July 10, 1948

To the Committee on Graduate Study:

I am submitting to you a thesis written by Elsie Taylor Bird entitled "Tobacco in East Tennessee." I recommend that it be accepted for nine quarter hours credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Geography.

Loyal Durand Jr.
Major Professor

We have read this thesis
and recommend its acceptance:

H. C. Arnick

Carson Rappenecker

Accepted for the Committee

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Dean of the Graduate School

TOBACCO IN EAST TENNESSEE

A THESIS

Submitted to
The Committee on Graduate Study
of
The University of Tennessee
in
Partial Fulfillment of the Requirements
for the degree of
Master of Science

---

by

Elsie Taylor Bird

August 1948

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THE BEGINNING OF TOBACCO IN EAST TENNESSEE

Certain species of tobacco are indigenous to North America. "Native species may be found growing from Texas to California and northward to British Columbia."[1] Tobacco holds an important place in the geographic, economic, and social pattern in various countries encircling the globe, and from the 40° parallel south in New Zealand to the 60° parallel north in Sweden. East Tennessee is no exception and markets thousands of pounds annually.

The Overhill Cherokee Indians cultivated tobacco, maize, pumpkins, and vegetables for domestic use in areas drained by the Hiawassee and Little Tennessee Rivers in the foothills of the Appalachian Mountains before the white men entered the Valley of East Tennessee. The Indians smoked the dried leaves of the plant in ornately and artistically carved pipes, and rolled the leaves in form of cigars and cigarettes.

The first white settlement in Tennessee was made by William Bean in 1769 at Watauga in the upper part of the Valley. This was about 157 years after the first cultivation of tobacco in Virginia. Soon other settlers came into

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[1]Wightman Garner, The Production of Tobacco (Philadelphia: The Blakiston Company, 1946), p. 4.

the Valley through water and wind gaps of the mountains. More migrated to the Valley from Virginia and Pennsylvania. They brought with them the seeds and proven methods for propogating tobacco. Tobacco patches were a part of their early culture and were extended throughout the settled area. As the population increased the Cherokee Indians were eliminated from the southern part of the Valley and the whites established themselves in the whole Valley. The early farmers developed a self-sufficient and diversified agricultural economy in which tobacco was raised for home consumption, especially in the upper part of the Valley. "There is evidence that tobacco became a limited cash crop as early as 1783 in what is now Hamblen County, on the bend of the Nolichucky River."[2]

The first tobacco grown by the white men in Tennessee was chiefly the flue-cured type from the seed of crops grown in the interior counties of Virginia and North Carolina. It evolved through a period of years from the dark fire-cured type. The flue-cured plants were cultivated in similar fashion to the present day burley tobacco. The crop was hung in a log barn and a certain degree of

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[2]T. G. Ramsey, Annals of Tennessee (Philadelphia: Lippincott, 1853), p. 13.

temperature was held for two weeks (Figure 1). Heat circulated by flues or pipes from rock and clay furnaces in the barn cured tobacco leaves to a chestnut brown color. The curing season, when the fires were kept constantly burning for the necessary number of days and nights, was a period of fun and merriment as well as labor. Some flue-cured tobacco was grown in nearly every county in the Valley by 1872.[3]

Tobacco has been considered a luxury and regarded by the Federal government as a producer of revenue since the days of early cultivation in Virginia. The government, also, used from year to year various restrictive methods to curtail production. One of the laws was the prohibition placed upon the sale of tobacco to anyone except a licensed dealer. The farms of East Tennessee were small and tobacco patches were insignificant in comparison to those of other areas.

> In 1797 the General Assembly passed a law prohibiting the exporting of tobacco, unless it had been packed in hogsheads or casks, of regulation size (staves not over fifty inches long and head not over thirty-two inches across) and inspected 'to retrain the practice of mixing trash with the stemmed product.' Greeneville, in Greene county was

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[3]A few of the log flue-cured barns may be seen in the Valley today. Sheds have been built to preserve the logs and they are used to house burley tobacco or to shelter livestock (Figure 2).

Figure 1

Flue-cured tobacco barn[4]

Figure 2

Flue-cured tobacco barn converted into a feed barn

[4]The space between the logs was filled with clay to eliminate the air when the barn was used for curing tobacco in the nineteenth century.

designated as the inspection place in East Tennessee.[5]

Few, if any farmers grew enough tobacco to fill a hogshead (900 to 1200 pounds). A few licensed dealers thus had the advantage of buying from many farmers who raised only a few hundred pounds. The hogsheads were filled with tobacco bought from various farmers and shipped to markets in other states. According to the 1858 Code of Tennessee, the County Court[6] could build and rent warehouses for the inspection of tobacco for sale. The Court also appointed a board of tobacco inspectors to supervise the sale of tobacco. This act was repealed in 1877. After that date anyone who desired to do so could build and supervise a warehouse.

There were no local warehouses or manufacturing plants for tobacco in East Tennessee. Transportation facilities were few and inadequate. The distance to market was too great for growers of small tobacco acreage; therefore, the owners of self-sufficing farms were not encouraged to grow a super-abundance of tobacco. However, some farmers especially in upper East Tennessee, near the

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[5]Albert C. Holt, The Economic and Social Beginnings of Tennessee (Nashville: George Peabody College, 1923), p. 105.

[6]The County Court in East Tennessee is a legislative body consisting of two magistrates from each district who are elected by the people.

Virginia markets, continued to cultivate the flue-cured type while others experimented in a small way with such air-cured types as Twist Bud, Red Burley, and Lockwood.

Little or no consideration was given to the selection of seed. The majority of the farmers preserved seed from year to year from a choice plant in their tobacco patch or relied upon their neighbor for seed. The effects of the Civil War on the production of fire-cured tobacco in Virginia and North Carolina caused the production of air-cured tobacco to increase rapidly in Ohio and Kentucky. These areas developed transportation and marketing facilities earlier than East Tennessee. The marketed product attracted attention and was used in manufacturing fine-cut chewing tobacco.

Mr. Clisby Austin started the manufacturing of chewing tobacco in East Tennessee at Austin Springs in Washington County about 1880 experimenting in utilizing the local product. Later he moved the plant to Greeneville, in Greene County.[7] Mr. Austin had been buying some burley tobacco from Ohio to supplement the Greene County product used in a plug tobacco that he was manufacturing. He recognized the better qualities of the Ohio type of tobacco and decided

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[7]The plant was discontinued after a few years.

that it could be grown in proximity to his plant in Greene County. An agreement was made with a few farmers near Greeneville to experiment with a small acreage of that particular type of burley tobacco. Thus, Chestnut Ridge in Greene County, extending into the Horse Creek section, became the pioneer burley tobacco area in East Tennessee.

Transition from Flue-Cured Tobacco to Burley Tobacco

There was a period of time when some farmers in Greene County "claimed that the brighter type of tobacco[8] which had been selling for the highest price could be grown in Tennessee, only, on about a six-mile square, the center of which was John Alexander's Chestnut Ridge field, the first cleared for the purpose."[9] The tobacco from that particular field was marketed and was admitted to be as good as that grown in bright tobacco areas of Ohio and Kentucky. The burley market in East Tennessee is credited in part to the initiative of that respective tobacco experiment and decision.

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[8]Air-cured burley tobacco.

[9]Charles F. Vanderford, The Soils of Tennessee, Agricultural Experiment Station Bulletin, University of Tennessee, Knoxville, 1897, p. 57.

The analysis of the soil in the Chestnut Ridge area showed the per cent of clay to be very small and the soil composed largely of the medium grades of sand and silt (Table I). The farmers studied and discussed their soil in relation to the type of tobacco that was commanding the highest price. They realized that good drainage was a necessary factor. Much new land was cleared for tobacco cultivation. New barns for air-curing the crops were built of rough lumber and the tobacco acreage gradually increased (Figure 3). A few years marked the transition period from the cultivation of the flue-cured type to the air-cured type of burley tobacco in practically all of the East Tennessee production areas (Figure 4).

History of Burley Tobacco

The White Burley, from which Mr. Austin obtained seed, "was discovered in 1864 by George Webb of Higginsport, Brown County, Ohio, who observed seedlings of peculiar appearance in his seedbed and grew them for further observation. The identity of the seed used is not known but are said to have come from Brackens County, Kentucky, under the name of Little Burley."[10] From the resemblance of

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[10]Garner, op. cit., p. 40.

TABLE I

SOIL ANALYSIS IN EAST TENNESSEE[11]

	Organic Matter	Gravel	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt	Fine Silt	Clay
Sandstone Greene Co. near Chestnut Ridge	1.81	3.54	5.04	14.60	15.77	17.36	17.47	16.82	8.13
Knox dolomite near Lyons View	3.15	.25	1.17	9.53	9.66	8.07	31.98	9.06	23.87
Six miles north of Knoxville	2.61	1.42	1.64	6.98	3.97	7.14	38.12	13.12	23.89
Loudon Co. near Lenoir City	5.47	0.00	0.25	1.85	3.88	13.09	28.19	9.32	34.61
Monroe Co.	3.66	0.00	0.00	1.30	3.54	6.35	39.25	10.49	33.62

[11]Charles F. Vanderford, The Soils of Tennessee, Agricultural Experiment Station Bulletin, University of Tennessee, Knoxville, 1897, p. 133.

Figure 3

Burley barn

Figure 4

Tobacco in the Valley

burley to the Maryland Broadleaf, it is believed to be a mutation of that tobacco plant. The origin of the term "burley" is not known. It had been applied to a type of tobacco in Kentucky. The word may have been derived from the name of a prominent grower as this is a fact in other known varietal names.

The burley plant was characterized by the peculiar light green color of the stalk, the leaf-midrib, and veins of the leaves. It was originally called White Burley because of the color and its supposed origin through evolution from the cultivation of the red, heavier type of burley. The Kentucky Experiment Station root-rot resistant strain of White Burley Type 31, Number 16, is preferred by the majority of East Tennessee planters.

Physical Setting of Burley Tobacco Area in East Tennessee

The mountains mark the dividing line between North Carolina and Tennessee and are a part of the Appalachian system. The section in Tennessee consists of a belt from two to twenty miles wide and about two hundred miles long extending from the northeast to a southwest direction and covering approximately two thousand square miles. It includes Clingman's Dome 6,642 feet, Mt. Guyot and other high peaks.

The general elevation ranges from 2000 to 3000 feet, with valleys and coves as low as 1000 feet in Johnson, Carter, Unicoi, Greene, Cocke, Sevier, Blount, Monroe, and Polk Counties. The tops of the ridges are often hidden by a hazy mist which appears similar to smoke and characterizes the "Smoky Mountains." This region is too rugged, on the whole, for farming, except in a few wide valleys or "coves" and along the foothills in areas of colluvial soils. Subsistence farming is dominant. "Burley tobacco is the chief crop with over twenty-five per cent of the farms here receiving their income from this crop."[12]

West of the mountains is the Great Valley of East Tennessee, a region of parallel ridges and valleys, each with a northeast-southwest trend parallel to the mountains. This "Valley" of about 9,200 square miles varies in width from about twenty to sixty miles. It is really a continuation of the valley in Virginia and extends southwest into Georgia. It is characterized by a number of various shaped ridges, 1200 to 2500 feet in elevation with intervening valleys from 600 to 1500 feet above sea level. The relief of the Valley is from gently rolling to hilly.

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[12]Tennessee State Planning Commission, Industrial Resources of Tennessee (Nashville: 1945), p. 66.

The unequal resistance of the out-cropping material has influenced the degree of erosion which is responsible for the form and slope of the relief features.

All, or parts of the following counties are in the Valley--Hancock, Hawkins, Union, Carter, Johnson, Knox, Sevier, Greene, Blount, Hamblen, Washington, Roane, Meigs, Bradley, Monroe, Claiborne, Anderson, Rhea, Madison, Hamilton, McMinn, and Sullivan, about one-fifth the area of the state.

West of the Valley, the Cumberland Plateau rises from 800 to 2000 feet as an escarpment above the Valley floor. Although mining and lumbering are the chief occupations in the rugged plateau lands, in the eastern part of the tableland are many acres on which burley is grown as an intensive cash crop in Claiborne, Campbell, Anderson, Scott, Marion, and Morgan counties.

The entire East Tennessee area is drained by the Tennessee River with the following major tributaries: Watauga, Holston, Nolichucky, French Broad, Little Tennessee, Little, Hiawassee, Clinch, and Powell. The streams have formed a trellis drainage pattern because of the underlying rock formation. Drainage throughout East Tennessee is adequate for the growth of burley tobacco.

Tennessee, located between latitude 35° 00' and 36° 30' north, is in a transition zone between climatic regions classified as humid sub-tropical and humid continental long

summer. Climatic data places the northern part of East Tennessee in the humid continental long summer, while the southern part has characteristics of the humid subtropical climate.

There is abundant rainfall throughout the area (Table II). The average precipitation is about 48 inches annually. Greene and Washington counties receive somewhat less than the average for the state. Rainfall is heavier on the Cumberland Plateau and in the Smoky Mountains than in the Valley, owing to the fact that the moisture is condensed as the winds pass over the mountains. There are few severe storms and the distribution of sunshine and cloudiness throughout the year is desirable. Generally, the autumn months receive less rainfall, a factor favorable for the curing of burley.

The average frost free season is about 200 days, ranging from 170 days in the higher altitudes, and in the northern counties to 220 days near Chattanooga. Killing frosts usually occur around the middle of April and October in Greene County while the dates for killing frosts in Knox County are about March 12 and November 14. Mean annual temperature is about 58° Fahrenheit (Table III).

In East Tennessee may be found some of the poorest as well as the most fertile soils of the United States. In fact, the pattern of diversified or general farming is the

TABLE II

PRECIPITATION[13]

County	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Johnson	Mountain City	3.69	3.60	4.56	3.73	4.05	4.68	5.86	5.23	3.09	2.83	2.23	3.67	47.22
Greene	Greeneville	3.90	3.67	4.58	3.42	3.50	4.15	4.09	4.54	2.38	2.30	2.21	3.58	42.32
Knox	Knoxville	4.13	4.18	5.03	4.04	3.77	4.35	4.39	4.01	2.84	2.52	2.96	4.63	46.85
Hamilton	Chattanooga	4.64	4.48	5.96	5.04	4.08	3.95	4.47	4.16	2.59	3.23	3.34	5.41	51.35
Claiborne	Tazewell	4.70	4.29	5.35	4.41	4.00	4.37	4.55	5.10	3.20	2.88	2.96	4.96	50.77

[13] Climatological Data for 1946, United States Department of Commerce Weather Bureau Tennessee Section, Eastern Division, Vol. 33, p. 53.

TABLE III

CLIMATE IN EAST TENNESSEE[14]

Temperature Fahr.					Precipitation (inches)						Sky			
Annual Mean	Highest	Date	Lowest	Date	Total for Year	Greatest Monthly	Month	Least Monthly	Month	Total Snowfall	No. of Rainy Days	No. of Clear Days	No. of Partly Cloudy Days	No. of Cloudy Days
59.1	97	July 11	1	Jan. 2	53.76	12.73	Jan.	0.87	June	2	122	149	99	117
Comparative Annual Data 1884 - 1946														
58.8	113	July 29, 1930	-32	Dec. 30, 1917	49.76 Avg.					9.3 Avg.	106	156	99	110

[14] *Ibid.*, p. 50.

response toward an intricate distribution of soils differing one from another in their physical suitability for the production of various crops.

The soils have developed under a mixed forest vegetation, with moderately high temperature, and precipitation. Therefore, they are generally leached of much soluble material. Most of them are acid and medium to low in organic matter. For the most part they have never possessed the inherent fertility of the prairies but are more fertile than comparable soils farther south where the temperature is higher and leaching has been greater.

The soils of the uplands in the Valley are chiefly residual having developed from weathered shales and limestones. Red and yellow podzolic and others falling into the gray-brown podzolic great soil groups are important in burley areas. Silt loams and clays are the prevailing soil types.

The underlying rock formation in the Valley has been subjected to much folding and faulting followed by erosion. The axes of the much crowded folds extends parallel from northeast to southwest with the mountain on the east and the plateau to the west. Nearly all of the Valley is underlain by sedimentary rocks--limestones, shales, and sandstones of Paleozoic age. Dolomitic limestone, shale and cherty soils prevail. The soils in the southern part

of the Valley are red and yellow in color, and thinner in texture than the gray-brown soils which predominate in the upper part of the Valley where the burley acreage is greatest.

The larger yields of tobacco are obtained on the soils having dark colored surface layers, but the better quality is generally grown on the soils having lighter colored surface layers. Some of the more productive soils are: Dewey, Decatur, Emory and Hermitage silt loams, as those in the Jefferson City Valley; Hagerstown, Groseclose, Dunmore cherty clay loam, Lodi and Allen fine sandy loam, Nolichucky and Altavista loam in the upper part of the Valley; Bolton and Dandridge on the east and southeast; Farragut and Fullerton silt loams in the vicinity of the Tazewell burley market, with Greendale and Pace silt loams at the foot of the slopes, or washed from the Fullerton soil by streams in the area near Tazewell.

It is thought that soil definitely influences the texture of burley tobacco.

> There seems to be no other plant so easily affected by the chemical and mechanical conditions of the soil, for while the tobacco plant will adapt itself to adverse conditions of soil and climate, still each distinct type requires certain conditions to give it those qualities of color, texture, and aroma

for which it is prized.[15]

History of East Tennessee Burley Markets

East Tennessee soils, climate, and relief proved suitable for the production of burley as an intensive cash crop. The number of acres and pounds gradually increased each year but the tobacco was being marketed out of the state (Table IV).

In 1884, Mr. Henry R. Brown, a resident of Greeneville, noticed many hogsheads packed with tobacco consigned to markets in Abingdon and Bristol, Virginia. The enterprising Greeneville citizen recognized a need in his home town and began to make provisions for that need. He, with Mr. Clisby Austin, who had encouraged the growth of burley, organized a company and leased a building which had been erected by Mr. H. Reaves for implements and arranged for sales of tobacco that fall. A second warehouse was formed from a large stable which stood on the present site of the Carnegie Library. Later, Mr. T. Adams opened a third warehouse thus, assuring the farmers of necessary marketing facilities for all the tobacco raised in East Tennessee

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[15]George W. Odlum, The Culture of Tobacco (Salisbury, South Rhodesia, Africa, 1905), p. 2.

TABLE IV

ACREAGE OF TOBACCO IN EAST TENNESSEE[16]

County	1880	1890	1900	1910	1920	1925	1930	1938	1940	1945
Anderson	26	38	72	25	11	87	191	182	195	123
Blount	21	22	55	11	9	181	512	464	722	652
Bradley	23	34	78	4	51	62	120	160	158	185
Campbell	23	9	29	11	8	147	456	265	350	396
Carter	37	6	29	4	56	90	101	251	536	661
Claiborne	43	11	111	15	13	310	1632	1633	2501	3040
Cocke	45	699	257	104	665	1467	1845	1305	2159	2688
Grainger	48	29	46	20	44	716	1278	1279	2284	2090
Greene	77	1182	1112	2192	5675	9851	7632	5971	8377	8462
Hamblen	81	112	26	113	73	382	926	1047	1543	1853
Hancock	51	30	102	35	18	63	577	1093	1727	1920
Hamilton	12	20	17	2	4	3	14	16	21	6
Hawkins	100	114	152	32	159	1130	2326	1943	3172	3169
Jefferson	19	28	39	10	77	802	1526	1326	1609	1729
Johnson	26	3	27	3	8	87	530	671	851	1788
Knox	45	14	45	19	31	249	456	348	693	575

[16]United States Department of Commerce, Bureau of the Census, Census of Agriculture (Washington: United States Government Printing Office, 1883-1946).

TABLE IV (continued)

ACREAGE OF TOBACCO IN EAST TENNESSEE

County	1880	1890	1900	1910	1920	1925	1930	1938	1940	1945
Loudon	24	7	36	None	13	193	428	423	743	789
McMinn	2	22	45	6	41	118	251	422	611	942
Marion	22	10	11	4	6	47	52	62	58	30
Meigs	13	33	39	10	25	42	55	89	144	273
Monroe	35	32	87	13	293	406	869	923	1196	1280
Morgan	20	19	29	13	29	7	3	13	17	16
Polk	26	41	16	8	4	11	00	53	16	8
Rhea	17	17	30	2	3	14	3	14	31	31
Roane	22	29	38	7	17	46	94	156	310	264
Scott	35	31	12	5	00	00	2	6	4	2
Sevier	39	94	83	32	10	195	657	728	1290	1642
Sullivan	207	61	104	8	165	513	1001	937	1559	1889
Unicoi	65	209	11	11	130	124	269	240	446	539
Union	15	45	44	7	7	280	908	688	769	855
Washington	49	176	128	632	2952	2771	2501	2083	2769	3371

and in the adjoining North Carolina mountainous section.

The Brown Manufacturing Company served as a bank and paid checks of buyers to the tobacco growers.

> There were no facilities for financing the new enterprise, so Mr. Brown went to Knoxville and arranged with Frank L. Fisher, then cashier of the East Tennessee National Bank, to send by express, each day, sufficient money to pay off the sales.[17]

Clisby Austin, Jesse Noel, John White, and T. Adams, prominent Greeneville citizens, were among the buyers on the first tobacco markets. Soon, Colonel Silas Bernard and sons became interested and did much for the early development of the market.

With increasing tobacco acreage, commercial farming gradually progressed in the Valley. The acreage of tobacco increased in Greene County from 77 acres, in 1880, to 2,192 acres, in 1910. Likewise, the increase in nearby counties advanced slowly but positively, particularly in Washington, Cocke, and Hamblen Counties. Claiborne and other counties near the Kentucky borderline increased the tobacco acreage and marketed the crop on Kentucky markets.

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[17]Madge Leslie, "Greeneville Listens to the Chant," Knoxville Journal, January 14, 1940, p. 6.

The Increasing Tobacco Area

Hugh Gouchenour, and others of Greene County, encouraged the planting of burley in Hawkins County in 1917. The first crop was practically a failure because of a summer drought. The next year, Don Russell, employed by the Greeneville Warehouse Association, canvassed the county in behalf of tobacco production. About one hundred acres were grown successfully. By 1924, due to the circulation of the "Burley Booster Bulletin," distribution of tobacco seeds, and farmer's meetings, the farmers in Hawkins County increased the tobacco acreage to 1000 acres.

Mr. Charles Dean and sons, in cooperation with the University of Tennessee, encouraged the farmers in Knox County to increase the burley acreage. In 1921, the farmers produced under contract 60,000 pounds which was sold on the Greeneville market. Interest in production increased rapidly in that part of the Valley and in 1922 the Dean brothers provided facilities for the sale of the tobacco grown in Knox County in an improvised warehouse in Chilhowee Park. The next year they built a warehouse in which 2,000,000 pounds of tobacco was sold that year.

Impetus in burley production increased rapidly after 1920. Concentration was greatest in, and surrounding, Greene County. Advancing tobacco prices for a number of years caused the value of farm land to increase sharply.

Farms were smaller in the upper part of the Valley and the number of people per square mile was greater than in the southern half of the Valley where general farming prevailed along with increasing industrialism (Figures 5, 6, and 7). These factors accentuated a movement to other counties where burley cultivation was introduced and in a few years became a cash crop in all East Tennessee. For example, a prominent farmer from Greene County moved to McMinn County where he proceeded to plant a part of his farm in tobacco. He rented a small acreage to tenants in 1924. The crop proved to be a failure because of incompetency of the tenants in caring for the tobacco. The next year the owner of the farm guaranteed a certain amount of cash per acre if the crop did not succeed. The tenant took a greater interest in the tobacco and made a substantial profit from the sale in the fall.

Acreage and production increased until 1932 when prices declined greatly, amost disastrously, for those who relied upon tobacco as a cash resource. In 1934, the Agricultural Adjustment Administration in accordance with the general program of the United States Department of Agriculture, and the tobacco farmers established a plan for a balance between production and consumption of tobacco among other agricultural commodities. Acreage and production were reduced. A certain base acreage and production

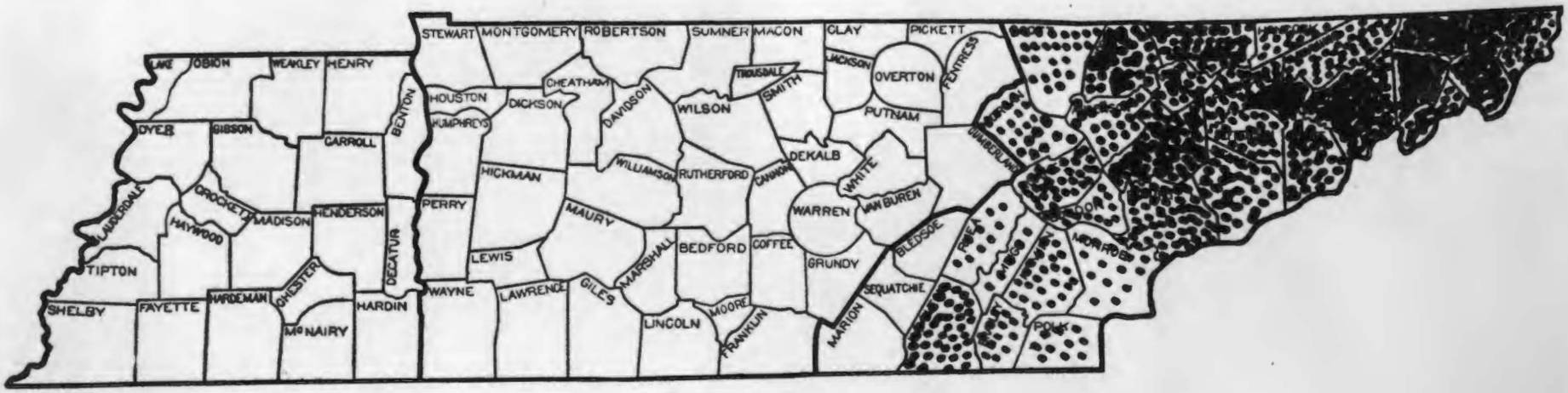

Figure 5

Farms, 1-49 Acres in Size

1 dot = 50 Farms

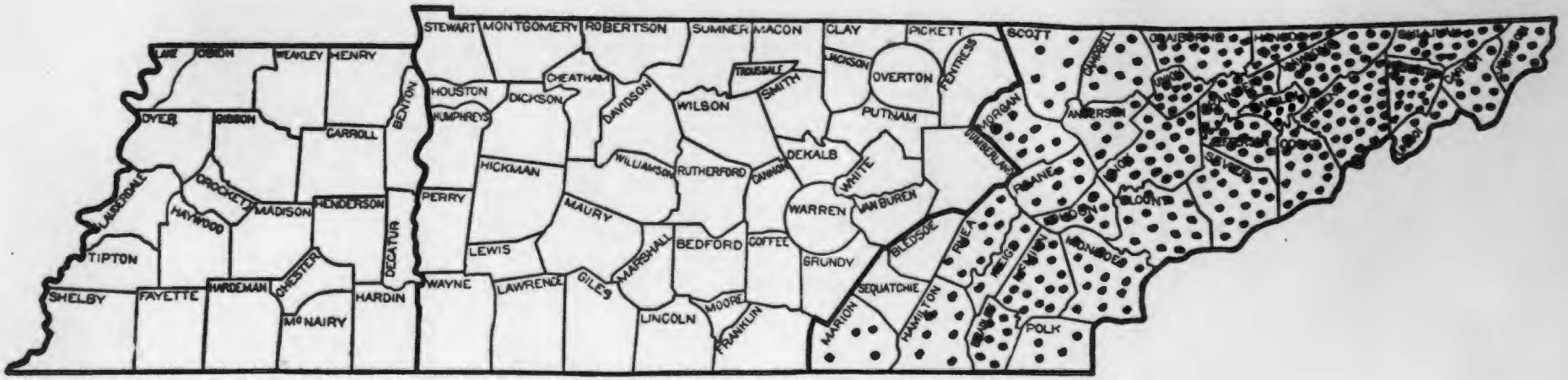

Figure 6

Farms, 50-99 Acres in Size

1 dot = 50 Farms

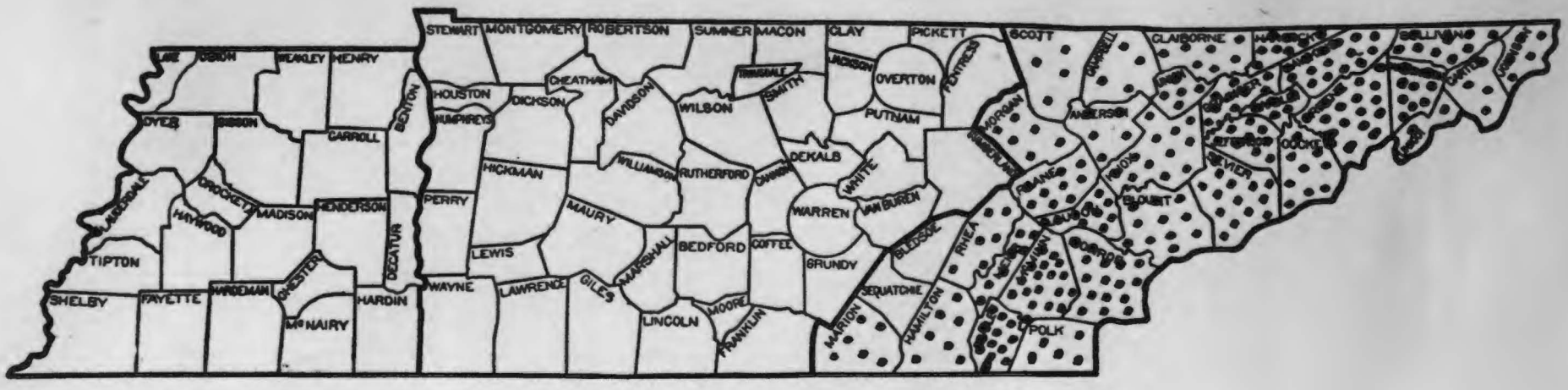

Figure 7

Farms, 100 Acres and Over

1 dot = 50 Farms

were determined from the amount produced on each farm in the years 1931-1933 and cash payments classified as, "rental, adjustment and deficiency,"[18] were made to those participating in the program. The basis for the adjustment payments were made from marketing cards on which each sale of tobacco was recorded for each individual farm owner.

Contracts were made only for farms on which tobacco was grown in 1932-1933. The purpose of the deficiency payments was to provide insurance against crop failure, and to reduce the amount of low grade tobacco offered on the market. The contract also provided that the number of tenants and share croppers on the farm should not be reduced below the number maintained in 1933 because of the reduction in tobacco acreage. Restrictions were also placed on other basic agricultural products such as wheat, cotton, and potatoes.

The majority of the tobacco farmers accepted the plans and cooperated with the Agricultural Adjustment Administration with favorable results. After a few years the program was changed to include agricultural conservation payments, wherein specific soil-building practices were carried on by the farmers with a part of the expenses defrayed by the

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[18]The United States Department of Agriculture, The Burley Tobacco Adjustment Program Bulletin (Washington: 1933), p. 2.

Conservation and Domestic Allotment Act of 1936. Farms whereon no tobacco had been grown could obtain a base acreage by planting tobacco and paying a percentage of the sale proceeds to the Federal government.

Small farms in the more concentrated commercial tobacco areas as Greene, Claiborne, Hamblen, Hawkins, and Washington Counties, have continued to predominate. Some of the farms are the subsistence type of farm, a number of the farms specialize in burley tobacco, while the majority are combination farms, producing corn, wheat, hay, and livestock with two to four acres of tobacco as a cash crop.

Coinciding with the advent of the Agricultural Adjustment Administration, was the development of the Tennessee River and its tributaries by the Tennessee Valley Authority. Flood control by dams on the river system and participation in soil conservation practices including reforestation of eroded fields, terracing, and applications of lime and super-phosphate, increased legume acreage and number of livestock brought a change to the landscape and the people in the Valley. The University of Tennessee, the Experiment Stations, County Farm and Demonstration Agencies, and other educational institutions and facilities assisted in the development and conservation of natural resource programs (Figure 8).

Figure 8

Tobacco beds on the experiment farm in Greene County

Figure 9

Tobacco beds in new-ground

Tobacco production in number of pounds and in quality actually increased as the farmers cooperated with the Conservation Programs. Tobacco prices increased along with other agricultural products and farms in the Valley acquired a more prosperous appearance.

The Present Culture of Burley

The culture of burley tobacco of necessity follows a yearly sequence. The tobacco farmer's work is scheduled according to the annual time table of the various phases in growth of the plant. The planter usually selects a site for the plant bed during January while the temperature is too low for very much work on the farm. This is very important, because good, strong plants are the prerequisite for a good tobacco crop; and thoughtful, experienced farmers are usually successful with plant beds. A southern or eastern exposure is preferred in a new ground, an old grown up fence row with a rich soil, or a well drained space in a clover lot (Figure 9). Proximity to water is desirable since the plants may require applications of water and diluted nitrates for quick growth. A tobacco bed in East Tennessee is usually nine feet wide and fifty to one hundred feet long.

A smoky, hazy atmosphere prevails in the Valley from about February 1 until March 20, on the clearest, driest days as the plant beds are prepared and burned. Some beds are steamed to prevent the growth of weeds and grass, but most of the farmers prefer to burn brush or logs on the site selected for a plant bed.

After burning, the soil is plowed or spaded and leveled with a garden rake; then the seed 300,000 or 400,000 to the ounce, enough for a bed 250 feet long and nine feet wide, are sown and tramped in by the sower. The commercial tobacco farmer uses a standard variety and strain of tobacco seed from established seed organizations. A frame of six or eight inch planks or logs is made around the bed. Two galvanized wires are stretched taut from end to end of a bed nine feet wide and a canvas is placed on the frame and held in place with small nails.

While the plants are growing in the beds the tobacco fields or patches will be prepared during March and April. The tobacco field will be one of the most fertile and well drained on the farm. Meanwhile, the farmer is mindful of the plant bed--frequently spraying to kill insects, watering, and weeding it.

Some will say that tobacco exhausts the soil to a much greater extent than other crops. But soil fertility can be maintained with proper rotation, fertilization, and

cultivation methods by any intelligent and industrious farmer. The soil requirements for various crops are recognized by many tobacco farmers who practice scientific methods to maintain soil fertility in the Valley. Tobacco requires nitrogen, potash, lime, and available phosphoric acid. Barnyard manure helps to supply all these elements plus organic matter. "Fertilizer demonstrations in East Tennessee indicate that a liberal amount of high grade fertilizer pays, 500 to 1000 pounds of a 3-9-6[19] mixture, the amount depending upon the character of soil and tons of manure used."[20] A mixture of 4-12-4 fertilizer is preferred by some planters.

Transplanting from the plant beds to the prepared tobacco fields begins about May 10, after a rain in the Valley. Many farmers do not wait for a "wet season," but "dry set" the plants using a mechanical planter. The greater proportion of the acreage is transplanted by June 10. Cultivation proceeds during the summer months with an occasional dusting or spraying of the plants for devasting insects and worms.

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[19] 3 = per cent of nitrogen - 9 = per cent of phosphate - 6 = per cent of potash.

[20] Roy H. Milton, Burley Tobacco Culture, Agriculture Extension Service, University of Tennessee, Knoxville, 1946, p. 5.

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Topping is generally delayed until the majority of the plants are in full bloom or until a heavy growth of suckers has developed. This tends to produce a thinner, brighter colored leaf which commands a higher price. Quality is preferred to quantity.

Tobacco is usually ready for harvest ninety to one hundred days after it has been transplanted. Harvesting is a very busy season on a tobacco farm from about August 10 until September 15. The method of harvesting generally used is that of cutting the plant near the base and slipping it over a sharp pointed metal spear on a tobacco stick. Five to six plants are placed on a four foot stick. Throughout East Tennessee, wagons, trucks, and sleds may be seen hauling the sticks of tobacco to the barns. There it is hung in tiers from the top to the ground floor of the barn. A tobacco barn 40 feet wide, 60 feet long, and 16 feet high at the eaves, will house two to three acres of tobacco.

The tobacco turns from yellow to brown in six to eight weeks in the barn. Meanwhile, the farmer will cut and store hay and corn, and prepare for seeding wheat or other small grain, with grass seed, on the tobacco fields. As a rule, tobacco fields are given special attention in rotation of crops. The majority of the farmers follow a three to four year cycle of tobacco, wheat, grass, and

clover crops in order to produce the finer grades of tobacco. Corn is included in tobacco rotation cycles on only the most fertile lowland soils.

Stripping and grading of the leaves is started about the first of November when the stem of the leaf has thoroughly dried. Warm, humid weather is necessary in order to bring the leaves into "case"--a damp limp state. Farm hands will be busy on such days, and often hours into the night, stripping, grading, and tying twenty-five to thirty tobacco leaves into hands. This, too, requires experience if the best prices are obtained. The leaves will be graded chiefly on the basis of weight or body of leaf, and color. Any particular crop of tobacco is quite uniform in most characteristics, as a rule, and can be placed in six to eight so-called grades. Grades are designated as, flyings or trash, lugs, bright leaf, long red, short red, green and damaged leaves.

Experience and skill of the planter in all phases of tobacco production are necessary. About 400 man hours of labor in various kinds of weather are required to produce an acre of tobacco. Costs vary greatly because of wage differentials and efficiency in labor. Much of the work must be done with the hands or very simple machinery. The experienced planter recognizes the best time for transplanting and cultivating, how and when to cut and space

the sticks in harvesting and filling the barn.

Tenants

Greene County, leading in the number of acres of tobacco, also leads in the number of tenants, followed by Cocke, Claiborne, Hawkins, Sevier, and Washington Counties. It seems evident that tenants are a definite part of the burley tobacco culture pattern. The majority of tenants are young people who get married and start housekeeping on their parent's farm or on a neighbor's farm. As a rule, they are diligent and conservative, and after a few years buy a few acres on which they build a home and rear a family. Those who remain tenants usually live one to two years on a farm and in the fall move to another farm where they resume the yearly sequence of tobacco cultivation.

The tobacco acreage grown by a tenant depends to a great extent upon the manpower of his family. The tobacco tenant also plants corn, wheat, and a vegetable garden. He can keep a few chickens, hogs, and a cow. However, his chief interest in farming is tobacco. Usually tenants produce first grade tobacco. The quantity and quality depend greatly upon the initiative, energy, and resources of the owner of the farm.

Tobacco Markets in East Tennessee

The interests of growers, manufacturers, and consumers are involved in the production of tobacco. The well established manufacturers have developed certain brands of cigarettes, cigars, and other products, based on a particular type of tobacco from a certain geographical locality. They depend upon that area to supply an approximate number of pounds each year. Thus, East Tennessee with a very small beginning in Greene County gradually bacame an outstanding commercial area for burley tobacco (Figure 10).

The present loose-leaf market in which the tobacco is packed on baskets, has the following definite advantages over the pioneer hogshead type of markets:[21] (1) the farmer's problems in preparing for market are reduced; (2) small crops can be sold on nearby loose-leaf markets more conveniently and with less expense than if packed in hogsheads; (3) public selling at auction affords the planters a greater opportunity to compare the bids received on their tobacco with other prices received for tobacco; (4) the farmer has the privilege of rejecting unfavorable offers; and (5) it provides a quicker method of selling and a more rapid receipt of payment (Figure 11).

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[21] In hogshead markets, the tobacco was packed and pressed into hogsheads made of oak staves.

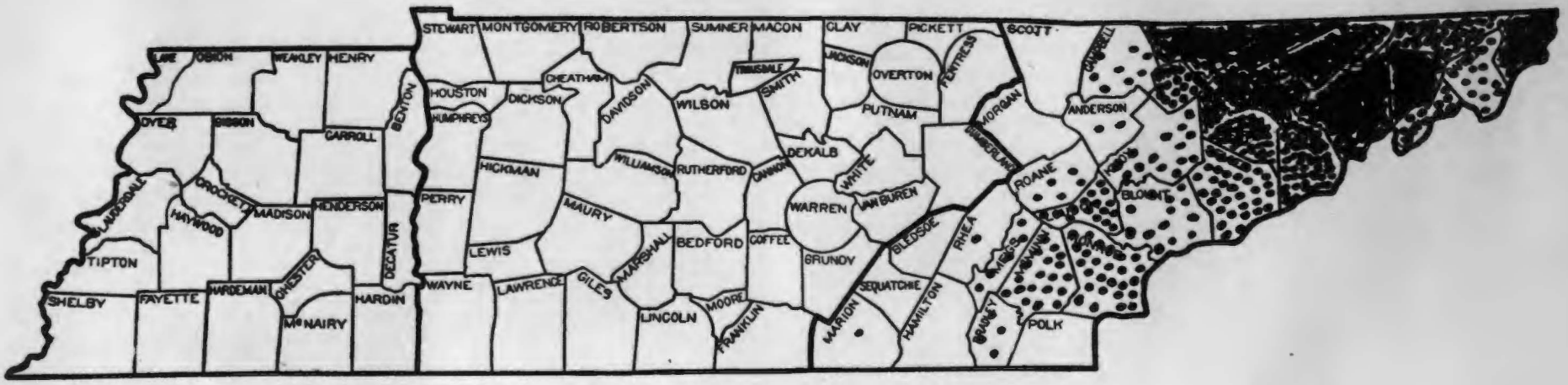


Figure 10

Tobacco Acreage, 1945.

1 dot = 50 Acres

Figure 11

Tobacco on the warehouse floor

Figure 12

A tobacco warehouse

Many improvements have gradually been made in marketing facilities. The tobacco was taken to market in wagons from 1885 until about 1920. Wagons drawn by horses or mules, from the mountainous areas of North Carolina and from all of East Tennessee, were days and nights traveling over rough, often times, muddy roads to market in Greeneville. The planter usually had to spend a week in Greeneville waiting for his tobacco to be sold. Macadamized roads, trucks, cars, and increased marketing locations have improved the methods of sale. Generally, the planter receives a check the same day his crop is placed and sold on the warehouse floor.

The construction of hard surfaced roads and the use of trucks has produced competition among markets for the crops of tobacco in the Valley. The increasing competition has, in turn, brought many improvements in the loose-leaf system of marketing to the benefit of both planters and buyers.

East Tennessee has six well-equipped marketing centers. These are located at Johnson City, Greeneville, Rogersville, New Tazewell, Morristown, and Knoxville. Collectively, there are forty-four warehouses in these six towns.

Greeneville, in Greene County, is the oldest and largest burley tobacco market in Tennessee. There are

fifteen warehouses containing approximately 630,000 square feet of floor space in Greeneville under the efficient management of descendants of influential tobacco pioneers, namely the Austins, Adams, Bernards, and others.

The largest single tobacco warehouse in the world is in Knoxville. It contains 360,000 square feet of floor space. The growth of industries and of food crops in the southern part of the Valley originally restricted the tobacco acreage, but since 1925 the number of pounds grown in the vicinity has increased greatly.

The year 1909 marks the first warehouse sale of tobacco in Johnson City. Eight warehouses there sold 10,541,456 pounds in 1946.

New Tazewell, in rugged Claiborne County, has five large, new warehouses. Some tobacco from Lee County, Virginia and from Knox and Bell Counties in Kentucky is sold on the New Tazewell market. The majority of the tobacco grown in the eastern part of the Plateau is marketed at this location.

Morristown, in Hamblen County, has six warehouses totaling 283,200 square feet of floor space on which more than 10,000,000 pounds of burley were sold in 1946. Morristown has developed industrially recently, but many acres of fine tobacco are still cultivated in the County.

Rogersville, in Hawkins County, has eight warehouses including 360,000 square feet of floor space. The first warehouse erected there was in 1939.

The tobacco warehouses are large one-story buildings usually erected in the outskirts of the town, near a road leading from a prominent tobacco area into the city (Figure 12). The buildings are built of brick, cement blocks, or metal. The warehouses are used for the sale of tobacco only three months of each year. After sales, from March until December, some of them are available for storage space, recreation halls, county fairs, and other community activities.

Employees are stationed at each warehouse day and night during sales to receive, weigh, and classify the tobacco according to Federal regulations as it is brought in from the farms.

The total number of pounds sold in East Tennessee in 1946 was 78,505,957 at an average of $39.71 per hundred (Table V). Tobacco thus brought the Valley farmers approximately thirty-four million dollars from its sale. Practically all six markets in East Tennessee receive some tobacco from Virginia, Kentucky, and North Carolina and occasionally from Georgia. A few planters in East Tennessee patronize the nearby markets at Abingdon, Virginia, and Boone and Asheville, North Carolina. The average price prevailing

TABLE V

INCREASE IN POUNDS FROM 1880-1944[22]

County	1880	1900	1920	1945
Anderson	7878	28070	9784	166759
Blount	4362	19650	8745	938844
Bradley	6110	12170	38448	200300
Campbell	6077	7680	4351	573883
Carter	12932	6920	49631	917874
Claiborne	12736	35500	13251	4224955
Cocke	13161	86830	471835	2684133
Grainger	13121	17740	20202	2608956
Greene	26192	517150	5008584	9256983
Hamblen	34930	8380	49513	2382586
Hancock	7541	34460	14675	2803728
Hamilton	4045	5590	2392	6920
Hawkins	42781	60050	108719	4264665
Jefferson	6045	19540	63500	2163300
Johnson	9335	10860	7985	2898208
Knox	16366	18000	21518	789444
Loudon	6517	11100	5407	1055350
McMinn	615	15460	18624	1150261
Marion	6344	3850	4101	27224
Meigs	4159	15590	18884	319414
Monroe	11810	28770	232100	1687803
Morgan	6537	10070	12791	19534
Polk	5295	6820	2811	6028
Rhea	5347	9330	1925	51560
Roane	6125	14430	12552	348646
Scott	5935	5980	265	4153
Sevier	9719	47140	8117	2249440
Sullivan	70069	46830	120448	2522504
Unicoi	23022	3180	89861	697889
Union	4026	22360	5679	1160481
Washington	27312	63660	2386761	4430286

[22]United States Department of Commerce, Bureau of the Census, Census of Agriculture (Washington: United States Government Printing Office, 1883-1946).

for certain warehouse floors is the determining factor in their choice of sales location. Sales are conducted five days each week from December until the latter part of February. A few years ago the streets of Greeneville, "the Hub of the East Tennessee Burley Market," were often congested, but the increase of warehouses there, and in surrounding counties now prevents that problem.

All burley tobacco sold on the warehouse floors is marked according to Federal standards (Table VI). The buyers who are familiar with the accepted standards, buy the tobacco at approximately the prevailing price for that particular standardized mark. The Federal grading system has been used to some extent since 1929.

The tobacco marketing season is a very busy season in the Valley. The chant of the auctioneer as he moves down row after row of tobacco packed on baskets followed by planters and buyers, is the signal for the entire area to take on new life. Thousands of dollars enter the channels of trade from the sales. Many people are employed in the marketing as well as in cultivating the tobacco. The warehouse doors are open throughout the season and the packed baskets of tobacco are familiar features in the six East Tennessee marketing centers.

TABLE VI

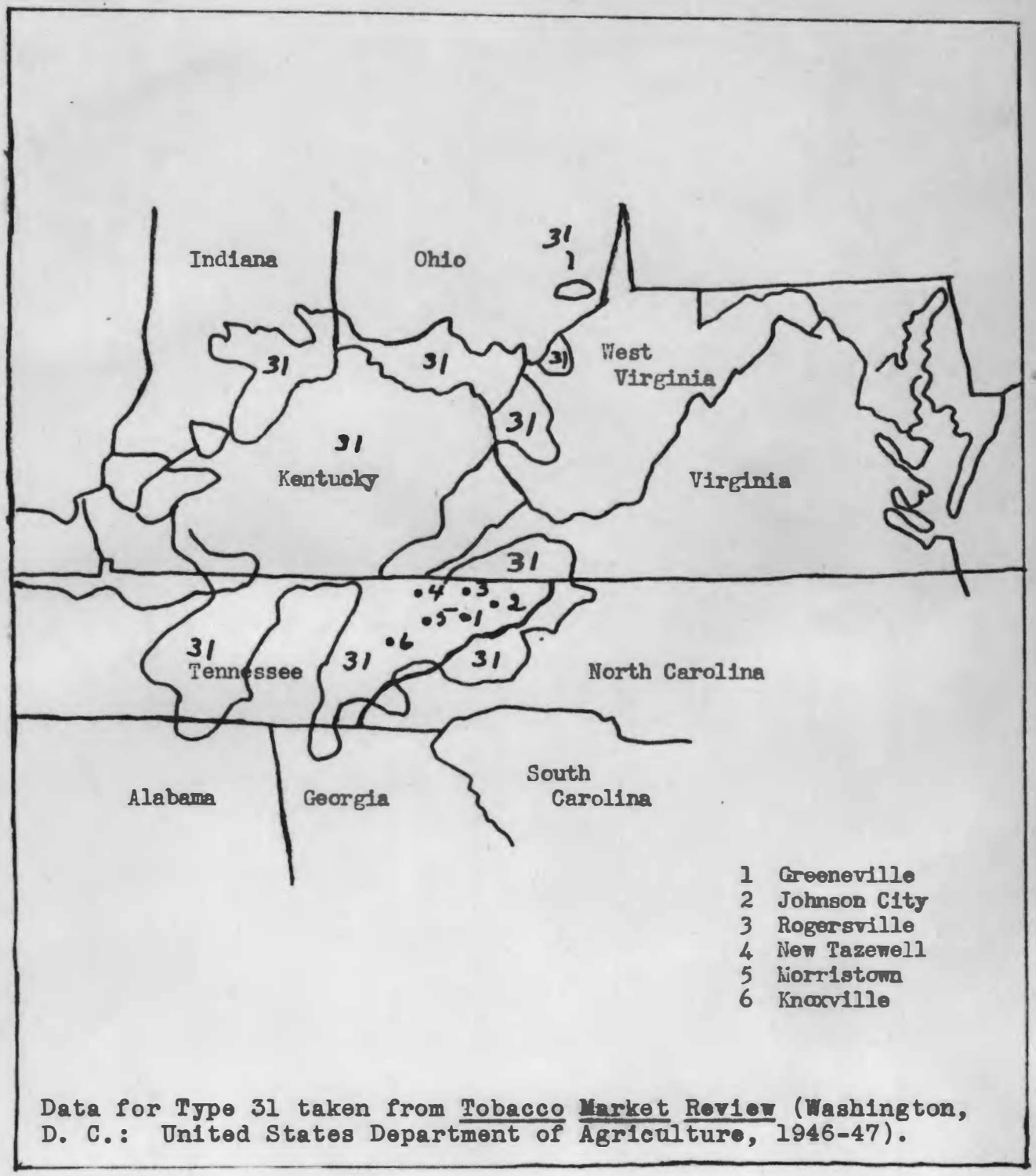
BRIEF OF CLASSIFICATION[23]

Type 31: Burley; produced in Kentucky, Tennessee, Ohio Indiana, West Virginia, Virginia, North Carolina, and Missouri

Key to Standard Grade Works for Burley Tobacco

Group	Quality	Color	Special Factor
A - Wrappers	1. Choice	L - Buff or Straw	V - Greenish
B - Leaf	2. Fine	F - Tan	M - Mixed
T - Tips	3. Good	FR - Reddish Tan	K - Variegated
C - Lugs or Cutters	4. Fair	R - Red	W - Unsafe Order
D - Flyings	5. Low	D - Dark Red	U - Unsound
N - Nondescript		G - Green	
		(F) Tan Side	
		(R) Red Side	

[23] Light Air Cured Tobacco Market Review, United States Department of Agriculture Production and Marketing Administration, Tobacco Branch, Washington 25, D. C., July 1947, p. 1.



Data for Type 31 taken from Tobacco Market Review (Washington, D. C.: United States Department of Agriculture, 1946-47).

Figure 13

Type 31 Burley Tobacco Producing Areas, 1946-1947 and Markets in East Tennessee

Tobacco Redrying Plants in the Valley

It is a long way from the burley patch to the manufactured product. A large per cent of the East Tennessee burley is shipped by railway to redrying and manufacturing plants at Winston-Salem, North Carolina, Richmond, Virginia and other northeastern points where the majority of the finer quality is used for cigarettes.[24] Forty per cent of the tobacco sold on the Greeneville warehouse floors, according to W. W. Bernard, an owner of warehouses there, passes through the two redrying plants in Greeneville. Similar plants in other East Tennessee marketing centers, as Knoxville and Morristown redry and ship millions of pounds.

In the redrying plant several hogsheads of the same grade of tobacco are blended into a "perfect" grade. After having been blended the product is hung on sticks and carried by machinery through a number of heated compartments from 140° to 230° Fahrenheit where it is thoroughly dried to a crumbling stage. The tobacco is cooled and remoistened by circulating steam through regulated atomizers to all parts of the leaf until the product is in packing order.

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[24]Bennett S. White Jr., Trends in Demand for Tobaccos of the Southern States, Bulletin 431 (Lexington: Kentucky Agriculture Experiment Station, 1942).

All of the natural moisture is lost and only artificial moisture remains. Meanwhile, the tobacco loses ten per cent in weight. Eight to ten thousand pounds of burley an hour is processed. In some redrying plants the stem of the leaf is removed before processing proceeds.

The hogsheads of oak, poplar or other native wooden staves, carry approximately 1000 pounds net. They are generally manufactured in the factories where they are loaded with tobacco, headed out, weighed, and stenciled showing crop year, grade, and the hogshead number. They are bound at points with wire, and metal bands to prevent bursting and constructed in a manner to permit easy rolling. The hogsheads are stored in tiers in storage warehouses for future consumption. Tobacco will keep indefinitely in such hogsheads while it tends to become "sweet and ripe." This accounts for the "aged in wood" characteristic of favorite brands of cigarettes. Manufacturers prefer to use tobacco that has been aged three or more years.[25]

Summary

Burley tobacco requires an annual rainfall from forty-two to fifty inches, the greater part of this

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[25]"Redrying and Processing in the Valley," Knoxville Journal, December 15, 1947, p. 19.

preferably during the winter and spring months, a curing season in the fall in a climate suitable for uniform coloring and curing, soils that can be made productive, that are well drained and are responsive to intensive cultivation and extensive fertilization, and a population with the patience and vitality to spend in cultivating the crop.

East Tennessee meets these qualifications. For about sixty years, with a concentration in the upper part of the Valley, the cultural pattern has developed around the yearly sequence of the cultivation and marketing of the plant. The burley tobacco market has developed into one of the outstanding industries of the South. It seems evident that as long as there is a demand for cigarettes burley tobacco will be produced in East Tennessee.

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