the Memphis market, and enormous quantities of each are sold.

*Railroads.* The county is not deficient in railroads, there being the Memphis and Charleston, the Memphis and Louisville, the Mississippi and Tennessee, all old roads, and several others in process of construction, and others as yet existing only on paper. The "Great Father of Waters," which bounds the county on the west, forms the main chan-

nel of commerce, and affords the year round connection with New Orleans, St. Louis, and also through the Ohio River with Cincinnati. The products and merchandise are shipped in all directions. Some of the cotton is sent to New Orleans by river and rail, but the greater portion is shipped to New York via the Ohio river and Norfolk. Islands 40, a group, President and Vice-President islands, all in the Mississippi River, belong to this county. With the exception of Wolf island, President is the largest one in the whole length of this mighty stream. At this point the river is about three-quarters of a mile wide. The Arkansas shore is low alluvial land, which extends to Missouri on the north, to Helena on the south, and due west to the St. Francis River, a width of forty miles. It is across this tremendous and malarious swamp that the corporate authorities and citizens of Memphis have for years been engaged at great expense of talent, energy, money and health in constructing this end of the Memphis and Little Rock Railroad; trains now run through regularly. The depot is in Memphis, and the passenger cars, with their living load, are safely and swiftly wafted across the river on a steamer constructed for this purpose. The whole road to Madison is an alternate series of émbankment and piling. The piles, in some instances, surmount an overflow of as much as fifteen feet, and consist of great cypress trees driven fifteen feet deep in the ground, and steadied by stringers and cross capping; the whole forming a wonderful series of bold engineering and far-seeing courage on the part of those who furnished the capital. There are about half a dozen medium sized nurseries in the county, but there is need of one large and complete floricultural and another one of a horticultural character, managed by masters of the profession, armed with an abundant capital.

*Schools.* Shelby county, during the scholastic year beginning September 1, 1873, levied a tax of five cents on the \$100 worth of property, and had in operation ninety white and thirty-three colored schools. The scholastic population between the ages of six and eighteen was 23,810, of which 10,982 were colored.

*Fair Grounds, etc.* There is a county fair of an agricultural character near the city, and in the city an industrial exposition. The latter seems to be quite a success. There are saw-mills in various parts of the county, but much the largest part of the lumber business is done in the city of Memphis, where there are half dozen large and flourishing mills, besides several planing mills, which manufacture and export

to the surrounding county, great quantities of doors, mantels, sash, blinds, etc. Some of the logs used by the lumber men are procured in the county, but most of them come down the river.

*Memphis, its Trade and Prospects.* Memphis is the metropolitan city of the State, and is the liveliest, raciest, richest, most energetic, noted and thrifty fourth rate city within the limits of the Union. It has, at this time, over 60,000 inhabitants, and the amount of its business is enormous, and the character of its enterprises astonishing. No where else can so perfect a miniature of the great metropolis of New York be found. It is situated on the fourth Chickasaw Bluff, so called, from a tribe of Indians that were aborigines there. This bluff presents a front on the river of about six miles, the upper four being occupied by the city and its suburbs. Its elevation above the water line is about forty feet, and above the surface of the Gulf of Mexico about 240. A portion of this bluff has been graded for a wharf, and approaches to it. The remainder of that part within the city limits would doubtless have long since been disposed of in some manner, but for a difference of opinion among the citizen as to whether or not it should be graded at public expense, and pitched into the river, or at private expense and made into brick, or at public cost walled up and converted into a set of parks, and thus retain some semblance to the title of the "Bluff City," as well as add to public happiness and health. It is to be hoped that the latter opinion will soon prevail. At the lower end of the city there yet remain the remnants of the mounds of Chisca, where the great but unfortunate Spaniard, Hernando De Soto, discovered the mighty "Father of the Waters," and in spite of time's effacing fingers, some of the surrounding ravines which prevented him from concluding to battle with the inhabitants on account of the ground being unsuited to his cavalry. As all persons are supposed to know, these Spaniards were the first white men who ever visited this State, and that they were supposed to have done so in or about the year 1543. De Soto, it appears, traveled up to Randolph, and there built boats and crossed the river. These eminences are now called the Jackson Mounds, in honor of General Andrew Jackson. Tillman Bettis, Sol. Rozell, and the Greenlaw family were of the first permanent white inhabitants of Shelby county. They invaded the forests that crowned the Chickasaw Bluffs in the first years of the century. A very satisfactory and amusing account of the early history of Memphis and Shelby county appears in a book written by

James D. Davis, a Memphis octogenarian. Bettis and Rozell were the first members of the first County Court, and neither could read or write. They examined and employed a schoolmaster, who never discovered their illiteracy, made highways and bridges, and were honest men. Judge John Overton, the father of the owner and builder of the Maxwell House at Nashville, Andrew Jackson and General Winchester, of the war of 1812, were the original owners of Memphis, having bought the grant of 5,000 acres on which Memphis stands, from one John Rice, to whom the cession was made by North Carolina.

Memphis began to grow with marvelous rapidity in 1850, when the city's railway system was inaugurated. For ten years preceding the war, Memphis, in proportion to population, grew much faster than Chicago. Wolf River debouches into the Mississippi on the northern confines of the city of Memphis, and the Nonconnah four miles below. On the lofty plateau between these two streams Memphis stands, and along the middle of this ridge the Memphis and Charleston Railroad bends its way towards the Atlantic coast.

With lands so rich and a city so fortunately situated upon the highway of States, with a system of railways almost perfect, it is quite impossible to doubt the coming greatness of Memphis. The richest body of land in the world lies just across the Mississippi west of Memphis. It is an alluvial plain, 100 by 50 miles, and when densely populated, as it was of old, when mound-builders flourished in the lowlands and left evidences of their power and numbers everywhere, Memphis must be its commercial emporium. To have an almost air line railway from St. Louis to Memphis, it is only necessary to build a road ninety miles in length from Memphis to Jacksonport, in Arkansas. If this be done, population will at once enter the lowlands, to become the richest people, having the richest farms, in the most delightful climate, on one of the greatest rivers, between two most prosperous cities on the globe. The resources of Memphis lie in Mississippi and Arkansas, rather than in Tennessee, and yet the day is not distant when every town and county in Western Tennessee, made accessible by cheap railways, will trade with Memphis. This county of Shelby and the city of Memphis pay one-eighth of the State's revenue, and if wise and liberal legislation be accorded, that capital may be kept at home, foreign capital attracted, and railways and factories built, Memphis will soon double the sum now annually given to sup-

port the State. What is most needed in the State is the enactment of laws making real estate convertible and transferable like personalty. A Tennessee mortgage or trust deed avails nothing. Nobody under our laws, and as chancery courts may intervene, will lend money upon realty. Therefore capital leaves the State; therefore taxes are unpaid; therefore enterprise is shackled; and therefore Memphis fails to become a great manufacturing city. Our laws and courts make our property inconvertible, and we have nothing but real property, and since it attracts no money, and our whole code repels money-lenders, real property loses value, and they who would save it, through the code and courts, from usurers, absolutely make it valueless.

The following, giving the prospects and trade of Memphis, is from John S. Toof, Secretary of the Chamber of Commerce:

MEMPHIS, July 16, 1874.

J. B. KILLEBREW, *Secretary Bureau of Agriculture, Nashville, Tenn.:*

DEAR SIR—Notwithstanding the severe epidemic visitation of 1873, which, in extent and influence was sufficient of itself to hopelessly cripple the trade and prospects of any city whose foundations were not of the most substantial character, Memphis to-day occupies an enviable position among all her southern sisters in the immense extent of her trade and in her sound commercial prosperity. The result of the year's business now closing shows a material increase in nearly all departments over any previous year in her history. The severe financial revulsion of 1873, which visited the entire Union, found our merchants in strong position, and in the mercantile trade proper, not a single house of prominence failed from its effects; but on the contrary, it has been the subject of frequent remark by New York capitalists and merchants, that our business men met their engagements with more fidelity and promptness than those of any other city, north or south. During the panic only two of our banks suspended temporarily, while the remainder all continued to pay currency on demand. This result of the year's business shows better the condition of the city trade than any words that could be added. Our merchants, as a whole, are enjoying a high degree of prosperity—are active, energetic and enterprising. Indeed, their spirit of enterprise is measured only by their actual financial ability to compass; they are truly a working class, and it is to them, and to them alone, that Memphis is to-day indebted for the sound and substantial condition of her cotton and general wholesale trade, which, by their unaided efforts, have not only been retained, but largely increased; and this, too, in the face of persistently hostile efforts on the



part of rivals on all sides. Yet, while much has been accomplished, much remains to be done. Our trade, though large, is not what it should be, or what it will be when freight difficulties and discriminations, now claiming the attention of our Chamber of Commerce, as also of our Cotton Exchange, have been properly adjusted. A union depot, sadly needed, is regarded among the certain events of the near future. Unjust discriminations against our trade on the part of rival railway lines, are, it is thought, in course of at least partial adjustment, and, while there is yet room for improvement, our railroad interests generally may be regarded as in far better condition than was the case a year ago. Manufactures should claim more of our attention in the future, for therein lies an element of certain prosperity, in increased wealth and population.

In 1850 the population of Memphis was 6,427, and taxable values \$4,600,000; in 1860, population 22,643, and taxable property \$21,500,000; in 1870, population 40,371 (not including from 8,000 to 10,000 absentees at the time of taking the census), and taxable wealth \$24,783,190, while to-day we have a population in the city and immediate environs of at least 65,000, and our taxable wealth, despite the many disadvantages with which we have had to contend, is \$29,801,592. The city government is in the main acceptable, while as to the executive department, it is doubtful if our city affairs could be in more capable and trustworthy hands than those of his Honor, Mayor Loague. This being the case, it is but a natural sequence that the affairs of Memphis, as a city, are rapidly assuming a very satisfactory shape. Taxation for all city purposes for the current year has been fixed at \$1.80, a lower rate than for several years past. The city debt is undergoing gradual diminution, and we are given to understand that city finances are quite manageable, if not altogether easy. County affairs are likewise in a very satisfactory condition, the total unmatured bonded indebtedness, including \$150,000 for the proposed court-house, being less than \$350,000. Taxation for the year has recently been fixed at \$1.10 for State and county purposes, making a total, State, county and city, of \$2.90 on the \$100 worth of taxable values. The erection of a United States custom-house, for which adequate appropriation has been made, will soon be commenced.

*Our Cotton Trade.* The history of the cotton trade and the growth and prosperity of Memphis are closely interwoven from its earliest existence to the present day. Situated, as she is, upon the great Chick-

asaw Bluffs and Mississippi River, equidistant between New Orleans, St. Louis and Louisville, with high and fertile lands reaching out north, east and south, with the Father of Waters affording perpetual navigation, and within easy distance of the very fertile lands of the Arkansas, White and St. Francis rivers, it must be seen at once that her resources of production are immense. While the lands in this area produce in abundance every staple of subsistence for man and beast, lying as they do in the northern portion of the Cotton Belt, the dividing line of which has been generally supposed to be the 32d parallel, practical experience has demonstrated that the soil and climate, and exemption from disease, in this large area, to which the cotton plant is heir, point to it as the great central cotton field of the Southern States. The continued increase in our annual receipts of cotton evidences this, and while, in consequence of the epidemic of last September and October, we lost fully 50,000 bales, our cotton interests are in a state of prosperity unparalleled in the history of this market. The receipts of cotton at Memphis for the current year (ending September 1) point to 440,000 bales, against 415,000 bales last year, showing the handsome increase of, say, 25,000 bales. The value of this cotton, when first sold, will not fall short of \$32,000,000, and taking into account sales and resales, the figures will closely approximate \$35,000,000.

ANNUAL AMOUNT AND VALUE OF THE MEMPHIS COTTON TRADE.

YEAR.	BALES.	VALUE.
1826.....	300	\$15,000
1830.....	1,000	35,000
1840.....	35,000	1,400,000
1845.....	75,000	3,000,000
1850.....	150,000	7,500,000
1850-51.....	163,000	6,520,000
1851-52.....	172,000	6,880,000
1852-53.....	202,000	8,080,000
1853-54.....	188,151	8,520,000
1854-55.....	202,000	8,000,000
1855-56.....	295,246	11,800,000
1858-59.....	325,720	16,250,000
1859-60.....	398,721	16,000,000
1860-61.....	860,653	18,500,000
1865-66.....	112,296	23,000,000
1866-67.....	218,226	29,000,000
1867-68.....	253,207	25,000,000
1868-69.....	247,698	31,000,000
1869-70.....	290,737	29,258,500
1870-71.....	511,432	39,552,356
1871-72.....	380,934	36,550,617
1872-73.....	415,255	37,500,000
1873-74.....	440,000	35,000,000

The volume of receipts properly ranks Memphis third in importance among all the cotton receiving points of the United States. Agreea-

ble to the census of 1860, within a radius of 125 miles of Memphis as the geographic center, there was produced that year 879,000 bales cotton, and by the law of locality, as the nearest metropolitan market to the producer, Memphis is entitled to be the point of distribution to Northern manufacturers, and to Liverpool and Manchester, of this immense aggregate of cotton bales—swelled as it now is to fully 1,000,000 bales, and comprising one-fourth of the entire crop of the United States.

*Manufacturing and Other Interests.* The manufacturing branch of our industry is slowly but surely growing in importance. We have six foundry and machine shops on a large scale, besides many smaller ones; three of the most extensive oil mills in the United States for the manufacture of cotton seed oil, which last year consumed 24,000 tons or 480,000 to 500,000 bags of seed, and produced 20,000 barrels of oil, crude and refined, 10,000 tons of cake, and 1,200 bales of reginned cotton. We have establishments for the manufacture of wood, to fill every want of the public in that department; also carriages, wagons, cotton presses, agricultural implements in general, tobacco, etc. Books of subscription for the building of a cotton factory are being opened with assured prospects of success. There are in the city nine banks and bankers, with an aggregate capital of \$2,250,000; ten insurance companies chartered by the State, besides agencies of very many large Northern, German and British companies, for life, fire and marine purposes. We have also a Cotton Exchange and a Chamber of Commerce, both with large memberships, and in successful operation; and the Holly system of waterworks, including some twenty miles of street mains; also a street railway company, with some fifteen miles of track, and doing a good business.

*Volume of Business.* An idea of the extent and volume of business in Memphis may be gleaned from the following statement of annual sales, which though partly estimated (from the fact that the annual statement of the Chamber of Commerce will not be completed for some weeks) are nevertheless under rather than over the mark:

## ANNUAL SALES IN MEMPHIS.

Cotton.....	\$32,000,000
Groceries, liquors and western produce.....	12,500,000
Dry goods, clothing, boots and shoes, and miscellaneous merchandise.....	15,000,000
Home manufactured articles .....	3,500,000
Total.....	\$63,000,000

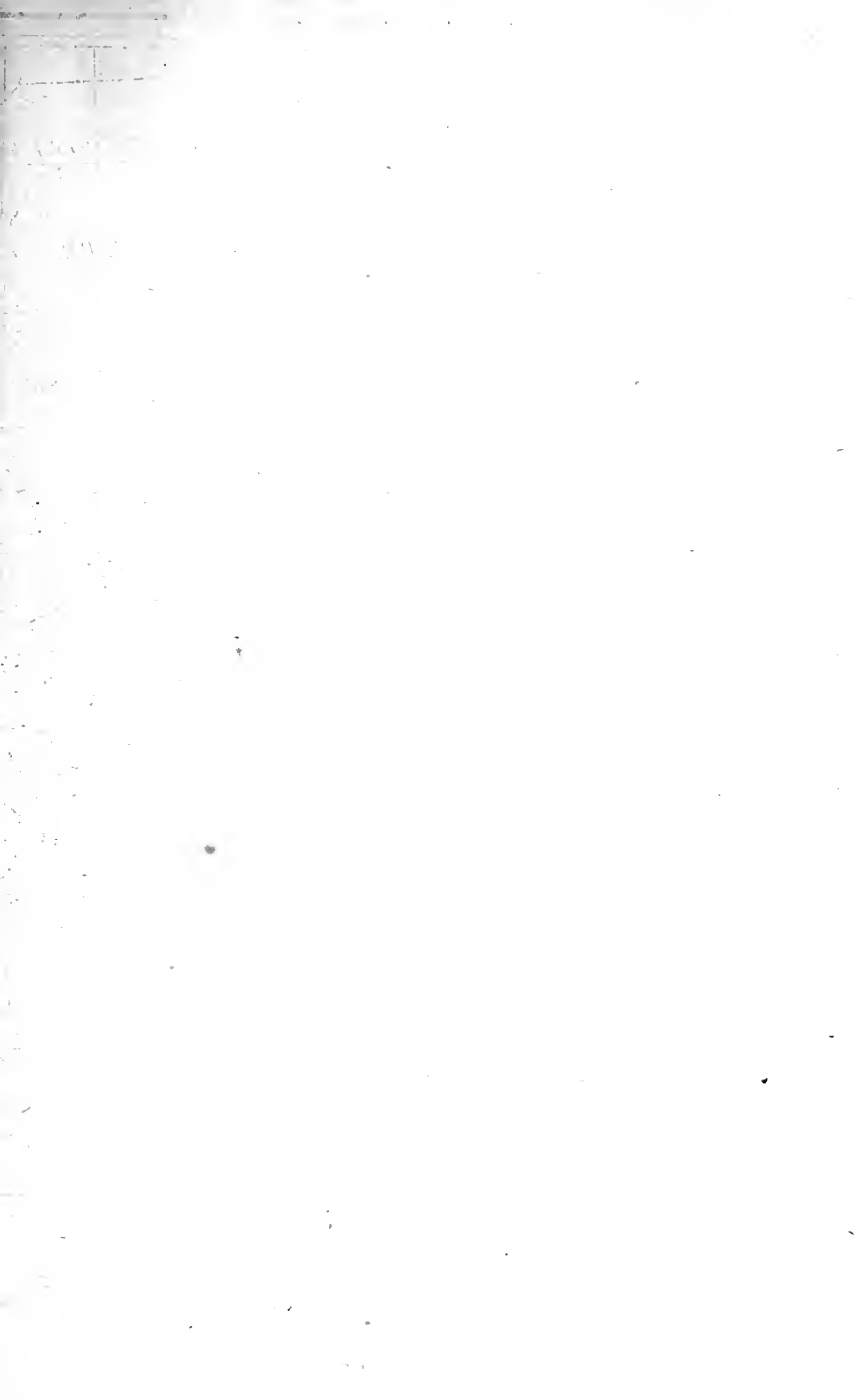
It is safe to assert that the annual business of Memphis, taking into account her population and banking capital, exceed by far that of any other city on the American continent.

*Receipts and Shipments of Leading Articles for Six Months.* The following statement of receipts and shipments of leading articles from January 1 to July 1, a period of six months, is taken from the books of the Chamber of Commerce:

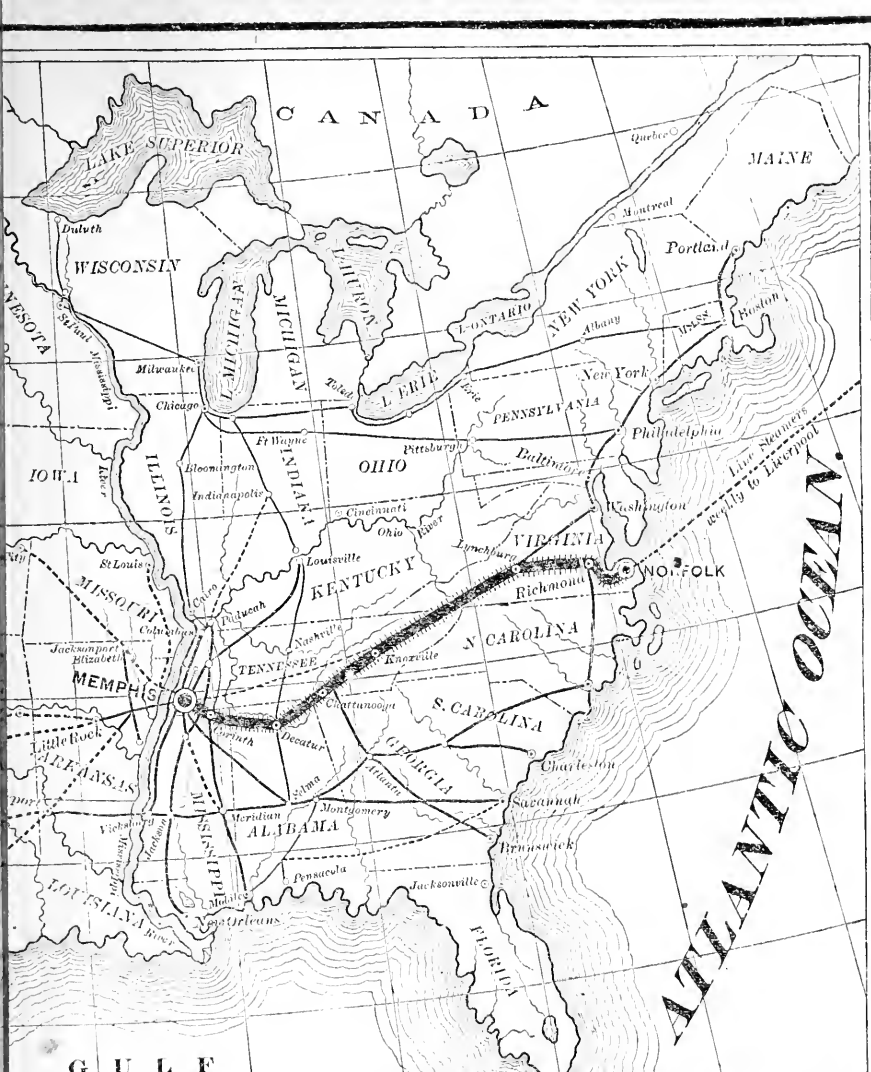
## RECEIPTS AND SHIPMENTS FOR PAST SIX MONTHS.

ARTICLES.	RECEIPTS.	SHIPMENTS.
Apples.....	6,973 bbls.	4,048 bbls.
Ale, Beer and Porter.....	36,445 pkgs.	6,340 pkgs.
Agricultural Implements.....	10,178 No.	25,178 No.
Bagging.....	12,313 pieces.	9,885 pieces.
Bran and Shorts.....	23,968 sks.	12,215 sacks.
Bacon.....	9,854 casks.	6,176 casks.
Bacon.....	948 tcs.	2,843 tcs.
Bacon.....	2,078 boxes.	1,530 boxes.
Boots and Shoes.....	9,992 cases.	8,122 cases.
Cotton.....	189,039 bales.	250,245 bales.
Cotton Seed.....	130,559 sacks.	
Corn.....	183,760 "	126,651 sacks.
Corn Meal.....	80,328 bbls.	64,830 bbls.
Cheese.....	4,076 boxes.	4,112 boxes.
Coffee.....	8,438 sacks.	15,043 sacks.
Canned Fruits and Oysters.....	43,102 cases.	17,206 cases.
Cotton Seed Oil-cake.....		35,702 sacks.
Dry-goods.....	16,260 pkgs.	19,666 pkgs.
Flour.....	128,018 bbls.	101,758 bbls.
Hay.....	30,599 bales.	13,699 bales.
Hides.....	33,648 No.	13,189 No.
Lard.....	2,129 tcs.	1,905 tcs.
Lard.....	9,941 kgs & cs	21,138 kgs & cs
Lard.....	23,892 buck'ts	12,047 buck'ts
Molasses and Srup.....	9,582 bbls.	11,122 bbls.
Nails.....	17,327 kegs.	16,716 kegs.
Oats.....	56,168 sacks.	30,681 sacks.
Oil—Cotton Seed.....		5,819 bbls.
Pork.....	2,984 casks.	9,149 casks.
Pork.....	3,997 bbls.	10,569 bbls.
Pork.....		671 boxes.
Pork.....	232,092 pieces.	80,773 pieces.
Potatoes.....	28,167 bbls.	26,755 bbls.
Sugar.....	2,133 hhds.	966 hhds.
Sugar.....	6,879 bbls.	10,997 bbls.
Sugar.....	7 boxes.	1,978 boxes.
Salt.....	16,977 bbls.	24,162 bbls.
Tobacco.....	89 hhds.	12 hhds.
Tobacco.....	11,185 cad'ies.	17,474 cad'ies.
Tobacco.....	13,721 boxes.	12,853 boxes.
Ties.....	26,501 bdls.	
Whisky.....	8,860 bbls.	8,523 bbls.

*Our Railroads* are of paramount importance, being the great adjunct of our trade. We have the Mississippi and Tennessee Road,



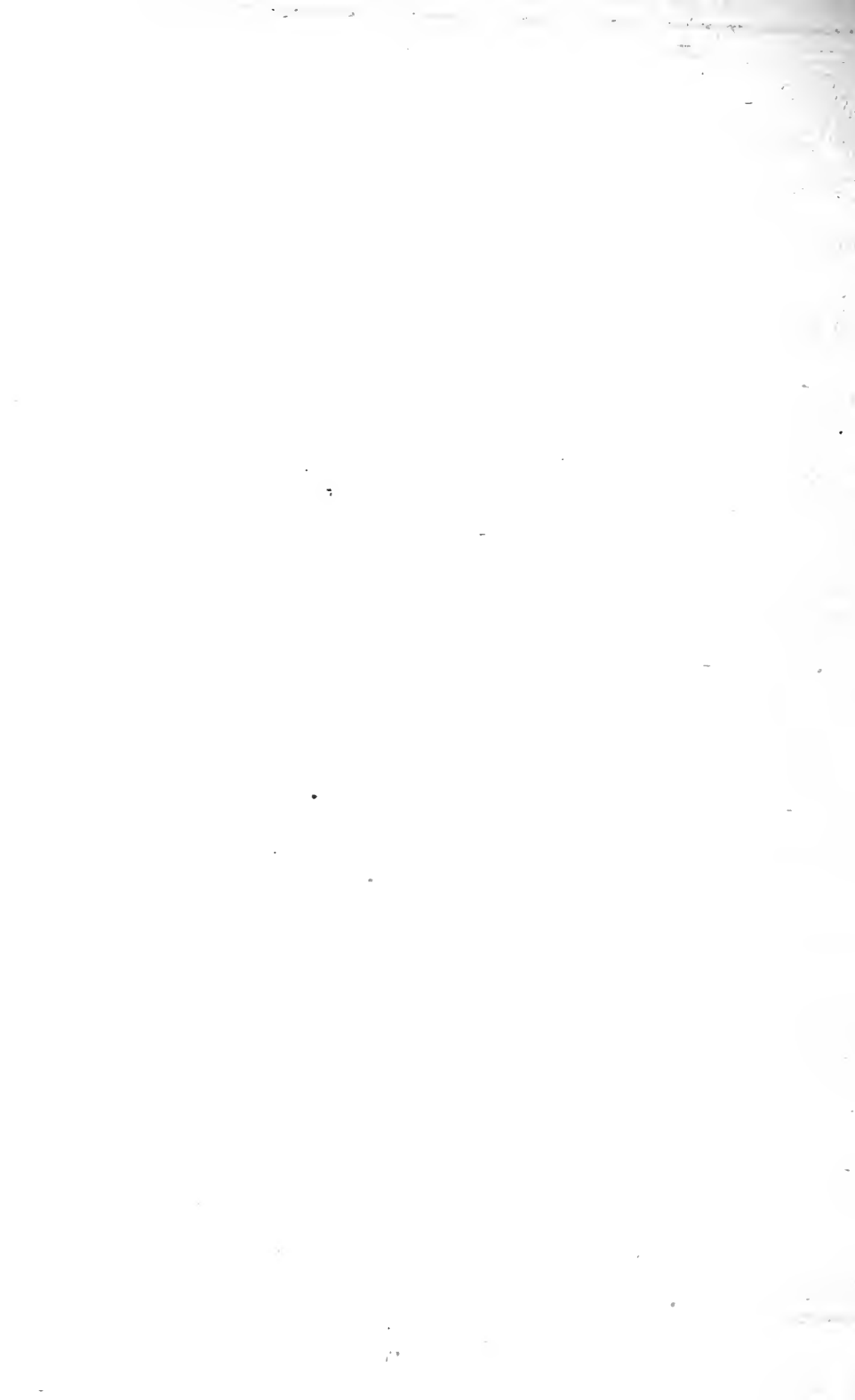




ATLANTIC OCEAN

GULF  
OF  
MEXICO

Distances by Rail from Memphis	
To Norfolk.....	961
" New York.....	1163
" Louisville.....	377
" Cincinnati.....	487
" Chicago.....	536
" St. Louis.....	319
" Kansas City.....	591
" Fort Smith.....	285
" Shreveport.....	301
" New Orleans.....	395
" Mobile.....	422
" Savannah.....	742
" Charleston.....	755
" San Francisco.....	2427
" San Diego.....	1660
" Mazatlan.....	1150





now under the management of the New Orleans, St. Louis and Chicago Railway, connecting with that road at Grenada, 100 miles south, The Memphis and Charleston Road, connecting with Norfolk, thence north and east, and through Georgia and South Carolina with Charleston, Savannah and Port Royal. The Louisville and Nashville Road, connecting with Louisville and all Northern cities. The Memphis and Little Rock Road, connecting with the Cairo and Fulton, which reaches Fort Smith, and into and through the State of Texas. The Memphis and Paducah Road, now building, intended to connect with the northern railway system; and a narrow gauge to Raleigh, our ancient county seat. There is a project to extend this road to Bolivar, and to terminate at Knoxville. The Selma, Memphis and Marion Road, intended to furnish another line to the Atlantic, is at present in a languishing condition, but its completion is only a question of time. The Memphis and Kansas City Road, now being agitated, and upon the western end of which work has already been done, is of great importance, as it will open up to us the great corn, wheat, and tobacco crops, the hog and beef producing region, and the rich lead and iron sections of Northern Arkansas, South-west Missouri and Kansas, pouring the wealth of this great trade into the lap of Memphis.

I have endeavored to give you, in the forgoing, a brief summary of of the leading features of Memphis, her trade and her resources. My forthcoming "annual statement," as Secretary of the Chamber of Commerce, will cover the ground more completely, and to that I refer your readers.

Very respectfully,

JOHN S. TOOF,  
*Sec'y Memphis Trade of Commerce.*

*The Public Schools of Memphis.* The Memphis city schools were chartered by act of the Legislature in 1860. They are under the exclusive control of a Board of Education, consisting of two members from each ward of the city, elected by such voters as are entitled to a ballot in choosing the Mayor and Aldermen. They hold their offices for a term of two years; one-half of them being elected on the first Thursday in January, annually. The President of the Board of Education is required to give ten day's notice in the daily papers of the city, previous to said election, and it is conducted by the Register as in the case of other city officers. The officers of the Board for the past year were Charles Kortrecht, President; R. W. Mitchell, M.D., Vice-President; J. G. Cairns, Secretary; H. E. Garth, Treasurer; H. C. Slaughter, Superintendent.

Scholastic population.....	9,715
Total enrolled.....	5,230
Average number belonging.....	2,802
“ “ attending.....	2,522
Per cent. of enrollment on population.....	53
“ “ number belonging on enrolled.....	53
“ “ attendance on number belonging.....	81
“ “ tardiness on attendance.....	3.44
Total number of tardy.....	18,137
Cost per pupil belonging.....\$	27 70
“ “ attending.....	29 40
“ for salaries.....	63,122 61
“ “ all expenses.....	73,997 39

Present Superintendent, Prof. A. Pickett.

*Other Towns.* Bartlett, on the Memphis division of the Louisville, Nashville and Great Southern Railroad, eleven miles from Memphis, has a population of 350. It was incorporated in 1866, and has one hotel, three manufactories of wagons, plows, etc. It shipped for the year ending June 30, 1873, 1,854 bales of cotton, and also cotton seed, fruit, etc. It has three churches, Methodist, Cumberland Presbyterian, and Old School Presbyterian. Capleville, eleven miles from Memphis on the Pigeon Roost Road, has a population of one hundred, and five or six business houses. Colliersville, on the Memphis and Charleston Railroad, has a population of 1,000, and is quite a pleasant and prosperous village. It was incorporated in 1870, and has been built up since the war. It is situated in a high healthy region, the lands surrounding it being well adapted to the growth of fruit and cotton, about 1,200 bales of the latter being shipped annually from this point. It has about twenty-two business houses, mostly supply stores. Fourteen miles east of Memphis, on the Memphis and Charleston Railroad, is the pretty little village of Germantown, with a population of 350. It has three general stores, cotton gin, and two groceries. Raleigh, nine miles from Memphis, was formerly the county seat of Shelby county. It has a small population, and contains five or six business houses. A narrow gauge road runs to Well's Station of the Memphis and Louisville Railroad. Shelby, on the last mentioned road, eighteen miles from Memphis, has a population of 125, and ships annually over 4,000 bales of cotton and 12,000 bushels of cotton seed. It has two supply stores, several groceries, a carriage manufactory, and one church. White's Station, on the Memphis and Charleston Railroad, nine miles from Memphis, is in the midst of a flourishing agricultural region. It has a population of about 100, four

churches, one supply store, and one grocery. It ships about 800 bales of cotton.

In the preparation of this article on Shelby county and Memphis, the Secretary acknowledges his obligations to Silas T. Gilbert, M.D., who furnished the main body of the article on the county, to John S. Toof, Secretary of the Chamber of Commerce, for an account of the trade of Memphis, and to Col. L. J. Dupree for various items.

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## TIPTON COUNTY.

### COUNTY SEAT—COVINGTON.

Tipton belongs to that belt of counties bordering the Mississippi River so remarkable for the exuberant fertility of soil and forests of magnificent trees. It has an area of about 440 square miles, and lies mostly upon the Bluff Loam, or Loess, described on page 45 of this Report, only about 70 square miles being in the Mississippi Bottoms. The number of acres, exclusive of town lots, assessed for taxation is 270,704, valued at \$2,763,155, or about \$10.20 per acre. The total value of taxable property for 1873 was \$3,354,682. The census report of 1870 gives 67,370 acres of improved land, 92,907 woodland, and 2,131 other unimproved, making for the whole county 162,408 acres, or a little more than one-half of the actual quantity. The total valuation of farms is nearer correct, being placed at \$2,236,745. The act creating Tipton county was passed on the 27th of October, 1823, and on the 1st of December ensuing, the county was organized. After its organization settlers flowed in rapidly, coming mostly from Middle Tennessee, North and South Carolina, and the courtliness of manners which distinguish some of these old inhabitants is as pleasing as it is rare. They have left their impress upon the county.

*Physical Geography and Soils.* Tipton county lies mainly on the Plateau Slope of West Tennessee. The extreme western and much the smaller portion is in the low alluvial plain or bottom of the Mississippi River. The plateau portion is from 130 to 200 feet above the other, and terminates in a bold escarpment, facing the bottom of the Mississippi. This escarpment is but a portion of the Mississippi Bluff, the line of which reaches from Hickman, Kentucky, to Memphis and beyond to—

ward Vicksburg. The bluff in Hickman is steep, and at some points cannot be ascended or descended with safety. West of the bluff the country is of course low and level; east of it the surface is an undulating table-land, the undulations becoming hills in some sections. The country immediately around Covington, the county seat, is level, and from this point in every direction, except west, the same generally level country is found; but westerly, after a few miles we begin to meet with the breaks of the bluff, which make the surface hilly.

The prevailing color of the soil in Tipton county is dark, but not black, and the prevailing color of the subsoil is yellowish. In the north-eastern and western districts, however, there is found a different soil and subsoil, the former being of a reddish or brown tinge, while the subsoil is a rich red clay. Along the water courses east of the bluff, the dark soil predominates, and west of the bluff, in the bottoms, it is almost black. The reddish or brown lands are regarded as the best for cotton, while the darker lands are thought to be the best for corn. It is difficult to estimate the average depth of the soil and subsoil, from the fact that some of the soil (for instance, that in the bottoms) is from three to twenty feet deep, while in other sections (as on or very near the bluff) it is very shallow, being from one to four or five inches. The soil east of the bluff, it is supposed, will average about nine and a half inches in depth, and the subsoil will average at least eleven feet. In all of the soil of Tipton county there is a siliceous element which makes it valuable; in the bottom, especially, this is in considerable quantity. In fact, these lands are composed of a remarkably rich alluvial loam, which produces well.

*Formations.* Beds of lignite occur in the bluff. In the "Geology of Tennessee," pages 429-30, may be found a section, taken at "Old River," in the southern part of the county, which exhibits the different strata composing the bluff at that point. The geology of the county is very much like that of Obion, Dyer, Lauderdale and Shelby. At the lowest points outside of the bottoms, as at the foot of the bluff, the strata of the Tertiary Lagrange Sands crop out. In these the beds of lignite occur. Above the Lagrange Group, outcropping on the face of the bluff and at the surface in the eastern part of the county, are the gravel sands and clays of the Orange Sand Drift. Resting upon the last and making the surface formation for a large part of the county, is the Loam or Loess described on page 45 of this Report.

*Rivers, Creeks, etc.* Tipton, though not so well watered as some of the other counties of West Tennessee, has sufficient water for all practical purposes. The following are the most important streams: Mississippi River washes the entire western border of the county from north to south. Hatchie River forms the dividing line between Lauderdale and Tipton counties, and enters the Mississippi four miles south of Fulton, and eighteen miles west of Covington. Indian Creek rises three miles south of Covington, runs westward with considerable variations, and empties into Hatchie River, fifteen miles north-west of Covington. East Beaver Creek rises four miles north-east of Covington, runs south and south-east, and empties into Middle Beaver Creek, about fourteen miles south-east of Covington. It has two tributaries on its south side, which are almost of equal size, and run almost parallel with it. Hurricane Creek rises about twenty miles west of Covington, runs north-east, and empties into Indian Creek twelve miles north-west of Covington. Town Creek rises three miles south-east of Covington, ranges north-west, and empties into Hatchie River about eight miles north-west of Covington. There are various other smaller streams in the county, which are hardly deserving of particular mention, but they afford a bountiful supply of stock water. In fact, the main dependence in the county for stock water is, in the streams of running water; but for domestic purposes the people rely upon wells and springs, which are numerous. Pools and cisterns are easily made, but they are not much used. The wells throughout the county will average thirty feet in depth, and the water is generally freestone.

*Timber.* Tipton county has plenty of good timber, the principal kinds being poplar, oak and gum. The poplar is the best timber for lumber, but very little lumber is shipped from the county. Along the banks of the rivers rafts of saw-logs are made and floated down the Mississippi River, but even this is not an extensive business. The undergrowth consists principally of hickory, dogwood, ironwood, paw-paw and hazle.

*Land Statistics* The estimates found in the census report of 1870 need considerable correction for 1873. The following figures will show the estimate which has been made for 1873, with the aid of reliable local reports from the county:

Whole number of farms in the county.....	1,103
Farms having under 3 acres.....	1
“ “ 3 and under 10 acres.....	17
“ “ 10 “ 20 “ .....	168

Farms having 20 and under 50 acres.....	437
“ “ 50 “ 100 “ .....	309
“ “ 100 “ 500 “ .....	167
“ “ 500 “ 1000 “ .....	3
“ “ 1,000 acres or over.....	1

In 1873 about one-third of all the improved land was worked by the land-owners themselves, or under their immediate supervision, while the remaining two-thirds were worked by renters. The terms upon which land is rented are so varied that it is almost impossible to give a general rule. Some land-owners rent their land for so much money per acre, in which case the following prices are asked and given :

Best improved land, per acre.....	\$10
Medium “ “ “ .....	7
Third-class improved land, per acre.....	4

But these are not average prices all over the county, but rather the prices asked for land in the most favorably located section of the county. The following figures show the county averages :

Best or first-class land, per acre.....	\$5.00
Second-class “ “ .....	3.50
Third-class “ “ .....	2.00

Some land-owners rent out their land for part of the crop, in which case the following are the general terms: Cotton lands, one-fourth of the crop; for corn lands, one-third of the crop. When the land-owner furnishes all but the labor he gets, for cotton lands, two-thirds of the crop; corn lands, three-fourths of the crop. Sometimes special arrangements are made, as for instance, the land-owner furnishes the land and gets for cotton lands, 62½ pounds of cotton per acre; corn land, eight bushels of corn. Only the best lands rent for these latter prices, however. Of all the lands in the county, it is supposed that at least one-half can be purchased upon easy terms, and at the following prices:

Best improved lands per acre.....	\$40.00
Second class improved lands per acre.....	30.00
Third-class “ “ “ .....	15.00
Best unimproved “ “ .....	20.00
Second-class unimproved lands per acre.....	10.00
Third-class “ “ “ .....	5.00

The lands subject to overflow can be purchased at about fifty cents per acre. The usual terms of sale are, one cash payment of one-fourth, one-third or one-half, the balance in one, two, or even three years, with lien reserved upon land. The following figures will give

a very correct idea as to the producing quality of these lands. It is intended to show the average yield per acre in the leading crops :

Corn.....	25 bushels.
Cotton, seed.....	900 pounds.
Wheat.....	10 bushels.
Oats.....	30 “
Hay.....	2,500 pounds.
Potatoes, Irish.....	250 bushels.
Potatoes, sweet.....	300 “

Cotton is the principal staple. There is also raised a large quantity of corn, wheat, oats, hay and potatoes are raised in limited quantities; no tobacco is raised for market, but only a patch is seen now and then intended only as a home supply. Until within the last few years very little attention was paid to the growing of grasses, but it is now evident that the farming community is improving in this respect. Orchard-grass and herds-grass are the favorite grasses now, but clover is beginning to be used. not only for grazing and mowing purposes, but also, as a fertilizer.

*Fruit* grows well. Almost every farm-house has an orchard. The varieties of fruit most prized, are the peach, apple, plum and cherry. The pear is not reliable. Berries grow in every section of the county.

The following estimates compiled from local reports for the crop of 1873, are approximately correct :

Bushels corn.....	492,617
“ oats.....	17,238
“ winter wheat.....	27,000
“ Irish potatoes.....	12,114
“ sweet “ .....	22,844
Bales of cotton.....	11,332
Pounds of hay.....	413,300

No estimate has been made of the yield of spring wheat, because so little of it is raised in the county that it is hardly proper to refer to it as one of the products.

The following stock statistics are taken from the census returns :

Value of all live stock in the county.....	\$600,109
Horses.....	Number 1,879
Mules and asses.....	“ 1,851
Milch cows.....	“ 2,784
Working oxen.....	“ 184
Other cattle.....	“ 4,131
Sheep.....	“ 4,675
Swine.....	“ 20,240
Value of animals slaughtered, or sold for slaughter.....	\$139,450
Pounds of wool saved.....	5,195
“ butter made.....	74,777

Tipton is naturally a good stock county, but little attention is paid to the breeding of fine stock. There are some Short-horn, Durham, Alderney and Jersey cattle in the county, but very few of sheep. There are a few Southdown and Leicester rams and ewes; and of hogs there are representatives of each of the following breeds: Berkshire, Poland and Essex. But the number of blooded animals is very small, and there is scarcely a farmer in the county who is devoting enough of time and attention to the breeding of fine stock to make it pay. But it is due the farmers to say that they are making some advance in the way of improved farming. Their farms, are as a general rule, in good condition, and they are beginning to introduce into their fields labor saving agricultural implements. There is still great room for improvement.

*Labor.* The great trouble with which the people of Tipton have to contend is the want of reliable labor. So far as numbers are concerned there is no very great scarcity, for there are a great many colored laborers, but as a class, they do not work as they should and have very little idea of saving what they make. The following prices were paid for labor in 1873: Farm hands per year, best, \$200; per month, \$20; per day, \$1; cooks, per month, \$12; house-servants, per month, \$8; mechanics, per day, \$3.50. These prices, however, are not paid to all hands, but only to the best. To get at the average prices paid from the figures at least twenty-five per cent. should be deducted.

*Markets.* The principal market to which everything is shipped that is sent from the county, is Memphis, which is thirty-seven miles from Covington, and is connected with it by the Memphis and Paducah Railroad.

*Population.* By the census of 1870, the population of Tipton was: White, 7,993; colored, 6,891; total, 14,884. It is thought the population since that time has increased fifteen per cent. A good many settlers are moving into the county, and but few are leaving.

*County Roads and Railroads.* There are no pikes and very few plank roads, but the roads are kept, even in winter, in fair order, in summer they are excellent. The only railroad now in operation in the county, is a section of the Memphis and Paducah Railroad, which is completed from Memphis to Covington, a distance of thirty-seven miles, and the Memphis and Louisville, which passes through the southeastern corner of the county.

*Towns and Villages.* Covington, the county seat, is located about



four miles north-east of the center of the county, does a good country trade, and has about 500 inhabitants. Randolph is on the Mississippi River, sixteen miles south-west of the county seat, and has about 300 inhabitants, post-office, stores, schools, churches and is an important point for receiving and shipping merchandise and produce. Mason's Depot, on the Memphis and Louisville Railroad, is twelve miles south of Covington, has about 500 inhabitants, post-office, several large and handsome brick store-houses, schools, and a very fine Episcopal house of worship, which cost about \$15,000. Atoka Depot is on the Memphis and Paduach Railroad, eleven miles south-west of Covington, has post-office, stores, etc., and is in the midst of a very thickly settled country. It has about fifty inhabitants. Brighton is also a depot on the Memphis and Paducah Railroad, is seven miles south-west of Covington, and has about fifty inhabitants.

*Mills and Manufactories.* The only manufacturing establishments are steam saw and grist-mills.

*School Statistics.* The scholastic population of this county below the ages of six and eighteen is 3,827, of which 1,651 are colored. During the scholastic year of 1873-4, sixteen white and fourteen colored schools were in operation for two or three months. The county has made no levy for the support of common schools.

*Churches.* The county is well supplied with houses of worship, which are owned principally by the Methodist, Baptist and Presbyterians.

*Newspapers.* The only paper published in the county is the Tipton Weekly Record, which is published in Covington. It is conservative in politics, and has a good circulation.

*Farmer's Organizations.* There is a fair association in the county, known as the "Tipton County Industrial and Mechanical Association," with its fair grounds about one-half mile east of Covington; it is in a flourishing condition. The farmers are generally organized into granges.

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## WEAKLEY COUNTY.

COUNTY SEAT—DRESDEN.

This is one of the northern counties of West Tennessee, and contains about 550 square miles. The number of acres assessed for taxa-

tion in 1873 was 337,387, valued at \$3,653,464, or \$10.80 per acre. The whole value of taxable property for the same year was \$4,100,065. In 1859 the taxable property (including slaves, valued at \$1,400,830) was \$4,502,454. In 1867 the value of taxable property was \$2,931,758. The ninth census, which in respect to this county is more nearly accurate than in almost any other, gives as the whole number of acres 371,304, or 580 square miles. Of these 113,457 were improved, 214,346 were woodland, and 43,500 otherwise unimproved. Since the census was taken one district has been taken off and attached to Obion, reducing the limits of the county about thirty square miles. The act creating the county was passed November 7, 1821. The first settlers were from North Carolina, Virginia, Kentucky, and Middle Tennessee.

*Geology and Topography.* Weakley is a good representative or type of the great sloping Plateau of West Tennessee. Its general surface is level with a gentle inclination to the west. There are, however, some sections which are more or less rough and hilly. Immediately around Dresden the country is considerably broken, and in the north-eastern part of the county the surface is hilly. The regular stratified formation of the county is the Lagrange Sands, the strata of which outcrop occasionally on the slopes of the streams and elsewhere. These are mainly beds of sand. Now and then a bed of clay is met with. For the most part, however, the strata of the Lagrange Group are concealed by the drifted beds of the Orange Sand. It may be added that a number of high points in Weakley, as well as in adjoining counties, are curiously capped with isolated masses of ferruginous sandstone: these, also, belong to the formation last mentioned.

*Soils and Timber.* The soils of this county vary greatly in productive capacity. The western portion of the county contains much more good land than the eastern. West of Dresden the lands are generally rich. In some parts the principal growth is black oak, interspersed with white oak, post oak, hickory, black gum and dogwood, with but few poplars; in other parts there are large quantities of poplar, white oak, and sweet gum, (well adapted for cutting into lumber) together with hickory, post oak, black gum and dogwood. The lands presenting the last growth are generally level, and well adapted to the raising of corn, tobacco and wheat. As a tobacco county, Weakley is probably not surpassed by any in West Tennessee. The portion of the county under consideration is specially suited to the growth of that weed. In the southern part of the county fine crops of cotton are also raised; some

in the northern part also. The eastern part of the county is more broken, and the land is generally not so rich, still large areas occur as rich as any in the county. Some of the lands east of Dresden constitute "the barrens," of which there are several kinds, namely: The hickory barrens, abounding in hickories, interspersed with dogwoods and black gums, and affording good lands; the black jack barrens, the land not good; post oak and hickory barrens, with land of intermediate character. Altogether, there is an abundance of timber in the county, consisting of oaks of several varieties, poplar, hickory, ash, maple, gum, and occasionally along the streams cypress forests. The barren lands are well adapted to the growing of corn, wheat, cotton, and the very finest quality of tobacco. This, however, does not grow so large as on the poplar lands in the western part of the county. It is thought by many that the barren lands will not last as well as the rich poplar lands. Near the rivers we have what are called the beech lands, the principal growth being beech. This is excellent land if not too low, nor too much inundated by the overflows in the rainy season.

*Streams.* The North Fork of Obion River runs through the entire length of the county from east to west, its bed being generally five to ten miles south of the Kentucky line. It affords good water-power. Upon this stream are several fine grist and saw-mills. The Middle Fork of Obion River runs through near the middle of the county from east to west, and affords fine water-power. Upon this, also, are several grist and saw-mills, and one cotton spinning factory, which runs about 500 spindles. South Fork of the Obion River forms the dividing line on the south between Weakley county and Gibson county. Thompson Creek rises about twelve miles east of Dresden, runs south, empties into Middle Obion, near Jean's mills, about ten miles east of Dresden. Cane Creek rises in Henry county, enters Weakly about sixteen miles north-east of Dresden, runs west, empties into North Obion, about eleven miles north of Dresden. The springs in the county are few in number and not very large, being found principally in the rolling country, and along the water-courses. There is one sulphur spring on the line between districts numbers seven and ten, but the water of the county is almost entirely freestone. Wells are principally relied upon for domestic purposes, the average depth being not less than fifty feet, but there are a few good cisterns. As for stock-water, the river and creeks furnish a plentiful supply, except in very dry weather, when recourse is had to ponds, which are easily made and hold water well.

*Crops.* In regard to the crops a well informed farmer of the county says: "Our farmers raise fine crops of corn, tobacco and cotton. The wheat crop, however, is generally light. I think good crops of wheat could be raised if more pains were taken in preparing the ground and in putting in the seed. Oats have failed in this county for many years. Some hay is made, but not enough to supply our stock. Peanuts are also raised to some extent. Not much ground is enclosed for pasture exclusively. The common rail fence is almost the only one met with. The average corn crop in this county is not more than five or six barrels of corn to the acre. Some persons talk about raising eight or ten barrels to the acre, and perhaps they do in some places, but this is not common. Cotton and tobacco average not more than 600 or 700 pounds per acre; wheat not more than six to ten bushels per acre generally. Upon the whole, I would say that Weakley is a good average farming county."

*Farm Statistics.* The following figures will give the reader a pretty accurate idea of the farming facilities and interests of the county. They are taken from the census report of 1870, and are approximately correct:

Total value of farms in the county.....	\$3,453,713
“ “ farming implements, etc.....	119,700
“ number of farms of all sizes.....	2,312
Number having 3 and under 10.....	76
“ “ 10 “ 20.....	348
“ “ 20 “ 50.....	1,052
“ “ 50 “ 100.....	600
“ “ 100 “ 500.....	236
“ “ 500 “ 1,000.....	5
“ “ 1,000 and over.....	1
“ “ under 3 acres.....	4

It will also be well under this head to give the farm productions of the county, according to the report of 1870, which will, in all probability, fall something below those of 1873, but the difference is not supposed to be very material:

Value of orchard products.....	\$ 689
“ “ market garden products.....	108
“ “ forest products.....	1,690
“ “ home manufactures.....	35,748
“ “ animals slaughtered or sold for slaughter.....	145,559
“ “ all live stock.....	1,024,853
Number of horses.....	3,914
“ mules and asses.....	2,673

Number of milch cows .....	4,062
“ working oxen.....	1,047
“ other cattle .....	3,866
“ sheep.....	13,032
“ swine.....	38,935
Bushels of spring wheat.....	125
“ winter “ .....	136,173
“ rye.....	211
“ Indian corn.....	879,544
“ oats.....	1,945
Pounds of wool.....	20,056
“ tobacco .....	2,599,590
Bushels of Irish potatoes.....	5,933
“ sweet “ .....	10,282
“ peas and beans.....	577
Pounds of butter.....	285,295
Tons of hay.....	529
Gallons of sorghum.....	27,209
“ honey.....	6,425

The report for 1870 shows that in that year there was little or no cotton raised in the county, but in 1873 a considerable area of land was planted, and produced well.

The lands in Weakley county are principally worked by the owners, or under their immediate supervision, there being not exceeding twelve and a half per cent. under the control of renters. The proportion of land in the county which is for sale is quite large, and will be found to be not less than thirty per cent. of the whole. The average rental for land is as follows: Corn and cotton land, per acre, \$4. The usual terms of renting are about one-half for money and one-half on shares. The average prices (compiled from numerous reports) of lands for sale are about as follows:

Best improved land per acre.....	\$25 to 30.
Medium land, “ “ .....	12 to 25.
Inferior land, “ “ .....	5 to 12.

The usual terms of sale are one-third cash, the balance in one and two years, with lien reserved on land for unpaid purchase money. The proportion of land in the county which is not tillable is very small indeed so small that it scarcely admits of being estimated. The untillable land is confined to the river bottoms, which are subject to overflows. The proportion thus subject to overflow is estimated to be not exceeding six per cent. of the whole.

*Labor.* As a general rule, the land-owners work their own farms, but they are compelled, of course, to hire a good deal of labor, which

is very scarce throughout the entire county. When white laborers can be secured they generally prove to be reliable, but it is the universal complaint that negro labor cannot be relied upon, hence the anxiety of the people to have introduced a goodly number of white men and boys who are willing to hire.

*Farm Products.* The following averages of crops are given by intelligent and experienced farmers, and may be relied on :

Corn, per acre.....	30 bushels.
Tobacco “ .....	800 lbs.
Cotton “ .....	600 lbs., (seed.)
Wheat “ .....	10 bushels.
Oats “ .....	20 bushels.
Rye “ .....	15 “
Peanuts “ .....	40 “
Potatoes, Irish, per acre.....	65 “
Potatoes, sweet, “ .....	100 “

*Grasses.* Herds-grass is regarded as the best grass in the county though the German millet is rapidly gaining ground in the estimation of the farmers. Clover also does well in places, and as a fertilizer is very highly thought of. The Hon. Emerson Etheridge informed us that he never failed to secure a good stand when sowing it alone upon well prepared soils. The other grasses are very little grown, and are not favorites. The estimated average yield of hay is as follows: Herds-grass, per acre, 1,750 pounds; clover, per acre, 2,000 pounds; German millet, per acre, 2,500 pounds.

*Sorghum.* This cane at one time was very extensively grown in the county, but of late years it has been abandoned, owing principally to the fact that it is deemed a great exhauster of the soil.

*Fruits, Vines and Berries.* Weakley county is regarded as a fair fruit county, though there are no market orchards of any consequence. Cherries are the surest crop. Apples are subject to speck, and often fall off before they mature. As a general rule, peach trees give out in a few years. Pears and grapes do well in certain localities, and it is believed that the hilly lands in the north-eastern part of the county would grow them to perfection. About seven years out of ten plenty of fruit may be expected with reasonable certainty. The wild varieties of grapes do well all over the county.

*Forest Products.* Until quite recently, very little attention was paid to shipping lumber from the county, but of late the large and constant demand for poplar, white oak and cypress lumber has encour-

aged saw-mill men, who are extending their sawing and shipping facilities with the view of engaging quite heavily in the business; at present, however, the amount of lumber which is being shipped is quite limited.

*Stock.* Little or no attention is being paid to the introduction and propagation of fine stock. Every farmer raises some of the common varieties, enough to supply the home demand, but very little is raised for foreign markets. Just after the war some attention was paid to raising hogs, Berkshires being the favorites, but within the last year or two the cholera has been so destructive that the farmers have become discouraged and have almost abandoned the idea of raising them.

*Markets.* The principal markets of the county are Memphis and Nashville, by the Memphis and Louisville and Nashville and North-western railroads.

*Population.* The population of the county in 1870 was as follows: white, 16,886; colored, 3,899; total, 20,755. As before mentioned, a small portion of the county has been cut off since the census was taken, but it is thought that the increase will bring it up fully to the figures given.

*The People.* The masses of the people are quiet and civil, and well disposed to new-comers and immigrants, particularly to those who wish to become citizens and identify themselves with the country.

*Immigration and Emigration.* There has not been a heavy immigration to the county since 1870, but the people seem to be very anxious to welcome settlers, regardless of religious and political proclivities. The increase in the population since 1870 has been about  $2\frac{1}{2}$  per cent., the new-comers being principally from the counties of Middle Tennessee. Some few families have also left the county.

*Roads.* The county roads are in a miserable condition, and there is no speedy probability that they will be much better. The new road law is a perfect failure, since the people seem to have no confidence in its feasibility.

*Railroads.* The Nashville and North-western Railroad passes through the county diagonally from south-east to north-west. The Mississippi Central Railroad passes through it, running on a line a little west of the center, crossing the Nashville and North-western Road at Martin's depot, between Gardner's Station and Raulston's. The Memphis and Louisville Road just touches the extreme south-east cor-

ner of the county, crossing the Nashville and North-western at McKenzie. The Memphis and Paducah road runs just west of the county.

*Towns and Villages.* Dresden, the county seat, is situated near the center of the county, on a small creek which runs just north of the town. Its population is variously estimated, but will not exceed 500 persons. It has a very neat and substantial court-house, two churches (one belonging to the Methodists, the other community property), and a first-rate brick building built expressly and used for a school; one Masonic lodge; one Odd Fellows' lodge; one newspaper (the West Tennessee Democrat); one steam saw and grist-mill; four dry-goods stores; four groceries; two drug stores; six saloons; one hotel; a wagon-maker's shop; tinner's shop; tan-yard; boot and shoe establishment; two saddle and harness-makers' shops, and one barber shop. Dresden is supplied with eight lawyers and six physicians. The Nashville and North-western Railroad runs through the southern suburbs of the town. Gleason is a depot on the Nashville and North-western Railroad, about seven miles east of Dresden, has about 150 inhabitants, and does a good business. Raulston is a depot on the same road, is six miles west of Dresden, and has about one hundred inhabitants. Martin's is the crossing of the Nashville and North-western and Mississippi Central railroads, is nine and a half miles west of Dresden, and is just being laid out for a town. Gardner is on the Nashville and North-western Railroad, twelve miles west of Dresden, has a good school, large brick hotel building, steam grist-mill, steam saw-mill, about 250 inhabitants, and has a good neighborhood trade. Mt. Pelia, or as it is sometimes called, Middleburg, is fifteen miles west of Dresden, and has about 70 inhabitants. Dedham is twelve miles south of Dresden, and has a very small number of inhabitants. Scatteredville is eight miles south of Dresden, and is also a very small place. Pillowville is eleven miles south-east of Dresden, and has a very small population. Boyds-ville is eighteen miles east of Dresden. Dukedom is sixteen miles north of Dresden. Palmersville is eleven miles north-east of Dresden, and has about 40 inhabitants. Latham's is eleven miles north of Dresden, and has about 25 inhabitants. At most or all of these places there are post-offices, blacksmith shops and stores; hence are great conveniences to the people.

*Mills and Factories.* The streams in the county are very sluggish, the fall not exceeding seven feet per mile, but there are several good mill sites in the county, and some very good mills.

*School Statistics.* The scholastic population between the ages of six



and eighteen is 6,129, of which 1,113 are colored. Twenty white public schools and one colored have been in operation during the scholastic year beginning first of September, 1873.

*Churches.* Every neighborhood has convenient to it churches representing some of the various denominations of Christians; there are on an average about three to each civil district. The Methodists and Cumberland Presbyterians are more numerous than the other denominations, but there are quite a respectable number of Baptists, and a few representatives of several other denominations. Sabbath-schools are kept up in but few of the churches.

*Newspapers.* The West Tennessee Democrat is the only paper published in the county. It is independent in tone, liberal in principle, and fearless in the advocacy of what it believes to be right. It has a good circulation, and is capable of doing a vast amount of good to the county and to the State.



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