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Resources of the Upper South Branch Valley, West Virginia

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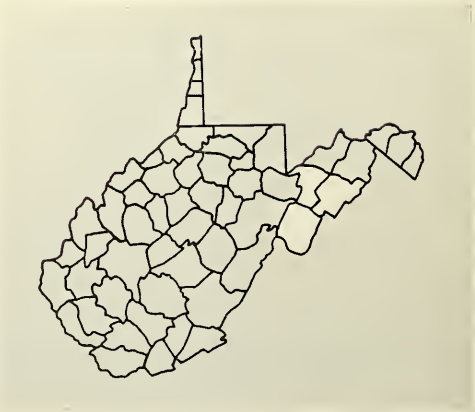
RESOURCES OF THE UPPER SOUTH BRANCH VALLEY, WEST VIRGINIA



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PREFACE

THIS PUBLICATION represents the completion of one phase of a larger research project dealing with the economic development of the Upper South Branch Valley. The project received financial support from a federal grant which was awarded to the West Virginia University Agricultural Experiment Station under the Appalachian Bill.

The overall project, including this publication, is under the direction of Dr. James L. Stallings, Assistant Professor of Agricultural Economics of the West Virginia University Agricultural Experiment Station and Dr. Homer C. Evans, Assistant Director of the Station. Mrs. Sharon Lord was employed to conduct the research and organize the material for this publication and to write most of the text. Mr. Nelson Bills, Research Assistant with the West Virginia University Agricultural Experiment Station, made numerous contributions to the publication by providing information from a sub-project of his own, and by assisting with the writing. The description of the climate of the Upper South Branch Valley in Chapter III was provided by Robert O. Weedfall, Weather Bureau State Climatologist, Environmental Sciences Services Administration, United States Department of Commerce.

The information contained in this publication was obtained largely from secondary sources; however, in some cases specialists in various fields were called upon to provide information when published material was not available.

THE AUTHORS

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Chapter I
INTRODUCTION

THIS PUBLICATION presents a description of the resources of Grant, Hardy, and Pendleton counties, West Virginia—an area which shall be referred to throughout this bulletin as the Upper South Branch Valley. The publication is intended to serve as a reference book in which can be found an inventory of the area's resources—the people and their characteristics, the natural resources, the area's community services, and the economy in terms of businesses and industries.

The overall objective of the entire project in the Upper South Branch Valley is to study and recommend courses of action for the economic development of the area. However, before studies and recommendations can be made, it is necessary to know what an area presently contains in the way of resources. The

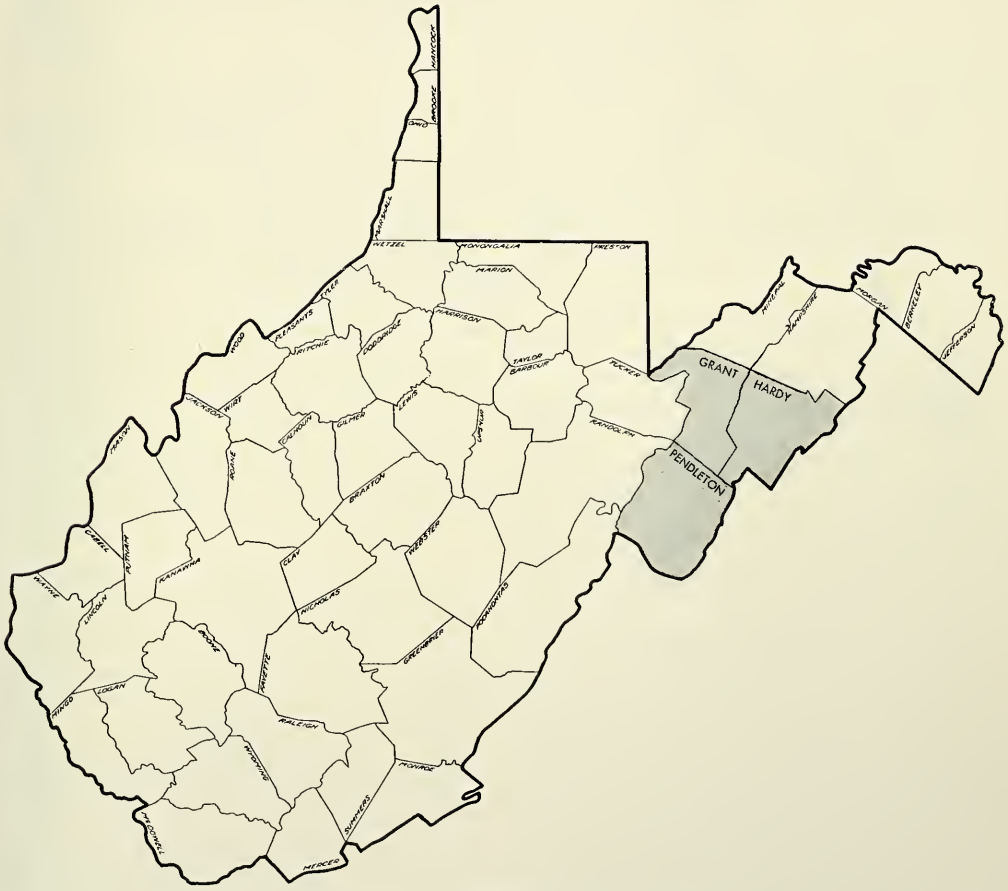

FIGURE 1
Location of the Upper South Branch Valley.

FIGURE 2
County Seats and Magisterial Districts of the Upper South Branch Valley.

objective of this bulletin is to provide the necessary inventory of resources. It is hoped that this information will be useful to a variety of persons among whom would be included anyone concerned with furthering the well-being of the area, such as chambers of commerce, service organizations, government officials, and local businessmen. Another phase of the project currently under way is an "input-output" analysis of the local economy which will provide a tool for studying the direction the economy might take for optimum economic development.

In order to present a relatively concise description of the resources and activities of the area, tables and figures which seemed useful to present, but not necessary for a general picture, were placed in an appendix

at the end of each chapter. Also included in the publication is a bibliography which might be useful to persons wanting to do a more thorough study of specific aspects of the economy. In order to keep the information as up-to-date as posible, the most recent publication of any given source was used.

Chapter II
HUMAN RESOURCES

THE MOST IMPORTANT resource of any area is its people. Economic progress is dependent not only on natural factors, but also on human factors such as educational attainment, health standards, age distribution, level of income, and available labor supply. A description of these factors and the changes underway describe the human resources of an area.

POPULATION

Population Distribution

The area designated as the Upper South Branch Valley is located in the "Eastern Panhandle" of West Virginia and is composed of the entire areas of Grant, Hardy, and Pendleton counties. The three-county area consists of 1,757 square miles and, according to 1960 census information, has within its boundaries a population of 25,705. The population density is only 14.6 persons per square mile, whereas the state average is 77.3. The area is sparsely populated, constituting only 1.38 per cent of the total West Virginia population.

There are no urban areas in the three counties. Fifty-nine per cent of the population is classified as rural non-farm and the other 41 per cent as rural farm. However, there are five small incorporated places which contain one-fifth of the total population of the Upper South Branch Valley.

TABLE 1

Incorporated Towns in Upper South Branch Valley, 1960

County	Town	Population
Grant	Petersburg	2,079
	Bayard	484
Hardy	Moorefield	1,434
	Wardensville	289
Pendleton	Franklin	758

Source: United States Bureau of the Census, *United States Census of Population*, 1960.

Population Trends

The population of the area grew steadily until 1920; however, after that date, it fluctuated between increases and decreases. The peak population was reached in 1940 when the area total was 30,502. Since 1940 the population has declined steadily.

Population Characteristics

Age Distribution

The age distribution in the Upper South Branch Valley shifted markedly during the period from 1930 to 1960. A comparison of 1930 through 1960 population figures reveals a decreasing percentage of the population falling in the 0-34-age range and an increasing percentage falling in the 35-65+ age range. There has been a high out-migration rate for the younger-age groups and a much lower migration rate for the older-age groups (Tables 2 and 3).

Education

The educational qualifications of the people of the Upper South Branch Valley are lower than State and national averages. However, the low educational levels observed among area residents may be related to the area's rapid population losses and the lack of employment opportunities for persons who have attained a high level of skill and education.

Educational levels. The median number of school years completed in the United States is 10.6, in West Virginia 8.6, and in the Upper South Branch Valley approximately 8.35. None of the counties in the area meets the national or State averages for percentage of population with at least four years of high school. Only 20 per cent of those persons in the Upper South Branch Valley who are 25 years and older have completed four years of high school as compared with 31 per cent in West Virginia and 41 per cent in the United States. The number of college graduates is also below the State and national averages. Approximately 3 per cent of the population 25 years and older have completed four years of college, as compared with 5.2 per cent in West Virginia and 7.7 per cent in the United States (Table 4). The area does come close to equaling the State percentage for number of recent high school graduates now attending college. Approximately 26 per cent of the 1961-62 high school gradu-

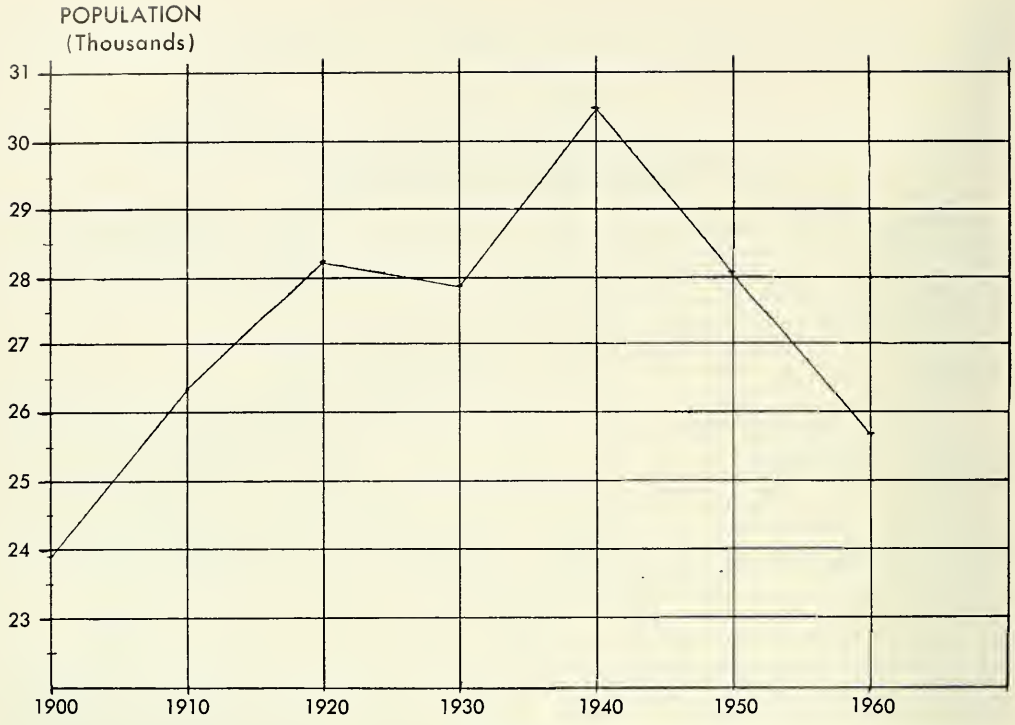

FIGURE 3

Population of Upper South Branch Valley, 1900-1960. (From United States Census of Population)

ates in the Upper South Branch Valley went to college, while on a State-wide basis, 29 per cent of all high school graduates went to college.

School drop-outs. The school drop-out rate for the area is about the same as it is for West Virginia as a whole; however, the age at which students drop out varies greatly among the three counties. Hardy County has a much greater percentage of students under the age of 16 who drop out of school than do the other two counties, and, as a result, has fewer drop outs who are 16 years of age or older. In Grant and Pendleton counties 54 per cent of the students who drop out of school are 16 years of age.

Health

The general level of health in the Upper South Branch Valley is quite similar to that of West Virginia as a whole and, in some cases, the area shows a higher level of health. Infant death rate and neonatal death rate[1] are much lower in the three-county area than in the State. Grant County shows both a higher birth rate[2] and a higher death rate[3] than the State, while Hardy and Pendleton counties have a lower birth rate than the State and a death rate identical to that of the State.

The main causes of death in the Upper South Branch Valley are the same as those in West Virginia and the United States. Causes of death (excluding accidents) in descending order of occurrence are (1) disease of the heart, (2) cancer, (3) diseases of the nervous system, and (4) pneumonia and influenza.[4]

[1]Neonatal death rate refers to the deaths per 1,000 live births occurring in the first 28 days after birth.
[2]Birth rate refers to births per 1,000 population.
[3]Death rate refers to deaths per 1,000 population.
[4]West Virginia Department of Health, *Vital Statistics*, 1963.

TABLE 2

Age Structure of the Population, 1930-1960

Year	Number of Inhabitants	Percentage of Total						
		0-4	5-14	15-24	25-34	35-44	45-64	65+
				Grant County				
1930	8,435	11.8	24.9	19.3	11.8	9.9	16.3	6.0
1940	8,805	10.8	21.2	19.6	14.1	10.6	16.3	7.4
1950	8,756	12.6	21.8	15.3	13.7	11.8	16.3	8.5
1960	8,304	10.4	22.1	14.5	10.7	12.0	20.0	10.3
				Hardy County				
1930	9,812	12.7	24.6	18.8	12.1	10.7	15.5	5.6
1940	10,813	10.5	22.5	19.4	14.5	10.6	15.9	6.6
1950	10,032	11.8	20.2	16.4	13.0	12.2	17.6	8.8
1960	9,308	10.2	21.7	13.3	11.7	12.1	20.1	10.9
				Pendleton County				
1930	9,639	13.3	25.0	18.0	12.2	10.5	15.0	6.0
1940	10,884	11.8	23.1	19.4	13.6	10.4	15.3	6.4
1950	9,313	10.9	21.3	16.6	12.1	12.0	18.1	9.0
1960	8,093	10.0	20.8	14.0	10.9	11.5	21.1	11.7
				West Virginia				
1930	1,729,205	12.0	23.9	19.1	14.4	12.0	14.5	4.2
1940	1,901,974	10.3	20.9	19.9	15.4	12.2	15.9	5.3
1950	2,005,552	12.0	19.7	16.3	15.0	13.0	17.1	6.8
1960	1,860,421	10.6	21.6	14.1	11.7	12.8	20.0	9.3
				United States				
1930	122,775,046	9.3	20.1	18.2	15.4	14.0	17.5	5.5
1940	131,669,275	8.0	17.0	18.2	16.2	13.9	19.8	6.8
1950	150,697,361	10.7	16.2	14.6	15.7	14.3	20.3	8.1
1960	179,323,175	11.3	19.8	13.4	12.7	13.4	20.1	9.3

Source: Leonard Sizer, *A Study of the Age Structure of the Population of West Virginia by Counties,* 1930-1960, *and by Magisterial Districts,* 1930 *and* 1960.

TABLE 3

Estimated Net Migration Rate by Age Groups, 1950-60 (Per Cent)

	W. Va.	Grant	Hardy	Pendleton
Overall rate	−19.3	−17.9	−17.2	−22.0
0- 4	− 7.1	− 6.7	− 4.3	+ 0.4
5- 9	−15.4	−16.0	− 4.3	−10.0
10-14	−17.0	−18.2	−13.2	−15.7
15-19	−22.8	−25.5	−27.3	−27.7
20-24	−42.9	−47.6	−49.0	−56.6
25-29	−39.3	−40.3	−45.6	−54.9
30-34	−27.0	−26.4	−19.5	−29.6
35-39	−22.4	−20.8	−17.0	−20.9
40-44	−17.2	−10.9	− 9.0	−15.8
45-49	−14.2	− 3.7	−15.5	−14.6
50-54	−12.1	− 5.4	− 5.1	− 8.3
55-59	−11.0	− 4.7	− 3.1	−14.0
60-64	− 7.0	0.0	− 7.8	− 8.6
65-69	− 7.0	− 9.2	− 4.9	−10.0
70-74	− 4.5	− 0.3	− 3.6	− 7.7
75+	− 4.2	− 5.4	− 4.8	− 7.7

Source: United States Department of Agriculture—Economic Research Service, *Net Migration of the Population,* 1950-1960, *by Age, Sex, and Color.*

Mental patients from the three-county area make up 1.4 per cent of the total mental patients in the State. Table 6 gives a breakdown of the area's mental patients.

Race and Nativity

The Upper South Branch Valley has a non-white population of 645—2.5 per cent of the total population; practically 100 per cent of the non-white population is negro. Foreign-born inhabitants constitute only one-tenth of 1 per cent of the total population.

Marital Status

Table 7 sums up the marital status of Upper South Branch Valley residents.

Housing

According to 1960 housing information, there are 7,824 housing units in the Upper South Branch Valley, 6,848 of which are occupied. The average population per occupied unit is 3.75; this compares with a State average of 3.5. Of the occupied units, 29 per cent are renter-occupied, while 71 per cent are owner-occupied. The median value of owner-occupied houses is approximately $5,900, which falls below the State average of $7,600. Of the total units, 16.9 per cent were built in 1950 or later.

Table 8 gives a comparison of the area's housing facilities with those of the State as a whole.

TABLE 4

Number of Years of School Completed, 1960

	United States	West Virginia	Grant	Hardy	Pendleton
Median years of school completed, persons 25 years and over	10.6	8.6	8.4	8.2	8.4
Per cent having at least 4 years of high school	41.1	30.6	20.5	19.7	20.7
Per cent having 4 years of college	7.7	5.2	2.2	3.7	3.5

Source: West Virginia Department of Health, Planning Division, *Materials Prepared For Regional Action Meetings*, 1964.

TABLE 5

Age at Time of School Drop-Out

Age	West Virginia	Grant	Hardy	Pendleton
		Per Cent		
Under 16	15.5	6.1	31.9	12.5
16 Years	44.1	54.5	42.6	54.1
17 or over	41.8	39.4	25.5	33.4
Not shown	.6	0	0	0

Source: West Virginia Department of Health, Planning Division, *Materials Prepared for Regional Action Meetings*, 1964.

Statistics on I.Q. of school drop-outs show that approximately 25 per cent of the drop-outs in the Upper South Branch Valley fall in I.Q. range above 100. On a State-wide basis, one also finds that 25 per cent of the drop-outs fall in the above 100 range.

TABLE 6

Number of Mentol Patients in Mental Residents And on Leave, by Sex, 1964

	West Virginia	Upper South Branch Valley	Grant	Hardy	Pendleton
		Male Patients			
Residents	2,765	39	14	15	10
On leave	1,036	4	0	1	3
		Female Patients			
Residents	2,461	54	15	27	12
On leave	947	5	1	4	0

Source: West Virginia Department of Health, Planning Division, *Materials Prepared for Regional Action Meetings*, 1964.

Of all housing facilities in the Upper South Branch Valley, 36 per cent have all plumbing facilities, as compared with 50.7 per cent in West Virginia.

THE LABOR FORCE

Labor Force Characteristics

Census of population data indicate that in 1960 the area's labor force was 8,112 persons.[5] This figure represents approximately 31.6 per cent of the total population. Comparable data for the same year are presented for the nation and West Virginia in Table 9. This table also points out that unemployment rates in 1960 in the Upper South Branch Valley are almost

[5]Labor force includes armed services, but they make up a very insignificant percentage.

TABLE 7

Marital Status of Individuals 14 Years and Over by Sex, 1960

Marital Status	Upper South Branch Valley	Grant	Hardy	Pendleton
		Male		
14 Years and Over	8,954	2,844	3,239	2,871
Single	2,646	823	921	902
Married	5,763	1,862	2,111	1,790
Per Cent Married	64.4	65.5	65.2	62.3
Separated	81	27	33	21
Widowed	385	101	146	138
Divorced	160	58	61	41
		Female		
14 Years and Over	9,096	2,926	3,296	2,874
Single	1,977	608	712	657
Married	5,871	1,889	2,136	1,846
Per Cent Married	64.5	64.6	64.8	64.2
Separated	100	36	35	29
Widowed	1,051	349	383	319
Divorced	197	80	65	52

Source: United States Bureau of the Census, *United States Census of Population*, 1960.

TABLE 8

Per Cent of Occupied Units with Various Housing Facilities, 1960

Facilities	West Virginia	Grant	Hardy	Pendleton
Clothes washing machine	88.1	91.4	85.7	90.6
Home food freezer	16.0	17.7	22.0	38.7
Air conditioning	5.8	2.8	4.8	2.8
Television set	83.3	66.6	61.0	67.7
Telephone	67.2	35.3	50.4	54.3
One automobile	59.3	58.8	55.1	59.3
Two or more automobiles	14.0	16.1	16.6	24.5

Source: United States Bureau of the Census, *County and City Data Book*, 1962.

TABLE 9

Population, Labor Force and Employment, by Sex—1960, For United States, West Virginia, and Upper South Branch Valley

	United States			West Virginia			Upper South Branch Valley		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total population	179,323,175	88,301,928	91,021,247	1,860,421	914,906	945,515	25,705	12,877	12,828
Number of population in labor force	69,877,476	47,467,720	22,409,756	588,080	425,634	162,446	8,112	6,366	1,746
Per cent of population in labor force	39.0	53.8	24.6	31.6	46.5	17.2	31.6	49.4	13.6
Number of labor force employed	64,639,247	43,466,946	21,172,301	538,214	385,153	153,061	7,407	5,768	1,639
Rate of unemployment	7.5	8.4	5.5	8.4	9.5	5.8	8.6	9.4	6.1

Source: United States Bureau of the Census, *United States Census of Population*, 1960.

identical to those of the State but slightly higher than those of the nation.

It should be noted that in 1960 a smaller proportion of the total population was in the labor force in West Virginia and the Upper South Branch Valley than in the nation as a whole. As Table 9 shows, in the State, this differential is caused by a smaller proportion of both males and females entering the labor force than in the United States. In the Upper South Branch Valley, however, the proportion of males entering the labor force is close to the national average. It is the very small proportion of females entering the labor force, therefore, that accounts for the differential in the Upper South Branch Valley.

Table 10 gives an indication of relative levels of the male and female labor force and male and female employment for 1940 through 1960. It is apparent that the Upper South Branch Valley, like the State and the nation, has experienced some increases in female employment since 1940. On the other hand, the State and the Upper South Branch Valley show a sizable decrease in the number of males in the labor force since 1940. Table 11 illustrates relative changes in labor force and employment as compared with population changes, 1940-50 and 1950-60.

The 1960 labor force is presented in terms of age distribution in Table 12. In most cases, counties within the area show a slightly older labor force than the

TABLE 10

Population, Labor Force, and Employment by Sex, 1940, 1950, 1960

	United States			West Virginia			Upper South Branch Valley		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total Population									
1960	179,323,175	88,301,928	91,021,247	1,860,421	914,960	945,515	25,705	12,877	12,828
1950	150,697,361	74,833,239	75,864,122	2,005,552	1,006,287	999,265	28,101	14,307	13,794
1940	131,669,275	66,061,592	65,607,683	1,901,974	968,582	933,392	30,502	15,851	14,651
Number of population in labor force									
1960	69,877,476	47,467,720	22,409,756	588,080	425,634	162,446	8,112	6,366	1,746
1950	60,053,968	43,553,386	16,500,582	660,242	522,194	138,048	9,103	7,829	1,274
1940	52,789,499	39,944,240	12,845,259	634,957	523,813	111,144	9,905	8,630	1,275
Per cent of population in labor force*									
1960	39.0	53.8	24.6	31.6	46.5	17.2	31.6	49.4	13.6
1950	39.9	58.2	21.8	32.9	51.9	13.8	32.4	54.7	9.2
1940	40.1	60.5	19.6	33.4	54.1	11.9	32.5	54.4	8.7
Number of labor force employed**									
1960	64,639,247	43,466,946	21,172,301	538,214	385,153	153,061	7,407	5,768	1,639
1950	56,239,449	40,519,462	15,719,987	628,157	495,781	132,376	8,719	7,502	1,217
1940	47,695,689	36,099,999	11,595,690	563,542	463,170	100,372	9,198	8,031	1,167
Rate of unemployment									
1960	7.5	8.4	5.5	8.4	9.5	5.8	8.6	9.4	6.1
1950	6.4	7.0	4.7	4.9	5.1	4.1	4.2	4.2	4.5
1940	9.6	9.6	9.7	11.2	11.6	9.7	7.1	6.9	8.5

*Total column refers to per cent of total population in labor force; male column refers to per cent of male population in labor force; female column refers to per cent of female population in labor force.
**Includes public emergency work.

TABLE 10

Population, Labor Force, and Employment by Sex 1940, 1950, 1960

	Grant			Hardy			Pendleton		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total population									
1960	2,304	4,107	4,197	9,308	4,669	4,639	8,093	4,101	3,992
1950	8,756	4,446	4,310	10,032	5,098	4,934	9,313	4,763	4,550
1940	8,805	4,527	4,278	10,813	5,682	5,131	10,884	5,642	5,242
Number of population in labor force									
1960	2,611	2,056	555	2,989	2,320	669	2,512	1,990	522
1950	2,749	2,361	388	3,444	2,833	611	2,910	2,635	275
1940	3,041	2,585	456	3,425	2,973	452	3,439	3,072	367
Per cent of population in labor force									
1960	31.4	50.1	13.2	32.1	49.7	14.4	31.0	48.5	13.1
1950	31.4	53.1	9.0	34.3	55.6	12.4	31.2	55.3	6.0
1940	34.5	57.1	10.7	31.7	52.3	8.8	31.6	54.4	7.0
Number of labor force employed									
1960	2,385	1,854	531	2,812	2,184	628	2,210	1,730	480
1950	2,578	2,219	359	3,302	2,714	588	2,839	2,569	270
1940	2,709	2,307	402	3,259	2,887	433	3,230	2,898	332
Rate of unemployment									
1960	8.7	9.8	4.3	5.9	5.9	6.1	12.0	13.1	8.0
1950	6.2	6.0	7.5	4.1	4.2	3.8	2.4	2.5	1.8
1940	10.9	10.8	11.8	4.8	2.9	4.2	6.1	5.7	9.5

Source: United States Bureau of the Census, *United States Census of Population,* 1940, 1950, 1960.

TABLE 11

Percentage Changes in Population, Labor Force, and Employment by Sex, 1940-50, 1950-60

	Population Changes			Labor Force Changes			Employment Changes		
Area and Dates	Male	Female	Total	Male	Female	Total	Male	Female	Total
United States									
1950-1960	+18.0	+20.0	+19.0	+ 9.0	+35.8	+16.4	+ 7.8	+34.7	+14.9
1940-1950	+13.3	+15.6	+14.5	+ 9.0	+28.5	+13.8	+12.2	+35.6	+17.9
West Virginia									
1950-1960	− 9.1	− 5.4	− 7.2	−18.5	+17.7	−10.9	−22.3	+15.6	−14.3
1940-1950	+ 3.9	+ 7.1	+ 5.4	− 0.3	+24.2	+ 4.0	+ 7.0	+31.9	+11.5
Upper South Branch Valley									
1950-1960	−10.0	− 7.0	− 8.5	−18.7	+37.0	−10.9	−23.1	+34.7	−15.0
1940-1950	− 9.7	− 5.8	− 7.9	− 9.3	− 0.1	− 8.1	− 6.6	+ 4.3	− 5.2
Grant									
1950-1960	− 7.6	− 2.6	− 5.2	−12.9	+43.0	− 5.0	−16.4	+47.9	− 7.5
1940-1950	− 5.5	+ 0.7	− 0.6	− 8.7	−14.9	− 9.6	− 3.8	−10.7	− 4.8
Hardy									
1950-1960	− 8.4	− 6.0	− 7.2	−18.1	+ 9.5	−13.2	−19.5	+ 6.8	−14.8
1940-1950	−10.3	− 3.8	− 7.2	− 4.7	+35.2	+ 0.6	− 6.0	+35.8	+ 1.4
Pendleton									
1950-1960	−13.9	−12.3	−13.1	−24.5	+89.8	−13.7	−32.7	+77.8	−22.2
1940-1950	−15.2	−13.2	−14.4	−14.2	−25.1	−15.4	−11.4	−18.7	−12.1

Source: United States Bureau of the Census, *United States Census of Population,* 1940, 1950, 1960.

State or the nation. This data again points out that the three counties have experienced relatively greater amounts of out-migration than the balance of the State during the last few years, with population losses being greater in what is generally considered to be the "prime" working age groups.

Employment

It is also useful to examine the characteristics of a region's labor force in terms of the types of industries that employ local residents. Once again, the 1960 Census of Population is used as a source of information; however, it should be kept in mind that signifi-

TABLE 12

Percentage Distribution of Labor Force by Age, 1960

Age	United States	West Virginia	Upper South Branch Valley	Grant	Hardy	Pendleton
		Percentage Distribution				
All Ages	100.0	100.0	100.0	100.0	100.0	100.0
14-17	3.3	2.5	3.3	3.5	3.9	2.3
18-24	13.0	13.0	12.4	13.7	12.3	11.3
25-34	20.9	20.7	19.6	18.9	20.4	19.4
35-44	23.8	24.3	22.3	21.5	23.1	22.1
45-64	34.4	35.3	34.4	35.9	33.5	34.0
65 or more	4.6	4.2	8.0	6.5	6.8	10.9

Source: United States Bureau of the Census, *United States Census of Population*, 1960.

cant changes may have taken place in employment opportunities for local residents since 1960.

Table 13, which lists percentage distribution of employment by industrial sector for 1940, 1950, and 1960, shows that agriculture, despite sizable decreases in employment over the years, remains the largest single source of employment for residents of the Upper South Branch Valley. In 1960, over 31 per cent of total employment in the area was in agriculture as compared with approximately 4 and 6 per cent in West Virginia and the United States respectively (Figure 4). Pendleton County, with 39.1 per cent, had the greatest concentration of agricultural employment, while Grant had 27.1 and Hardy 28.6 per cent.

TABLE 13

Total Employment and Percentage Distribution of Employment by Industry, 1940, 1950, 1960

	United States			West Virginia			Upper South Branch Valley		
Number Employed:	1960	1950	1940	1960	1950	1940	1960	1950	1940
Total employment	64,646,563	55,803,520	45,166,083	538,214	628,272	518,894	7,407	8,719	8,105
Agriculture	4,252,839	6,893,580	8,372,222	23,487	61,439	79,459	2,315	4,353	4,355
Mining	653,979	928,260	913,000	59,098	134,329	113,369	89	169	143
Construction	3,817,678	3,398,040	2,056,274	29,285	32,177	20,855	666	506	375
Manufacturing	17,529,762	14,453,070	10,572,842	125,717	119,162	91,883	1,267	1,013	957
Transportation, communications, utilities	4,458,549	4,346,520	3,113,353	47,331	53,921	39,435	347	298	178
Trade	11,797,899	10,388,670	7,538,768	97,128	96,952	64,221	1,086	844	539
Finance, insurance, real estate	2,695,498	1,882,710	1,467,597	12,450	9,984	7,368	98	42	33
Services	13,542,378	10,119,000	8,586,494	107,008	93,422	81,700	1,100	1,012	1,164
Public administration	3,194,250	2,490,670	1,753,487	19,006	16,580	12,575	271	197	211
All other	2,703,721	903,000	792,046	17,704	10,306	8,029	168	285	150

TABLE 13 (Cont.)

Total Employment and Percentage Distribution of Employment by Industry, 1940, 1950, 1960

	United States			West Virginia			Upper South Branch Valley		
Percentage Distribution	1960	1950	1940	1960	1950	1940	1960	1950	1940
Total Percentage	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture	6.6	12.4	18.5	4.4	9.8	15.3	31.3	49.9	53.6
Mining	1.0	1.7	2.0	11.0	21.4	21.8	1.2	1.9	1.8
Construction	5.9	6.1	4.6	5.4	5.1	4.0	9.0	5.8	4.6
Manufacturing	27.1	25.8	23.3	23.4	19.0	17.7	17.1	11.6	11.8
Transportation, communications, utilities	6.9	7.8	6.9	8.8	8.6	7.6	4.7	3.4	2.2
Trade	18.2	18.6	16.7	18.1	15.4	12.4	14.7	9.7	6.7
Finance, insurance, real estate	4.2	3.4	3.2	2.3	1.6	1.4	1.3	0.5	0.4
Services	21.0	18.1	19.1	19.8	14.8	15.8	14.8	11.6	14.4
Public administration	4.9	4.5	3.9	3.5	2.6	2.4	3.6	2.3	2.6
All other	4.2	1.6	1.8	3.3	1.7	1.6	2.3	3.3	1.9

TABLE 13 (Cont.)

Total Employment and Percentage Distribution of Employment by Industry, 1940, 1950, 1960

Number Employed:	Grant			Hardy			Pendleton		
	1960	1950	1940	1960	1950	1940	1960	1950	1940
Total employment	2,385	2,578	2,423	2,812	3,302	2,887	2,210	2,839	2,795
Agriculture	647	1,106	1,169	803	1,609	1,595	865	1,638	1,591
Mining	69	154	128	12	7	8	8	8	7
Construction	176	147	103	227	187	137	263	172	135
Manufacturing	356	303	249	636	409	332	275	301	376
Transportation, communications, utilities	107	120	84	176	115	57	64	63	37
Trade	444	309	225	379	328	175	263	207	139
Finance, insurance, real estate	50	14	18	31	17	8	17	11	7
Services	384	296	356	410	435	409	306	281	399
Public administration	77	54	47	118	83	96	76	60	68
All other	75	75	44	20	112	70	73	98	36

TABLE 13 (Cont.)

Total Employment and Percentage Distribution of Employment by Industry, 1940, 1950, 1960

Percentage Distribution:	Grant			Hardy			Pendleton		
	1960	1950	1940	1960	1950	1940	1960	1950	1940
Total Percentage	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture	27.1	42.9	48.2	28.6	48.7	55.2	39.1	57.7	56.9
Mining	2.9	5.9	5.3	0.4	0.2	0.2	0.4	0.3	0.3
Construction	7.4	5.7	4.3	8.1	5.7	4.7	11.9	6.1	4.8
Manufacturing	14.9	11.8	10.3	22.6	12.3	11.5	12.4	10.5	13.5
Transportation, communications, utilities	4.5	4.7	3.5	6.3	3.5	2.0	2.9	2.2	1.3
Trade	18.6	12.0	9.3	13.5	10.0	6.0	11.9	7.3	5.0
Finance, insurance, real estate	2.1	0.5	0.7	1.1	0.5	0.2	0.8	0.4	0.3
Services	16.0	11.5	14.7	14.6	13.2	14.1	13.9	9.9	14.3
Public administration	3.2	2.1	1.9	4.2	2.5	3.3	3.4	2.1	2.4
All other	3.1	2.9	1.8	0.7	3.4	2.2	3.3	3.5	1.3

The differences in percentage of employment in agriculture in the areas discussed can be understood by examining percentage of employment in the manufacturing, trade, and service sectors of the economy. Over 27 per cent of total United States employment and 23 per cent of State employment was in manufacturing in 1960. However, only 17 per cent of total employment in the three-county area was in manufacturing, with Pendleton County having the lowest concentration of 12 per cent. Trade and services employment was also below the State and national averages, which reflects, in part, the fact that area residents travel outside the Upper South Branch Valley to secure a portion of their goods and services. This is indicative of the fact that levels of population in the area are not sufficient to support certain kinds of economic activity. On the whole, however, the Upper South Branch Valley, like the State and the nation, has experienced an upturn in manufacturing, trade, and services employment over time, mainly at the expense of agricultural employment.

Another way of looking at employment is through occupational distribution. As would be expected from preceding information, over 30 per cent of those persons employed in the area fall in the occupational groupings of farmer, farm laborer, and farm manager. Figure 5 illustrates occupational employment in the Upper South Branch Valley as compared with the State.

Income

Figure 6 provides an illustration of estimated per capita income for each of the three counties in the area and for the State as a whole. These estimates are prepared by the West Virginia Chamber of Commerce and assist in showing some of the effects of the redistribution of employment and increases in productivity that the area has been experiencing. These estimates reflect, however, changes in *all types* of income occurring to households. They include not only wages, salaries, and income to business proprietors, but also

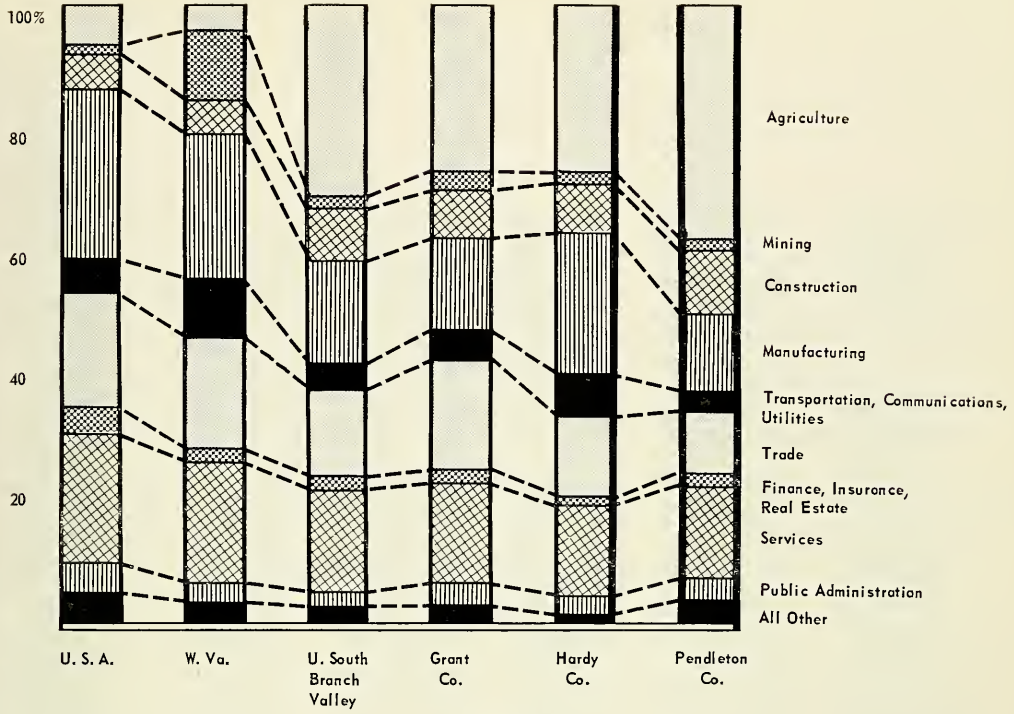

FIGURE 4

1960 Distribution of Employment By Industry. (From 1960 Census of Population)

other sources of income, such as rent, dividends, and government transfer payments. Estimated per capita income in the area, with the exception of Pendleton County, has been higher since the early 1950's than per capita income for the State as a whole. Per capita income for 1964 is estimated at $2,514 for Grant County, $2,152 for Hardy County, $1,756 for Pendleton County, and $1,962 for the entire State.

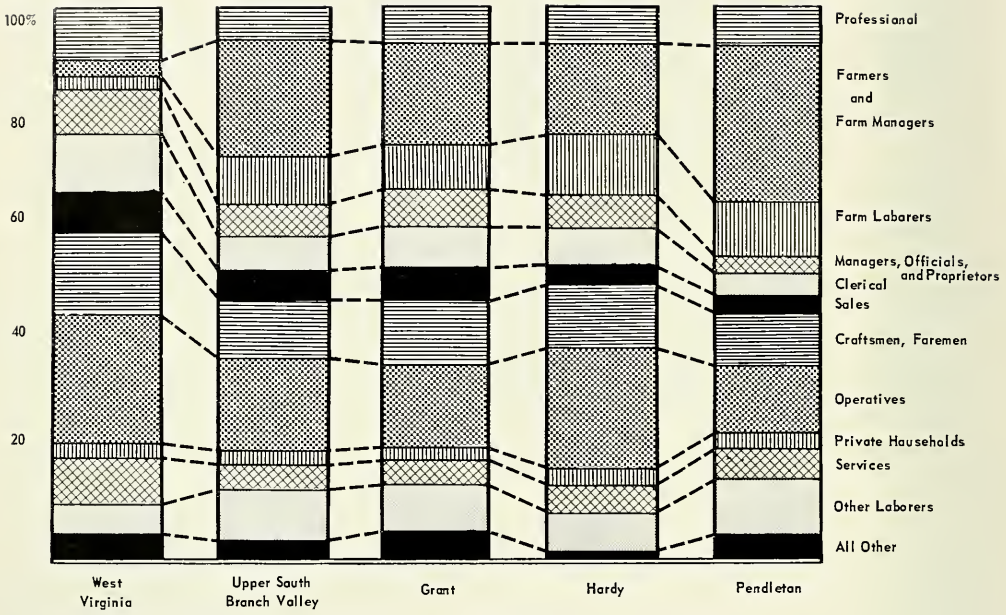

FIGURE 5

Distribution of Employment By Occupation, 1960. (From 1960 Census of Population)

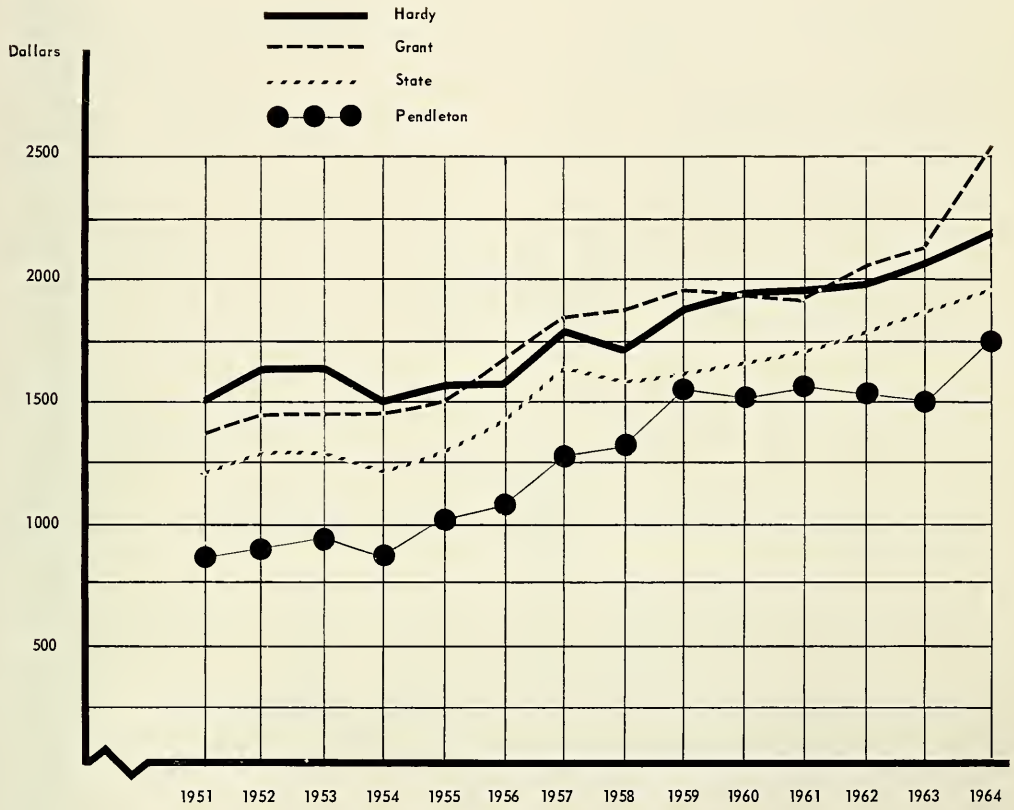

FIGURE 6

Estimated Per Capita Income, 1951-1964.
(Source: West Virginia Chamber of Commerce, West Virginia Personal Income and Retail Sales By Counties)

APPENDIX

(Chapter II)

TABLE 14

Population, 1870-1960

Year	West Virginia	Upper South Branch Valley	Grant	Hardy	Pendleton
1870	442,014	16,440	4,467	5,518	6,455
1890	762,794	23,080	6,802	7,567	8,711
1900	958,800	24,891	7,275	8,449	9,167
1910	1,221,119	26,350	7,838	9,163	9,349
1920	1,463,701	28,246	8,993	9,601	9,652
1930	1,729,205	27,917	8,441	9,816	9,660
1940	1,901,974	30,502	8,805	10,813	10,884
1950	2,005,552	28,101	8,756	10,032	9,313
1960	1,860,421	25,705	8,304	9,308	8,093

Source: Bureau of Business Research, West Virginia University, *West Virginia Statistical Handbook*, 1965.

TABLE 15

Population Distribution by Location, 1960

	Upper South Branch Valley	Grant	Hardy	Pendleton
Rural Population	25,705	8,304	9,308	8,093
Per cent Rural	100	100	100	100
Rural Non-Farm	15,181	5,622	5,771	3,788
Per cent Rural Non-Farm	59	67.7	62	46.8
Rural Farm	10,554	2,682	3,537	4,305
Per cent Rural Farm	41	32.3	38	53.2

Source: University of Pittsburgh, *Appalachian Region Data Book*, 1964. (*County and City Data Book*, 1962).

TABLE 16

Number of and Per Cent Distribution of Inhabitants by Age 1950 and 1960

AGE-1950	United States		West Virginia		South Branch Valley		Grant		Hardy		Pendleton	
	No.	Per Cent Distribution	No.	Per Cent Distribution	No.	Per Cent Distribution	No.	Per Cent Distribution	No.	Per Cent Distribution	No.	Per Cent Distribution
Total	150,216,110	100.0	2,005,552	100.0	28,101	100.0	8,756	100.0	10,032	100.0	9,313	100.0
0- 4	16,239,925	10.8	240,107	12.0	3,299	11.7	1,101	12.6	1,184	11.8	1,014	10.9
5- 9	13,324,675	8.9	205,390	10.2	3,042	10.8	1,012	11.5	1,050	10.5	980	10.5
10-14	11,175,500	7.4	190,979	9.5	2,880	10.2	899	10.3	978	9.7	1,003	10.8
15-19	10,645,225	7.1	166,440	8.3	2,505	8.9	717	8.2	904	9.0	884	9.5
20-24	11,437,305	7.6	159,550	8.0	2,037	7.2	627	7.2	744	7.4	666	7.2
25-29	12,182,455	8.1	158,798	7.9	1,915	6.8	631	7.2	706	7.0	578	6.2
30-34	11,458,940	7.6	142,373	7.1	1,711	6.1	567	6.5	594	5.9	550	5.9
35-39	11,145,185	7.4	137,686	6.9	1,765	6.3	548	6.3	635	6.3	582	6.2
40-44	10,094,660	6.7	121,976	6.1	1,608	5.7	483	5.5	590	5.9	535	5.7
45-49	8,997,450	6.0	106,102	5.3	1,400	5.0	427	4.9	497	5.0	476	5.1
50-54	8,174,670	5.4	92,863	4.6	1,328	4.7	394	4.5	481	4.8	453	4.9
55-59	7,162,515	4.8	78,814	3.9	1,116	4.0	301	3.4	411	4.1	404	4.3
60-64	6,010,755	4.0	65,948	3.3	1,034	3.7	305	3.5	378	3.8	351	3.8
65-69	4,997,790	3.3	56,835	2.8	946	3.4	295	3.4	323	3.2	328	3.5
70-74	3,406,665	2.3	38,699	1.9	669	2.4	193	2.2	251	2.5	225	2.4
75+	3,852,395	2.6	42,992	2.1	846	3.0	256	2.9	306	3.1	284	3.0

TABLE 16

Number of and Per Cent Distribution of Inhabitants by Age 1950 and 1960

AGE-1960	United States		West Virginia		South Branch Valley		Grant		Hardy		Pendleton	
	No.	Per Cent Distribution	No.	Per Cent Distribution	No.	Per Cent Distribution	No.	Per Cent Distribution	No.	Per Cent Distribution	No.	Per Cent Distribution
Total	179,325,653	100.0	1,860,421	100.0	25,705	100.0	8,304	100.0	9,308	100.0	8,093	100.0
0- 4	20,321,864	11.3	196,295	10.6	2,618	10.2	861	10.4	946	10.2	811	10.0
5- 9	18,659,141	10.4	199,876	10.7	2,693	10.5	916	11.0	969	10.4	808	10.0
10-14	16,815,965	9.4	202,307	10.9	2,843	11.1	918	11.1	1,048	11.3	877	10.8
15-19	13,287,434	7.4	156,454	8.4	2,212	8.6	747	9.0	757	8.1	708	8.7
20-24	10,803,165	6.0	105,182	5.7	1,367	5.3	457	5.5	484	5.2	426	5.3
25-29	10,870,386	6.1	100,091	5.4	1,317	5.1	427	5.1	490	5.3	400	4.9
30-34	11,951,709	6.7	116,658	6.3	1,547	6.0	465	5.6	604	6.5	478	5.9
35-39	12,508,316	7.0	122,531	6.6	1,550	6.0	500	6.0	586	6.3	464	5.7
40-44	11,567,216	6.5	116,204	6.2	1,505	5.9	501	6.0	537	5.8	467	5.8
45-49	10,928,874	6.1	112,171	6.0	1,504	5.9	507	6.1	514	5.5	483	6.0
50-54	9,696,502	5.4	99,460	5.3	1,422	5.5	429	5.2	525	5.6	468	5.8
55-59	8,595,967	4.8	86,779	4.7	1,216	4.7	379	4.6	448	4.8	389	4.8
60-64	7,111,897	4.0	73,897	4.0	1,100	4.3	344	4.1	387	4.2	369	4.6
65-69	6,186,763	3.5	62,789	3.4	944	3.7	285	3.4	339	3.6	320	4.0
70-74	4,661,136	2.6	48,667	2.6	787	3.1	240	2.9	286	3.1	261	3.2
75+	5,359,338	3.0	61,060	3.3	1,080	4.2	328	3.9	388	4.2	364	4.5

Source: United States Bureau of the Census, *United States Census of Population*, 1930-60.

TABLE 17

Number of Inhabitants, 1930-60

Area	Population				Percentage Change			
	1930	1940	1950	1960	1920-30	1930-40	1940-50	1950-60
United States (1000)	122,775	131,669	150,679	179,323	16.1	7.2	14.4	19.0
West Virginia	1,729,205	1,901,974	2,005,552	1,860,421	18.1	10.0	5.4	— 7.2
Upper South Branch Valley	27,917	30,502	28,101	25,705	— 1.2	9.3	— 7.8	— 8.5
Grant County	8,441	8,805	8,756	8,304	— 6.1	4.3	— 0.5	— 5.2
Hardy County	9,816	10,813	10,032	9,308	2.2	10.2	— 7.2	— 7.2
Pendleton County	9,660	10,884	9,313	8,093	0.1	12.7	—14.4	—13.1

Source: United States Bureau of the Census, *United States Census of Population,* 1930-60.

TABLE 18

Estimated Net Migration: 1950-1960

Area	Total Population[1]		Population Change[1] 1950-60		Natural Increase	Potential Population	Net Migration 1950-60[2]	
	1950	1960	Number	Per Cent	1950-60[2]	1960[2]	Number	Per Cent
The State	2,005,552	1,860,427	—145,131	— 7.2	301,580	2,307,132	—446,711	—19.3
Upper South Branch	28,101	25,705	— 2,376	— 8.5	3,685	31,786	— 6,081	—19.1
Grant	8,756	8,304	— 452	— 5.2	1,377	10,133	— 1,829	—17.9
Hardy	10,032	9,308	— 724	— 7.2	1,229	11,261	— 1,953	—17.2
Pendleton	9,313	8,093	— 1,220	—13.1	1,079	10,392	— 2,299	—22.0

Source 1: United States Bureau of the Census, *United States Census Population,* 1960.
Source 2: United States Department of Agriculture—Economic Research Service, *Net Migration of the Population,* 1950-1960, *by Age, Sex, and Color.*

TABLE 19

Net School Enrollment, 1963-64

	West Virginia	Upper South Branch Valley	Grant	Hardy	Pendleton
Elementary	256,082	3,814	1,159	1,339	1,316
Junior High	59,617				
High School	132,122	2,410	932	977	501
Total	447,821	6,224	2,091	2,316	1,817

Source: State Superintendent of Free School, *Fifty-First Annual Report,* 1964.

TABLE 20

Number of Years of School Completed, 1960

Years of School Completed	West Virginia	Upper South Branch Valley	Grant	Hardy	Pendleton
Male, 25 and over	482,213	6,841	2,141	2,469	2,231
No school completed	12,552	212	67	109	36
Elementary: 1-4 years	51,507	894	266	382	246
5-6 years	57,851	1,050	341	401	308
7 years	41,404	795	235	325	235
8 years	110,877	2,124	686	605	833
High School: 1-3 years	69,190	539	178	225	136
4 years	80,580	776	248	236	292
College: 1-3 years	28,807	237	77	89	71
4 years or more	29,445	214	43	97	74
Median school years	8.7	..	8.2	8.0	8.3
Female, 25 and over	517,518	7,063	2,272	2,582	2,209
No school completed	9,338	158	48	91	19
Elementary: 1-4 years	36,371	677	189	317	171
5-6 years	56,464	897	322	335	240
7 years	39,229	725	227	306	192
8 years	123,988	2,305	724	678	903
High School: 1-3 years	85,420	708	226	282	200
4 years	110,363	963	342	313	308
College: 1-3 years	33,467	406	140	172	94
4 years or more	22,878	224	54	88	82
Median school years	8.9	..	8.5	8.4	8.5

Source: United States Bureau of the Census, *United States Census of Population*, 1960.

TABLE 21

Grade at Time of School Drop-Out

Time of Drop-Out	West Virginia	Grant	Hardy	Pendleton
		Per Cent		
Grades 7-9	40.8	42.4	57.5	54.1
Grades 10-12	55.9	54.5	34.0	41.7
Not shown	3.3	3.1	8.5	4.2

Source: West Virginia Department of Health, Planning Division, *Materials Prepared For Regional Action Meetings*, 1964.

TABLE 22

I. Q. of School Drop-Outs

I. Q.	West Virginia	Grant	Hardy	Pendleton
		Per Cent		
Below 74	11.5	12.1	10.6	4.2
75- 88	32.7	33.3	27.7	29.2
89-102	32.3	33.3	44.7	29.2
103-109	7.6	0	14.9	12.5
110-116	2.8	12.1	0	8.3
117-123	0.6	0	0	0
124+	0.3	0	0	0
Not known	12.1	9.2	2.1	16.6

Source: West Virginia Department of Health, Planning Division, *Materials Prepared For Regional Action Meetings*, 1964.

TABLE 23

Mental Patients, Length of Stay in Hospital, 1963*

Length of Stay	Upper South Branch Valley	Grant	Hardy	Pendleton
1 month - 3 years	23	4	13	6
4 years - 8 years	19	7	8	4
9 years - 18 years	30	12	13	5
Over 18 years	21	6	8	7
Total	93	29	42	22

*Does not include West Virginia Training School and Hospital.

Source: West Virginia Department of Health, Planning Division, *Materials Prepared For Regional Action Meetings*, 1964.

TABLE 24

Employment Distribution by Occupational Groups, 1960

Employment Classification	West Virginia	Upper South Branch Valley	Grant	Hardy	Pendleton
TOTAL EMPLOYED	538,214	7,407	2,385	2,812	2,210
Professional	55,590	449	130	170	149
Per cent	10.3	6.1	5.5	6.0	6.7
Farmers and Farm Managers	13,696	1,570	450	474	646
Per cent	2.5	21.3	18.8	16.9	29.1
Farm Laborers and Foremen	8,514	685	178	300	207
Per cent	1.6	9.2	7.5	10.7	9.4
Managers, Officials, and Proprietors	41,186	415	154	173	88
Per cent	7.7	5.6	6.5	6.2	4.0
Clerical	58,989	444	155	196	93
Per cent	11.0	6.0	6.5	7.0	4.2
Sales	40,017	336	150	116	70
Per cent	7.4	4.5	6.3	4.1	3.2
Craftsmen, Foremen, and Kindred	80,876	796	292	309	195
Per cent	15.0	10.8	12.2	11.0	8.8
Operatives	128,794	1,269	365	615	289
Per cent	24.0	17.1	15.3	21.8	13.1
Private Households	12,982	181	52	79	50
Per cent	2.4	2.4	2.2	2.8	2.3
Services	41,893	384	117	133	134
Per cent	7.7	5.2	4.9	4.7	6.1
Other Laborers	33,241	654	232	210	212
Per cent	6.2	8.8	9.7	7.5	9.6
Not Reported	22,436	224	110	37	77
Per cent	4.2	3.0	4.6	1.3	3.5

Source: United States Bureau of the Census, *United States Census of Population*, 1960.

TABLE 25

Estimated Total and Per Capita Income, 1951-1964

Year	West Virginia		Grant		Hardy		Pendleton	
	Total	Per Capita	Total	Per Capita	Total	Per Capita	Total	Per Capita
1951	2,439,000	1,215	11,707	1,346	14,878	1,488	8,049	865
1952	2,540,000	1,278	12,446	1,447	15,748	1,591	8,382	911
1953	2,547,000	1,287	12,480	1,451	15,537	1,585	8,405	924
1954	2,419,000	1,227	12,337	1,451	14,514	1,496	7,983	887
1955	2,546,000	1,296	12,730	1,498	14,767	1,538	9,166	1,018
1956	2,815,000	1,433	14,075	1,676	14,920	1,544	9,853	1,095
1957	3,082,000	1,636	15,410	1,826	16,591	1,779	10,787	1,275
1958	2,974,000	1,582	15,465	1,842	16,357	1,730	11,004	1,320
1959	3,060,000	1,636	16,218	1,942	17,442	1,859	12,852	1,564
1960	3,099,000	1,675	15,805	1,901	17,664	1,895	12,396	1,530
1961	3,123,000	1,726	15,615	1,884	17,801	1,917	12,492	1,562
1962	3,210,000	1,787	16,692	2,017	18,297	1,975	12,198	1,530
1963	3,329,000	1,872	17,644	2,137	18,975	2,054	11,984	1,507
1964	3,525,000	1,962	21,150	2,514	20,092	2,152	12,690	1,756

Source: West Virginia Chamber of Commerce, *West Virginia Personal and Retail Sales by Counties*, 1951-1964.

Chapter III
CLIMATE, TOPOGRAPHY, AND SOIL

THIS CHAPTER contains a description of the natural features of the Upper South Branch Valley—the climate, the topography, and the soil. The soil section contains not only a summary of land use and land classification, but also a detailed description of the general soil areas of the region which are illustrated by a general soil map.

CLIMATE[1]

General Climate

The general climate of this upper Potomac Valley area is classified as humid continental because of its relatively high and generally evenly distributed precipitation and its marked temperature contrasts between summer and winter.

Precipitation. This area is sheltered from Atlantic coastal storms by the Blue Ridge and Appalachian Mountains. The western borders of Pendleton and Grant counties follow the divide of the Alleghenies, which is called the Allegheny Front (Figure 7). This main topographic barrier of the Appalachian Plateau shelters the entire three-county area from the prevailing and more common storm systems which move from west to east and deposit most of their moisture on the windward slopes and higher ridges of the Alleghenies. East of this topographic barrier, especially in the valleys of this area of interest, annual precipitation is lower than anywhere in the State. Table 26 illustrates these marked precipitation differences between the higher stations just east of the Allegheny Front and stations farther east at lower elevations. Old records from Upper Tract, Pendleton County, show annual precipitation of 28.85 inches, which is the lowest average of any station in West Virginia. The eastern borders of this area roughly follow the divide between tributaries of the upper branches of the Potomac River in West Virginia and the Shenandoah River in Virginia. Precipitation gradually increases to the east from this divide as the Atlantic Slope is approached, and is illustrated in the isohyetal (equal rainfall) map in Figure 8.

Temperature. Within this three-county area are a succession of parallel minor ridges which are generally orientated from south-southwest to north-northeast, and which enclose a series of parallel valleys. This results in a varied topography which creates a variety of local climates and microclimates. The variation in elevation alone markedly affects the average temperatures and is illustrated by data from some of the area's climate stations in Table 27. Temperature normally decreases with elevation at a rate of about three to four degrees Fahrenheit per 1,000 feet, which accounts

[1]The description of the climate and accompanying tables were supplied by Robert O. Weedfall, Weather Bureau State Climatologist, Environmental Sciences Services Administration, United States Department of Commerce.

TABLE 26

Normal Monthly and Annual Precipitation, Based on the Years 1931-1960*

Month	Station, County, and Elevation							
	Bayard (Grant) 2,375 ft.	Stony River Dam (Grant) 3,400 ft.	Spruce Knob (Pendleton) 3,050 ft.	Upper Tract (Pendleton) 1,230 ft.	Petersburg (Grant) 1,013 ft.	Franklin (Pendleton) 1,900 ft.	Moorefield (Hardy) 820 ft.	Wardensville (Hardy) 960 ft.
January	4.19	3.43	2.97	2.17	1.98	1.79	2.19	2.13
February	3.50	3.19	3.13	1.63	1.79	1.93	2.00	1.87
March	4.46	3.83	4.13	2.12	2.51	2.68	2.62	2.97
April	4.03	3.76	3.35	2.33	2.39	2.33	2.64	2.96
May	4.86	4.69	4.14	2.79	3.05	3.46	3.30	3.74
June	4.73	4.58	4.08	3.47	4.37	3.73	3.79	3.56
July	4.80	4.16	3.25	3.39	3.41	3.27	3.35	3.85
August	4.70	4.51	3.73	3.19	3.63	3.78	3.25	4.53
September	3.19	2.98	2.46	2.33	2.24	2.82	2.39	2.72
October	3.30	3.57	2.75	2.13	2.26	2.41	2.28	2.94
November	2.90	2.73	2.19	1.50	1.80	2.01	1.74	2.15
December	3.45	3.07	2.73	1.80	1.71	1.85	1.99	2.08
Annual	48.11	44.50	38.91	28.85	31.14	32.06	31.54	35.50

*Does not include Franklin, 1940-1964; Moorefield, 1896-1960; Spruce Knob, 1951-1960; and Upper Tract, 1898-1930.
Source: ESSA Weather Bureau State Climatologist for West Virginia.

FIGURE 7

Physiographic Provinces of West Virginia.
(From Water Resources of West Virginia, 1963)

for some of the temperature variations shown in Table 27. Thus the maximum daily temperatures occur in the valley locations rather than on the hilltops. Countering this elevation effect is the radiational cooling effect in valley locations. The colder air on the slope drains down into the valley at night and collects in a cold pool on the valley floor.[2] Thus valley locations frequently have lower minimum temperatures than the hilltops which dominate them and which may be two to three thousand feet higher. This also accounts for local "frost hollow" phenomena. These effects should be kept in mind when attempting to apply the tabular temperature data (Table 27), freeze data (Table 28) or heating degree-days data (Table 29) to represent other nearby areas.

[2]Helmut E. Landsburg, "Physical Climatology," 1958.

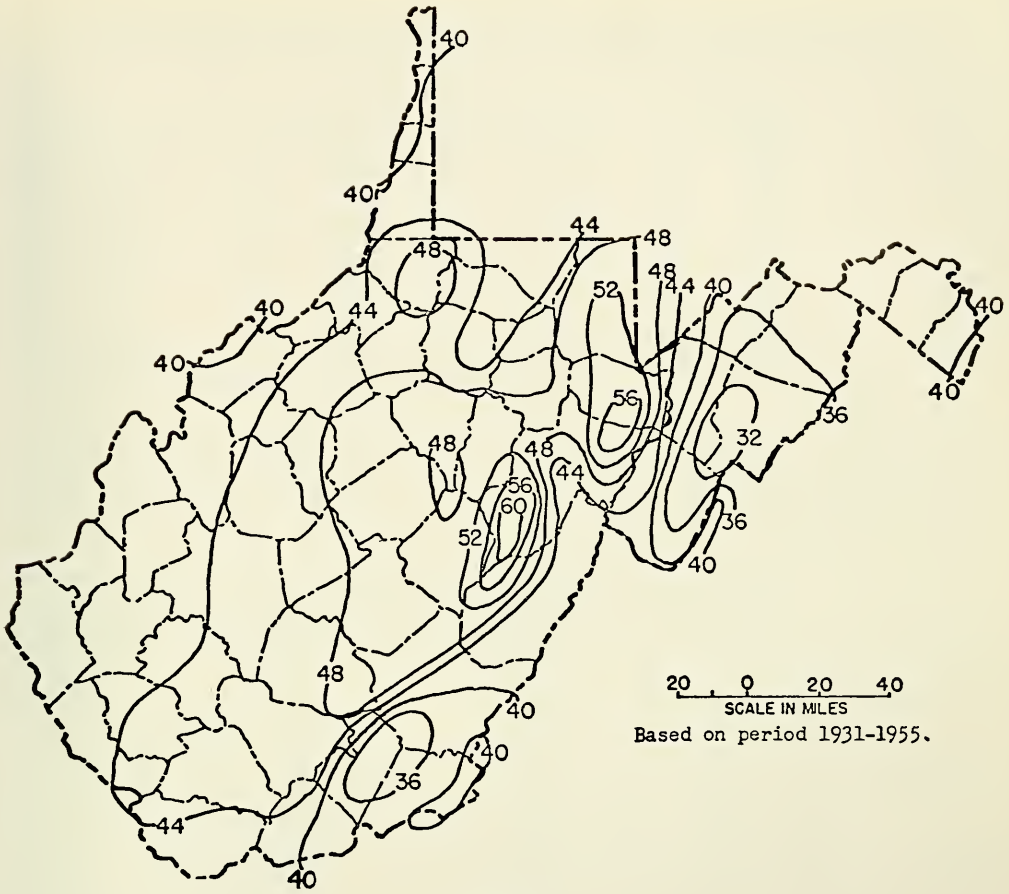

FIGURE 8

Average Annual Precipitation in West Virginia.
(From Climate of the States, West Virginia, 1960)

Winter Climate

This area has a moderately rigorous winter climate. Winters are somewhat more prolonged and severe in the higher elevations near the Allegheny Front. Cold waves occur two or three times per year but seldom last longer than a few days. Winters are much more moderate in the valley areas. On the average, daytime temperatures remain at freezing or below about 15 days per year, and the temperature drops to zero or below (°F.) about three times per year. There are frequent alternations of fair and stormy weather, with frequent freezes and thaws. In the lulls between storms, solar radiation becomes quite effective, due to the relatively low latitude, and results in many warm sunny days in winter. More sunny days occur in this area in the lee of the Alleghenies than in locations west of the Alleghenies or areas farther east and nearer the Atlantic coast.[3] On an annual basis, cloud cover is about equally divided between clear days (0

[3]Weedfall, Dickerson, Dwelle, and Stirm, *The Climate of Berkeley County, West Virginia.*

TABLE 27

Mean Monthly Maximum and Minimum Temperatures Plus Other Temperature Data

Month	Station							
	Bayard		Petersburg		Franklin		Wardensville	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
January	39.1	18.3	45.1	24.8	45.7	23.8	43.6	21.0
February	40.3	18.0	47.3	25.7	48.0	24.3	45.2	21.2
March	48.9	24.6	54.3	31.1	52.0	28.1	52.2	28.0
April	60.5	33.3	67.4	41.4	66.6	39.0	64.3	37.4
May	70.5	42.0	75.8	49.4	74.9	48.2	74.9	47.6
June	77.0	50.2	83.2	57.0	81.0	54.6	82.1	55.6
July	80.5	54.0	87.1	61.2	85.5	59.0	86.0	59.5
August	78.9	52.1	85.8	59.9	84.3	57.4	84.3	57.9
September	74.3	46.0	79.7	52.6	78.1	50.4	78.8	50.5
October	62.7	35.2	70.2	42.1	68.9	41.0	68.0	39.5
November	50.0	27.3	56.3	32.9	55.7	30.5	55.8	29.7
December	39.6	19.9	46.0	24.9	46.2	23.8	44.9	21.5
Annual	60.2	35.1	66.5	41.9	65.6	40.0	65.0	39.1
Extremes	95	−30	102	−14	99	−11	103	−20
Avg. number of days 90° F. or above	1°		37		20		26	
Avg. number of days 32° F. or below	164°		115		131		140	
Elevation (feet)	2,375		1,013		1,900		960	
Number of years data	57		16		10		30	

°Based on 10 years of data, 1951-1960.
Source: ESSA Weather Bureau State Climatologist for West Virginia.

TABLE 28

Freeze Data From Selected West Virginia Climate Stations

Station	Temperature (°F.)	Mean Date of Last Spring Occurrence	Mean Date of First Fall Occurrence	Mean Number of Days Between Dates
Bayard	32	May 30	September 14	107
	28	May 18	September 28	133
	24	April 29	October 9	163
	20	April 17	October 21	188
	16	March 29	November 8	223
Moorefield-McNeill	32	May 14	October 1	140
	28	April 30	October 11	164
	24	April 17	October 20	186
	20	April 2	October 31	212
	16	March 17	November 17	245
Petersburg	32	April 30	October 5	158
	28	April 19	October 19	184
	24	April 3	November 3	213
	20	March 18	November 16	243
	16	March 6	December 3	272
Wardensville	32	May 12	October 2	143
	28	April 27	October 10	167
	24	April 15	October 24	192
	20	March 27	November 11	229
	16	March 13	November 23	255

Source: Climate of the States—West Virginia, Climatography of the United States No. 60-46, by Victor T. Horn and James K. McGuire.

to 30 per cent cloudiness), partly cloudy days (30 to 79 per cent cloudiness) and cloudy days (80 to 100 per cent cloudiness). Cloudiness is more pronounced over the higher elevations.

Snowfall exhibits the same features of a real distribution caused by topography as precipitation (liquid), but to a more remarkable degree. The higher Allegheny ridges along the western edge of the area receive 80 to 100 inches of snow annually; the snow may persist for months in the higher elevations. The lower elevations to the east average from 20 to 40 inches annually. Much of the snow that falls in this three-county area is associated with coastal storms. These storms occasionally produce large daily falls which may blockade roads, especially in the higher elevations. However, the snow cover usually lasts only

TABLE 29

Mean Heating Degree-Days* From Selected Climate Stations. (Statistical Estimates, Base 65° F.)

Month	Station and County			
	Bayard (Grant)	Petersburg (Grant)	Franklin (Pendleton)	Wardensville (Hardy)
January	1,113	958	990	1,011
February	997	809	840	890
March	918	707	750	772
April	555	330	390	426
May	285	124	160	161
June	96	18	40	27
July	40	0	0	0
August	65	0	10	6
September	207	78	110	99
October	499	285	330	353
November	798	612	650	666
December	1,094	911	980	995
Annual	6,667	4,832	5,250	5,406

*Heating-degree day is a form of degree day used as an indication of fuel consumption. One heating-degree day is given for each degree that the daily mean temperature departs below the base of 65° F.

Source: ESSA Weather Bureau State Climatologist for West Virginia.

a few days. Total snowfall amounts vary greatly from winter to winter. Microclimatic differences have an important effect on duration of snow cover; south-facing hillsides rapidly lose their snow cover in the frequent thawing periods.

Summer Climate

In the warmer half-year, the area is affected by the showers and thunderstorms that occur in the broad current of moist air that tends to sweep northeastward from the Gulf of Mexico. Thunderstorms occur on an average of 30 to 40 days per year and are more frequent over the higher elevations. The typical summer weather pattern consists of relatively clear, cool mornings and evenings, partly cloudy and warm afternoons, except for a light shower or thunderstorm once every four or five days. Days over 90° F. are infrequent in the higher elevations and occur on the average about 25 to 35 times a year in the lower elevations (based on Wardensville and Petersburg data). Oppressive days due to high humidity are few. Summer nights are cool and restful, due to radiational cooling and cold air drainage down the slopes into the valley bottoms. Nighttime and early morning relative humidity averages are quite high (80 to 95 per cent) and reflect the prevalent valley fogs which are most common in summer and fall. Midday humidity values are moderate (about 40 to 55 per cent) and the temperature-humidity combinations are usually at comfortable levels.

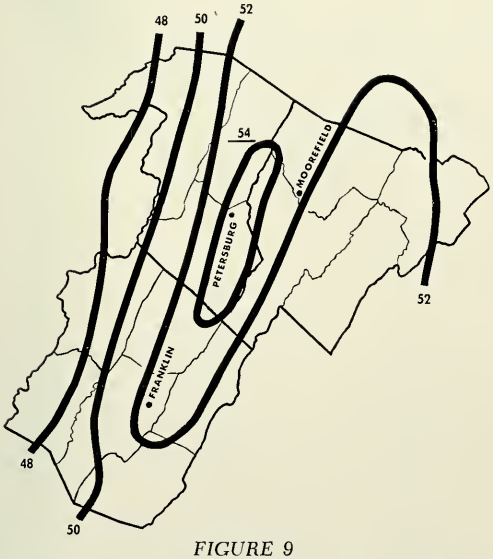

FIGURE 9

Mean Annual Temperature in South Branch Valley.

Calm and light winds prevail in the lulls between storms and occur most frequently in the late summer and fall, especially in the lower elevations. Based on Wardensville data, winds are below 5 miles per hour 72 per cent of the time, and range from 85 per cent in July to 54 per cent in April, the windiest month. This lack of air flow in the valleys in association with the temperature and fog phenomenon mentioned earlier, indicates a high air pollution potential exists in the lower elevations, and should serve as a warning to avoid or control the emissions of air pollutants in valley locations.[4]

[4]Landzberg, Helmit E., United States Department of Commerce, Weather Bureau Resort Summaries, "Berkeley Springs, West Virginia," 1963.

Weather Extremes

Wind storms. Damaging winds and tornadoes are almost non-existent. A tornado has never been recorded in this area. On June 19, 1948, an intense storm moved eastward through the Stony River region and damaged the Bismark section of Grant County (elevation 3,000 feet). Additional wind damage occurred between Bayard and Thomas. Damages to farm buildings and death to some livestock were caused by high winds associated with a violent frontal thunderstorm which may have been a tornado although a funnel cloud was not observed. Similar conditions struck the Mt. Storm area (Grant County) the evening of August 3-4, 1963. Destructive hailstorms are rare and have little effect upon farm operations.

Floods. Flash floods are an occasional threat to some locations. Remnants of hurricanes may cause damage as a result of their heavy rains. Intense thunderstorms and large-area storms may cause damaging flash floods. The Petersburg-Moorefield area was struck by severe flash floods on the night of June 17-18, 1949, when up to 12 inches of rain fell in 24 hours. This occurred along the South Branch of the Potomac River.

Drought. Dry spells and drought occasionally cause distress to farmers. Mounting concern for an adequate water supply has been felt because of below average rainfall the past three summers (1963-65). The recently devised Palmer Drought Index[5] shows that moderate to extreme meteorological drought has persisted in this area from May, 1965, through March, 1966, and was still in progress at the time this study was concluded. Table 30 shows the growing season rainfall departures from long-term averages for the period 1951-1965, with 1930 also shown for comparison. There has been a greater-than-normal flow of drier air brought into this three-county area by rain-inhibiting westerly or northwesterly winds during the past 16 years. Thus, the frequency of coastal storms, which accounts for an important part of this area's total rainfall, has been lower than usual during this period, particularly the past several years.

Summary

In summary, it appears that various aspects of this area's pleasant climate may be further exploited for its continued development. Elevations above 3,000 feet generally have a sufficient percentage of below-freezing temperatures to make snow-making equipment feasible for ski resorts. Higher locations closer to the Allegheny Front at the western edge of the area benefit more from natural snow, but these areas, under present conditions, are more inaccessible during heavy snowfalls. Additional summer resorts at locations above 2,000 feet would benefit from the natural coolness and afternoon breezes.

[5]D. J. Fieldhouse and W. L. Palmer, "Meteorological and Agricultural Drought," 1965.

TABLE 30

Departure (Inches) From Normal Growing Season Rainfall Based on 1951-1960 Averages (May Through September), Except Franklin's Data is for the Period 1940-1964

Year	Station and County			
	Bayard (Grant)	Petersburg (Grant)	Franklin (Pendleton)	Wardensville (Hardy)
Average Rainfall (May through September)	22.28	16.70	17.06	18.42
1951	— 2.95	— 3.27	Missing	— 1.88
1952	— 7.57	— 1.85	+ 1.01	+ 0.38
1953	— 7.14	— 3.13	— 0.71	— 5.32
1954	+ 2.55	— 0.83	+ 0.12	— 1.13
1955	— 0.74	+ 2.37	+ 1.33	+ 7.46
1956	+10.01	+ 0.03	— 0.74	— 2.20
1957	— 6.77	— 7.28	— 2.19	— 7.52
1958	+ 1.22	+ 0.08	+ 0.46	— 0.81
1959	— 7.58	— 1.85	— 5.17	— 2.08
1960	— 2.42	+ 0.80	+ 4.17	+ 4.94
1961	— 0.22	— 3.49	— 0.72	— 1.78
1962	— 1.48	— 2.62	— 4.82	— 3.18
1963	— 1.54	— 2.46	— 6.12	— 5.93
1964	— 7.62	— 4.69	— 4.72	— 6.46
1965	—10.74	— 5.77	— 5.42	— 7.58
1930	— 7.32	Missing	Missing	—12.82

Source: ESSA Weather Bureau State Climatologist for West Virginia.

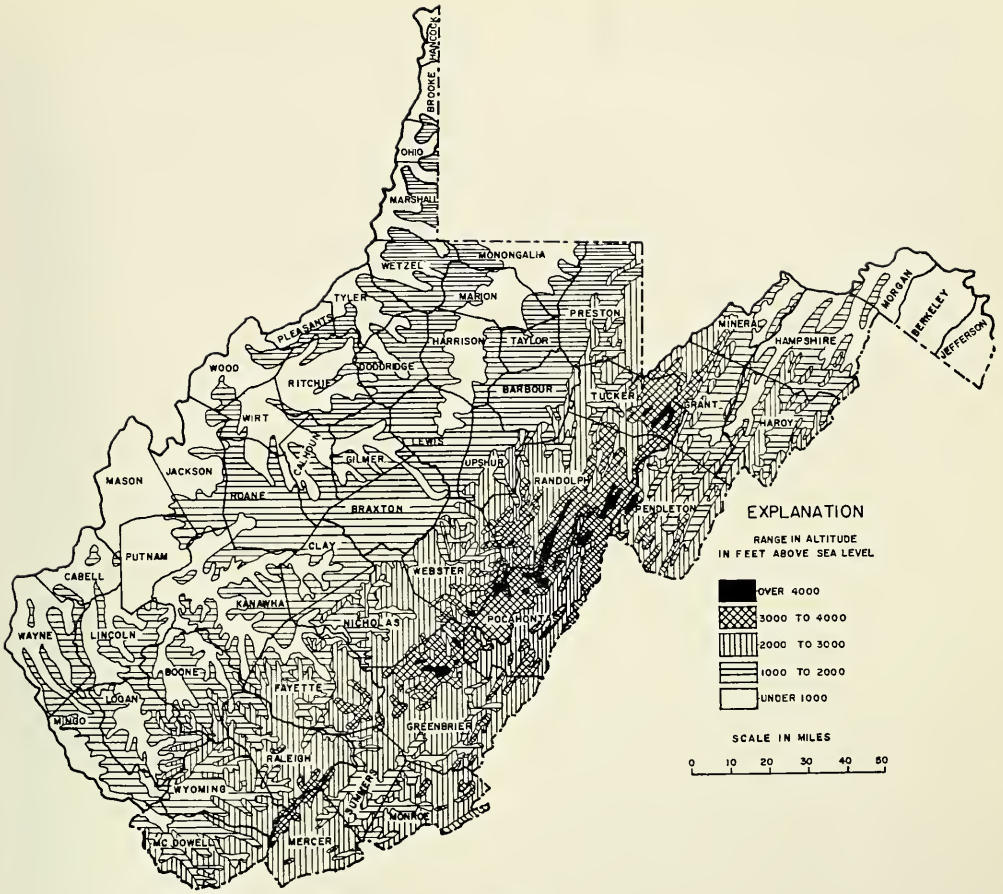

FIGURE 10

Topographic Map of West Virginia.
(From Water Resources of West Virginia, 1963)

TOPOGRAPHY

The topography of the Upper South Branch Valley is highly diversified. Elevation in the area varies from 725 feet above sea level in Hardy County to 4,860 feet above sea level at Spruce Knob in Pendleton County (the highest point of elevation in West Virginia).

Hardy County

The relief of Hardy County is very rugged, for the county contains a series of mountain ranges. Among these are North Mountain, South Branch Mountain, Shenandoah Mountain, and Elkhorn Mountain. The only level land in the county is bottom land along the South Branch of the Potomac and South Fork rivers.[6]

Grant County

In some parts of Grant County, the topography is rough and boulder-strewn, making it unfit for cultivation, and much of it is even too rough for successful

[6]West Virginia Geological Survey, *Hardy County Report*, 1927.

grazing. The land varies, however, from sharp, narrow mountain ridges with transverse gorges cut by minor streams to smooth valleys with low, gentle hills.[7]

Pendleton County

Pendleton County has the most rugged relief of any county in the State. Deep gorges and V-shaped valleys have been cut in the land by stream erosion of the South Branch, South Fork, and North Fork of the Potomac River. As in Hardy County, most of the level ground is found along the rivers and the larger tributaries.[8]

SOILS[9]

General Soil Areas

The soil map in this section (Figure 11) shows the main patterns of soils, or soil associations, of the Upper South Branch Valley. Each association contains a few major soils and several minor soils in a pattern that is characteristic, although not strictly uniform.

In this section there is first a listing of the types of soils making up a given soil association, followed by a more detailed description of this given soil association as it appears in the various counties.

Because the pattern of soils in a soil association is not strictly uniform, all of the soils listed in the general description of a soil association will not be present every time the soil association occurs. However, the detailed description by counties will list for each county the types of soils present in the various areas in the counties.

Area 1: *Acid Shale and Sandstone Area.* This soil association is present only in Grant County; it consists of Gilpin, Dekalb, Clymer, and Cookport soils.

Area 1 of Grant County is on the Allegheny Plateau and consists of well- and moderately well-drained soils. The Clymer, Dekalb, and Cookport soils are developed from sandstone with some interbedded shales and siltstones. The Clymer and Dekalb soils have medium to coarse textured surfaces and subsoils. The surfaces of the Cookport soils are medium to coarse textured with a compacted brittle layer in the subsoil. The clay shale Gilpin soils generally have medium textured surfaces and medium to fine textured subsoils. The soils of this area are low in natural fertility but respond well to fertilizers and lime. The climate's high rainfall and short growing season contribute to the soil's being more adapted to grassland farming than to production of cultivated crops. There are about 130 farms in the area, 75 per cent of which produce beef cattle as the main farm enterprise. Other than a few dairy farms, the remaining farms produce timber and woodland products, with some poultry, livestock, grain and hay for local farm consumption.

Area 2: *Limestone-Sandstone Area.* Soils included in this association are Dekalb, Belmont and Lehew. This soil area is found in Grant and Pendleton counties.

Area 2 of Grant County extends north and south throughout the county along the east slope of Allegheny Front Mountain. The steep mountain slopes have soils of brown and red sandstone and limestone. The sandy Dekalb soils are shallow to moderately deep; the reddish-hued, limey Belmont soils are deep and well drained; and the reddish-hued, acid Lehew soils are shallow to moderately deep and well drained. There are a few subsistence farms in the area, but most of these are too stony and steep for farming.

Area 2 of Pendleton County also has soils of the Dekalb, Belmont and Lehew association. This area occurs on the western edge of the county and extends north and south throughout the county. About 75 per cent of the area is covered by the moderately deep, well-drained Dekalb-Lehew soils that have developed in red and gray acid sandstone materials. The deep, well-drained, reddish Belmont soils that are developed in limestone materials are found on 15 per cent of the area. The remainder of the area is made up of footslope and bottomland soils. Although most of the soils are too steep and stony for farming, there are some farmsteads along the bottomlands with the steeper mountain slopes being used for pasture. The major part of most farm incomes is derived from the large timber industry of the area.

Area 3: *Brown and/or gray shale hills.* This area is composed of Ashby, Litz, Weikert, Berks, and Montwallo soils and is found in all three counties of the Upper South Branch Valley.

Area 3 of Grant County consists of shallow acid to somewhat limey shale soils on the foothills. Major soils of the area are the very shallow and shallow acid shale Montwallo series, the very shallow to moderately deep, somewhat limey Litz series, and the shallow to moderately deep, acid shale Berk series. Bottomland, terrace, and colluvial[10] soils also occur in this area and

[7]West Virginia Geological Survey, *Grant and Mineral County Reports,* 1924.

[8]West Virginia Geological Survey, *Pendleton County Report,* 1927.

[9]Information on the various soils of the Upper South Branch Valley was provided by the United States Department of Agriculture, Soil Conservation Service, Morgantown, West Virginia.

[10]Colluvial soils are composed of loose material resulting from rock disintegration such as rock fragments, debris, etc.

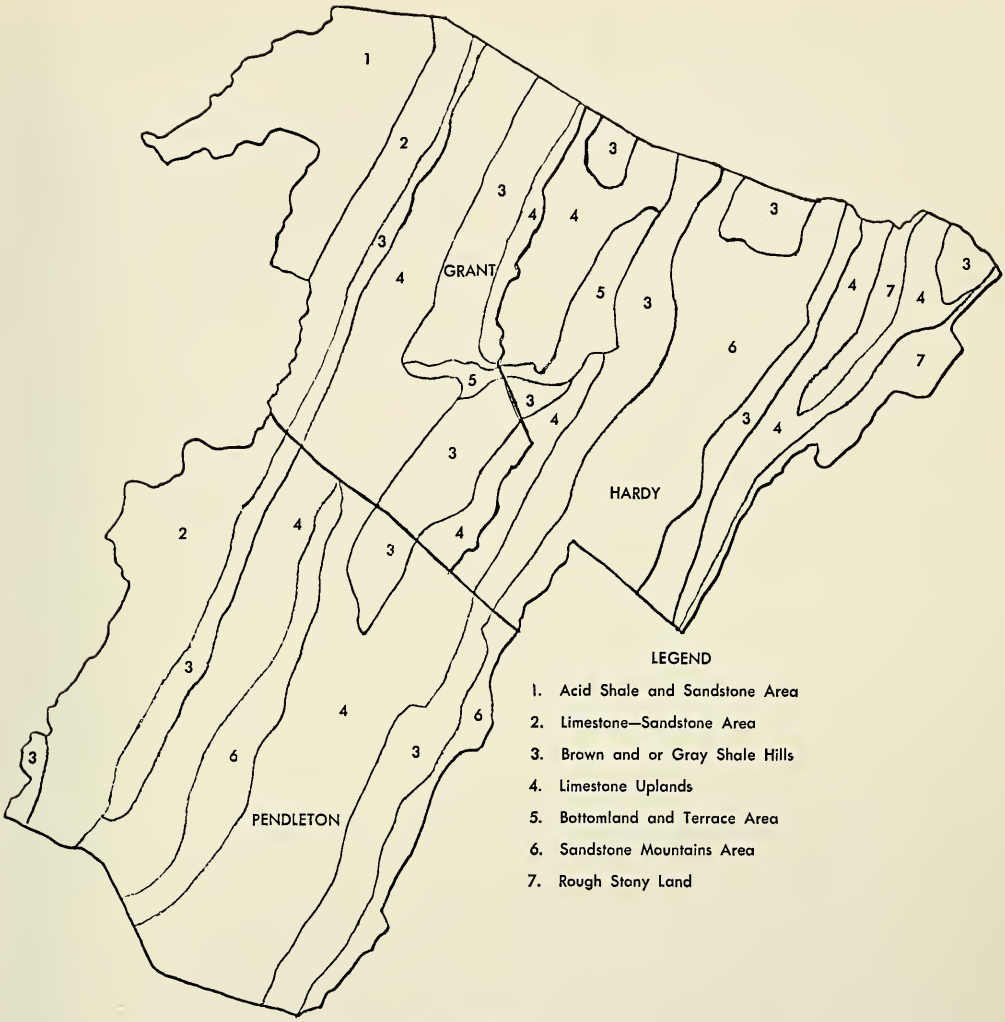

FIGURE 11

General Soil Areas of the Upper South Branch Valley. (From United States Soil Conservation Service)

contain more than half of the farms of the county. The low rolling hills, fairly broad bottomland, and moderately sloping colluvial and terrace soils encourage the use of modern farm machinery. Although beef cattle production is the chief enterprise of most farms, several poultry, dairy and general farms are in the area.

Area 3 of Hardy County is characterized by low rounded hills with some steep slopes and level benches. This is one of the most important farming areas of the district. Major soils are the very shallow and shallow Weikert soils, the shallow and moderately deep Litz soils, and the shallow and moderately deep, well-

drained Berks soils. These soils, found on 65 per cent of the area, are very low in natural fertility and water-holding capacity. The rest of the area is composed of colluvial, terrace, and bottomland soils; and it is these soils that are productive for farming. Beef cattle production is the main farm enterprise, but several dairy, poultry, sheep and general farms are in the area.

As in Hardy County, 70 per cent of Pendleton County's Area 3 is composed of shallow Weikert soils, and shallow and moderately deep Litz and Berks soils. Topography is generally low hills, but some benches, flats, and steep mountain sides contain these soils. Since these soils are along some of the larger streams of the county, large acreages of terrace, colluvial and bottomland soils occur. Most farms use the more productive and less sloping bottomland, terrace, and colluvial soils to produce row crops and grain. The hill soils are used mostly for pasture and hay.

Area 4: Limestone Uplands. This area consists of Corydon, Elliber, Litz, Vanderlip, Dekalb and Murrill soils.

Area 4 in Grant County encompasses 90,000 acres north and south through the center of the county and along the Hardy County line. Much of the land is rough, steep and stony, but a few thousand acres are in productive farms. The deep, cherty Elliber soils are very productive for orchards, especially apple. The sandy, lime influenced, stony Vanderlip series are good for timber production. And the stony, limestone derived Corydon soils are good for bluegrass pasture where they are not too rocky. There are beef cattle, poultry, and dairy farms scattered throughout the area.

Area 4 of Hardy County consists of steep, stony limestone, chert and sandstone soils. More than 20 soil series are represented in this area; however, the major soils are Corydon, Elliber and Dekalb. About six colluvial soils make up 20 per cent of the area, while minor arcreages of Litz, Edom, Ryder, Vanderlip, Murrill, other upland soils, and several bottomland and terrace soils make up the remainder of the area. The various soils are used for production in the same manner as they are used in Grant County.

Area 4 of Pendleton County is quite similar to area 4 of Hardy County. The major soils are Corydon, Elliber, Litz, and Dekalb, and most of the area is steep, stony, and unsuited for farming. The most productive soils are on the larger river bottoms of the area, and in the Germany Valley and Franklin sections. Beef cattle production is the major enterprise, but several dairies and commercial-sized poultry farms are in the area.

Area 5: Bottomland and Terrace Area. This area is made up of the Huntington-Monongahela-Tyler-Litz soil association and is present only in Grant and Hardy counties.

Area 5 of Grant County consists of 4,600 acres of level land along the South Branch of the Potomac River. It extends from the Hardy County line through Petersburg to the junction of the North Fork and South Branch River. Major soils of the area include the deep well-drained Huntington soil and the moderately well-drained Lindside from somewhat alkaline recent alluvium, and the deep, moderately well-drained Monongahela from old acid alluvium. The area is characterized by large prosperous farms, with beef cattle production being the main enterprise.

Area 5 of Hardy County consists of lime influenced bottomland, acid terrace soils, and shale uplands. The major soils are the deep, well-drained, productive Huntington soils, the somewhat poorly drained Tyler terrace soils, and the shallow and moderately deep, shaly Litz soils. The area has large, well-kept farms; and beef cattle, milk production, and poultry are the major farm enterprises.

Area 6: Sandstone Mountains. This area consists of Dekalb, Lehew, Berks, and Calvin soils, and appears in each county of the upper South Branch Valley.

Area 6 of Grant County is made up of Dekalb-Lehew soils which are moderately deep, brown and red acid sandstone soils. About 40 per cent of the area consists of sandstone ledges and steep slopes covered with loose stones that have eroded from the ledges. Another 40 per cent is very stony and rocky land, with small areas of Dekalb soils between the stones. The remaining 20 per cent is slightly less stony Lehew soils. Most of this area is suitable only for wildlife food and cover. A few farms have cleared some fields for pasture, but no crops are grown.

Area 6 of Hardy County includes 96,300 acres extending north and south through the center of the county. Major soils are Weikert and Berks, developed on silty gray shales, and the Dekalb-Lehew stony soils from grey and red acid sandstones. The Weikert soils are shallow and tend to be droughty in dry seasons. All of the soils are shallow to moderately deep and well drained.

Although these soils have low natural fertility and low to moderate water-holding capacity, they will produce good crops with good soil management. There are poultry producers, beef cattle, dairy and general farms in the area.

Area 6 of Pendleton County includes about 50,000 acres of mountain tops and steep side slopes in two sections of the county. Seventy-five per cent of the area consists of Dekalb and Lehew soils, while the rest is composed of Laidig and Buchanan footslopes and rough, stony land. Practically all of this area is is woodland and is too stony for farming; it is used mainly for growing timber.

Area 7: Rough, stony land. Area 7 is found only in Hardy County and consists of stony, acid sandstone uplands and acid sandstone colluvial footslopes. There are 35,900 acres in this area, and 90 per cent of it is woodland. Most of this region is extremely stony and best suited as woodland which serves as food and cover for wildlife.

Capability Class of Soils

Another way of looking at soil is through its capability class.[11] The grouping of soils into capability classes is done primarily on the basis of their capability to produce common cultivated crops and pasture plants without deterioration over a long period.

[11]Information on capability class of soils was furnished by the *West Virginia Soil Conservation and Needs Inventory*, 1961.

The risks of soil damage or limitations in use become progressively greater from Class I to Class VIII. Soils in the first four classes are capable, under good management, of producing adapted plants such as forest trees or range plants, and the common cultivated field crops and pasture plants. Soils in Classes V, VI, and VII are suited to the use of adapted native plants. Soils in Class VIII do not return on-site benefits to inputs of management for crops, grasses, or trees.

Table 31 gives the amount of acreage that falls in each capability class in West Virginia, the Upper South Branch Valley, and Grant, Hardy, and Pendleton counties individually. However, the inventory acreage does not include total areas because federal land (excluding cropland), urban areas, and water areas are not included in the inventory.

Soil Conservation and Needs Inventory gives the following description of the various capability classes:

Class I. Soils in Class I have few limitations that restrict their use. Soils in this class are suited to a wide range of plants and may be used safely for cultivated crops, pasture, woodland, and wildlife. The soils are nearly level, and erosion hazard is low. They are deep,

TABLE 31

Use of Inventory Acreage By Capability Class, 1958
(Thousands of Acres)

Type of Acreage	All Classes	Totals I-IV	V-VII	I	II	III	IV	V	VI	VII	VIII
West Virginia											
Total	13,972.1	3,854.0	9,985.3	168.9	968.7	1,244.7	1,471.7	—	1,532.1	8,453.2	5.2
Crops	1,520.7	1,257.0	263.5	114.9	479.2	392.0	270.9		137.7	125.8	0.2
Pasture	2,572.9	1,018.9	1,551.8	29.0	217.1	318.5	454.3		492.0	1,059.8	1.8
Forest	9,464.4	1,404.7	8,054.7	15.8	221.2	476.5	691.2		858.5	7,196.2	3.1
Other	414.1	173.4	115.3	9.2	51.2	57.7	55.3		43.9	71.4	0.1
Upper South Branch Valley											
Total	947.1	260.4	680.9	12.1	72.8	85.4	90.1	—	68.7	612.2	5.2
Crops	79.7	63.4	16.1	8.8	26.1	14.2	14.3		4.3	11.8	.2
Pasture	209.0	94.2	113.0	2.3	27.7	29.2	35.0		28.1	84.9	1.8
Forest	655.0	101.1	550.8	0.9	18.5	41.6	40.1		36.3	514.5	3.1
Other	3.4	1.7	1.0	.1	0.5	.4	0.7		..	1.0	.1
Grant County											
Total	286.5	76.3	208.6	2.3	19.3	18.2	36.5	—	17.7	190.9	1.1
Crops	20.2	17.3	2.8	1.5	7.3	3.8	4.7		0.5	2.3	0.1
Pasture	59.8	30.9	28.5	0.6	8.0	6.3	16.0		4.9	23.6	0.4
Forest	205.6	27.8	177.2	0.2	3.9	8.0	15.7		12.3	164.9	0.6
Other	0.9	0.3	0.1	.	0.1	0.1	0.1		..	0.1	.
Hardy County											
Total	324.8	107.0	217.7	6.4	31.8	46.1	22.7	—	19.2	198.5	.
Crops	23.2	20.0	3.2	5.0	8.5	3.9	2.6		0.2	3.0	
Pasture	63.3	35.7	27.6	0.9	11.2	16.1	7.5		7.8	19.8	
Forest	236.5	50.3	186.2	0.5	11.8	25.9	12.1		11.2	175.0	
Other	1.8	1.0	0.7	..	0.3	0.2	0.5		..	0.7	
Pendleton County											
Total	335.8	77.1	254.6	3.4	21.7	21.1	30.9	—	31.8	222.8	4.1
Crops	36.3	26.1	10.1	2.3	10.3	6.5	7.0		3.6	6.5	0.1
Pasture	85.9	27.6	56.9	0.8	8.5	6.8	11.5		15.4	41.5	1.4
Forest	212.9	23.0	187.4	0.2	2.8	7.7	12.3		12.8	174.6	2.5
Other	0.7	0.4	0.2	0.1	0.1	0.1	0.1		..	0.2	0.1

Source: West Virginia Soil Conservation Committee, *West Virginia Soil and Water Conservation Needs Inventory*, 1961.

generally well drained, and easily worked. They hold water well and are either fairly well supplied with plant nutrients or highly responsive to inputs of fertilizer.

Class II. These soils have some limitations that reduce the choice of plants or require moderate conservation practices. Soils in this class require careful management, including conservation practices, to prevent deterioration or to improve air and water relations when the soils are cultivated. The limitations are few and the practices are easy to apply. The soils may be used for cultivated crops, pasture, woodland, or for wildlife food and cover.

Class III. Class III soils have severe limitations that reduce the choice of plants or require special conservation practices, or both. Soils in Class III have more restrictions than those in Class II, and when used for cultivated crops, the conservation practices are usually more difficult to apply and to maintain. They may be used for cultivated crops, pasture, woodland, or for wildlife food and cover.

Class IV. Soils in Class IV have very severe limitations that restrict the choice of plants, require very careful management, or both. The restrictions in use for these soils are greater than those in Class III, and the choice of plants is more limited. When these soils are cultivated, more careful management is required and conservation practices are more difficult to apply and maintain. Soils in Class IV may be used for crops, pasture, woodland, or for wildlife food and cover.

Class V. These soils have little or no erosion hazard but have other limitations that are impractical to remove that limit their use largely to pasture, woodland, or wildlife food and cover.

Class VI. Soils in Class VI have severe limitations that make them generally unsuited for cultivation and limit their use largely to pasture, woodland, or wildlife food and cover.

Class VII. These soils have very severe limitations that make them unsuited for cultivation and that restrict their use largely to grazing, woodland, or wildlife.

Class VIII. Soils and land forms in Class VIII have limitations that preclude their use for commercial plant production and restrict their use to recreation, wildlife, water supply or aesthetic purposes.

A summary of land use is given in Table 32. The information includes not only the number of acres falling in the various land-use classifications, but also the percentage of total land in each classification.

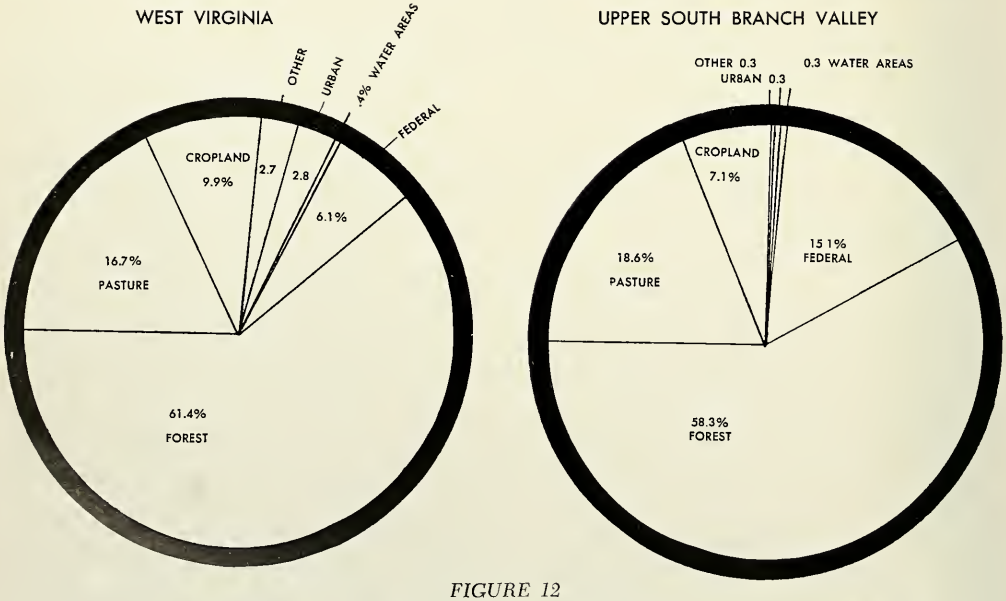

FIGURE 12

Percentage Distribution of Land Use in West Virginia and in the Upper South Branch Valley, 1958.

TABLE 32
Land Use, 1958, and Per Cent Distribution

Land Use	West Virginia (1,000)	Upper South Branch Valley (1,000)	Grant (1,000)	Hardy (1,000)	Pendleton (1,000)
Total Land Area (Acres)	15,410.3	1,124.0	305.1	374.2	444.7
Cropland	1,521.1	79.8	20.3	23.2	36.3
Pasture	2,572.8	208.7	59.7	63.3	85.7
Forest	9,465.2	655.0	205.7	236.2	212.9
Federal	935.0	170.1	14.1	48.3	107.7
Urban	433.2	3.4	3.3		0.1
Water Areas	68.1	3.7	1.0	1.3	1.4
Other	415.1	3.3	1.0	1.7	0.6
Total Land Area (Per cent)	100.0	100.0	100.0	100.0	100.0
Cropland	9.9	7.1	6.7	6.2	8.2
Pasture	16.7	18.6	19.6	16.9	19.3
Forest	61.4	58.3	67.4	63.1	47.9
Federal	6.1	15.1	4.6	12.9	24.2
Urban	2.8	0.3	1.1		
Water Areas	0.4	0.3	0.3	0.3	0.3
Other	2.7	0.3	0.3	0.5	0.1

Source: West Virginia Soil Conservation Committee, *West Virginia Soil and Water Conservation Needs Inventory*, 1961.

The West Virginia Soil and Conservation Needs Inventory is the source of this information, and the following definitions of land use were used in making the inventory:

Cropland. Cropland is defined as "land currently tilled including cropland harvested, crop failure, summer fallow, idle cropland, cropland in cover crops or soil-improvement crops not harvested or pastured, rotation (tall grass) pasture, and cropland being prepared for crops or newly seeded crops and hayland. Cropland also includes land in vegetables, fruits, and nuts, including those grown on farms for home use. All tame hay was included as cropland." About 7.1 per cent of the land in the Upper South Branch Valley is cropland.

Pasture. Pasture refers to "land in grass or other long-term forage growth that is used primarily for grazing. Pasture includes grassland, non-forested pasture, and other grazing land with the exception of pasture in the crop rotation. It may contain shade trees or scattered timber trees with less than 10 per cent canopy, but the principal plant cover is such as to identify its use primarily as permanent grazing land." The Upper South Branch Valley has about 18.6 per cent of its total area in pasture.

Forest and woodland. Forests and woodlands include "lands which are at least 10 per cent stocked by forest trees of any size and capable of producing timber or other wood products, or capable of exerting an influence on the water regime. Afforested (planted) areas are included." Forest makes up 58.3 per cent of the land area in the Upper South Branch Valley; moreover, when federal forest lands are included, forests make up about 73 per cent of the land area.

Federal land. This includes "all federal land except that cropland owned by the Federal Government and operated under lease or permit." The Upper South Branch Valley is composed of 15.1 per cent federal land.

Urban. Urban includes "cities, villages, other built-up areas of more than 10 acres, industrial sites, railroad yards; cemeteries; golf courses; shooting ranges, etc.; and institutional and public administrative sites and similar types of areas. The area devoted to roads and railroads was included in the urban and built-up areas." Urban areas make up only 0.3 per cent of the Upper South Branch Valley.

Water areas. Water areas include "water areas of less than 40 acres in size and streams less than one-eighth of a mile wide. Water areas larger than this are not included in total land area of the county and, therefore, not included in water area acreage." Water areas fitting this description compose only 0.3 per cent of the Upper South Branch Valley.

Other land. Other land refers to "farmsteads, idle land, wildlife areas, and other areas not classified into cropland, pasture, forest and woodland and urban and built-up areas. Idle land includes land formerly used for crops and pasture, now abandoned and not yet reforested or put to other use. Acreage disturbed by strip mining is also included." Other land makes up an insignificant percentage of the Upper South Branch Valley.

Chapter IV

WATER AND MINERAL RESOURCES

A DESCRIPTION of water and mineral resources in the Upper South Branch Valley is provided in this chapter. Since the area's annual precipitation is discussed in Chapter III of this publication, this section will deal only with surface water and impoundments; municipal water supply is discussed in the public utilities section of Chapter VII. At the present time, there is no information available for ground water in the area.

WATER

Surface Water

The South Branch of the Potomac River flows through all of the counties in the Upper South Branch Valley. It flows through Pendleton County, the southern portion of Grant County, and the northwestern part of Hardy County. The North and South Forks of the South Branch of the Potomac also flow through Pendleton County. The North Fork joins the South Branch west of Petersburg, and the South Fork joins the South Branch at Moorefield in Hardy County.

Surface water records of 1963 show the average discharge of the South Branch River at Franklin (Pendleton County) was 167 cubic feet per second, at Petersburg (Grant County) 688 cubic feet per second, and at Moorefield (Hardy County) 210 cubic feet per second. Table 33 gives extremes in discharge for the year 1963 and extremes for the entire period during which records have been kept.

Table 34 gives a chemical analysis of surface water in the area. In the appendix of this section are tables 41 through 46 which list stream data and drainage areas for all the streams in the Upper South Branch Valley.

Impoundments

In the Upper South Branch Valley, there are approximately 18 Soil Conservation Service Project impoundments, three Department of Natural Resources impoundments, two industrial impoundments, and one recreational impoundment. Tables 35-38 list the impoundments by type, location, stream source, and surface acres.

There are also 772 Soil Conservation Service Farm ponds in the area; 236 in Grant, 318 in Hardy, 218 in Pendleton.

MINERALS

Other than the coal mining that is done in Grant County, the only mineral enterprise in the Upper South Branch Valley is the limestone industry. There is an abundant supply of limestone present in each of the three counties.

Limestone

In 1963, there were three limestone quarry operators in Grant County, three in Pendleton County, and one in Hardy County. Most of the limestone that is

TABLE 33

Surface Water Records—1963

	South Branch Potomac Franklin, West Virginia	South Branch Potomac Near Petersburg, West Virginia	South Branch Potomac Near Moorefield, West Virginia
Average Discharge	167 cfs	688 cfs	210 cfs
Extremes:			
Maximum Discharge—1963	2,450 cfs	13,600 cfs	4,830 cfs
Date occurring	March 19	March 20	March 20
Minimum Discharge—1963	16 cfs	58 cfs	10 cfs
Date occurring	Sept. 23	Sept. 29	Sept. 24
Mean Discharge—1963	132 cfs	644 cfs	172 cfs
Extremes for period during which records have been kept			
Maximum Discharge	15,000 cfs	62,000 cfs	39,000 cfs
Date occurring	June 17, 1949	June 17, 1949	June 18, 1949
Minimum Discharge	15 cfs	42 cfs	7.2 cfs
Date occurring	Sept. 25, 1959	Sept. 28, 1959	Jan. 8, 1956

Source: United States Department of the Interior, *Surface Water Records of West Virginia*, 1963.

TABLE 34

Chemical Analysis of Surface Water (Chemical Constituents in Parts Per Million)

	South Branch Potomac Franklin, West Virginia		South Branch Potomac Near Petersburg, West Virginia	
	Sept. 6, 1960	April 19, 1961	Sept. 6, 1960	April 19, 1961
Instantaneous Discharge (cfs)	34	452	78	3,250
Chemical Content:				
SiO_2	5.6	3.1	5.8	4.0
Al	..	..	..	..
Fe	.08	.06	.08	.08
Mn	.00	.10	.00	.12
Ca	35	23	37	20
Mg	3.8	2.6	5.2	2.3
Na	.7	.8	1.0	.9
K	.7	.6	1.1	.5
HCO_2	119	78	118	55
SO_4	6.4	7.0	17	10
Cl	2.0	2.0	2.0	.5
F	.1	.1	.1	.1
NO_3	.2	1.4	.1	1.8
CN	..	..	..	..
Dissolved Solids	110	80	129	73
Hardness as $CACO_3$				
CA, MG	103	68	114	60
NCH	6	4	18	14
Acidity as H+				
1MM.	..	..	..	..
POT.	..	..	..	..
Specific Conductance:				
(Micromhos at 25° C)	199	140	227	126
pH	7.5	7.6	7.3	7.5
Color	4	5	5	10
Dissolved Oxygen				
ppm	..	..	..	..
Per cent saturation	..	..	..	..

Source: Warwick L. Doll, *Water Resources of West Virginia*, 1963.

TABLE 35

U.S.D.A., Soil Conservation Service, Public Law 534 and 566 Projects in West Virginia (Impoundments)

County	Name	Stream	Use	Surface Acres
Grant	New Creek—No. 14	New Creek	Water Supply and Flood Detention	58.0
Grant	Patterson Ck.—No. 1	Tributary Patterson Ck.	Flood Detention	6.8
Grant	Patterson Ck.—No. 4	Middle Fork	Flood Detention	8.2
Grant	Patterson Ck.—No. 49	Tributary Patterson Ck.	Flood Detention	6.7
Hardy	South Fork—No. 2	Stump Run	Flood Detention	4.0
Hardy	South Fork—No. 1	Shooks Run	Flood Detention	7.0
Hardy	South Fork—No. 5	Rodabaugh	Flood Detention	4.0
Hardy	South Fork—No. 4	Rohrbaugh	Flood Detention	8.0
Pendleton	South Fork—No. 13	Hawse Run	Flood Detention and Recreation	5.0
Pendleton	South Fork—No. 27	Dry Run	Flood Detention	3.0
Pendleton	South Fork—No. 10	Stoney Run	Flood Detention	5.0
Pendleton	South Fork —No. 12	Detimer Run	Flood Detention	6.0
Pendleton	South Fork—No. 16	George Run	Flood Detention	9.2
Pendleton	South Fork—No. 11	Road Run	Flood Detention	6.0
Pendleton	South Fork—No. 32	Panther Run	Flood Detention	1.0
Pendleton	South Fork—No. 6	Wilson Run	Flood Detention	4.0
Pendleton	South Fork—No. 9	Dice Run	Flood Detention	2.0
Pendleton	South Fork—No. 21	Little Rough Run	Flood Detention	4.0
Pendleton	South Fork—No. 37	Camp Run	Flood Detention	10.0

Source: State Office, Soil Conservation Service, 1965. Tables of West Virginia Public Service Commission entitled "Statistics of Dams in the State of West Virginia."

TABLE 36

Recreational or Other Use Impoundments in West Virginia

County	Dam Name or Owner	Stream	Use	Surface Acres
Hardy	Moore No. 1	Thorny Bottom	Recreation	15.0

Source: Table West Virginia Public Service Commission titled "Statistics of Dams in the State of West Virginia."
West Virginia Department of Natural Resources and West Virginia Department of Agriculture, *Water Resources Activity in West Virginia.*

TABLE 37

Department of Natural Resources Impoundments

County	Name	Stream	Use	Surface Acres
Hardy	Trout Pond	Trout Run	Recreation	2.0*
Hardy	Warden Lake	Moores Run	Recreation	36.0
Pendleton	Hawse Run Lake	Hawse Run	Recreation and Flood Detention	5.0*

*Cooperative project between U. S. Forest Service and Department of Natural Resources.
Sources: Files of Department of Natural Resources, Charleston, West Virginia. Table of West Virginia Public Service Commission entitled "Statistics of Dams in the State of West Virginia."

TABLE 38

Industrial Impoundments

County	Dam Name or Owner	Stream	Use	Surface Acres
Grant	VEPCO Power	Stoney River	Cooling Water	1,100.00
Grant	Stoney River Dam	Stoney River	Water Supply	396.00

Source: Table West Virginia Public Service Commission entitled "Statistics of Dams in the State of West Virginia."
Warwick L. Doll, *Water Resources of West Virginia,* 1963.

quarried is used for agricultural purposes and for concrete aggregate. However, other uses include rock dust for coal mines, lime and glass manufacturing, poultry grit, and metallurgical use.

Table 39 gives a list of 1963 quarry operators and production information.

Coal

The original mineable coal reserve of Grant County is estimated to have been 969,014,155 short tons. From 1883 through 1963, approximately 6,747,432 short tons of coal were produced and approximately 4,498,288 short tons were estimated as lost in mining. Experts now estimate that the remaining recoverable coal reserve of Grant County is 574,661,000 short tons.[1]

During recent years, the amount of coal production in Grant County has fluctuated considerably. In 1953, the number of tons of coal produced in Grant County was 47,456. Peak production for the 1953-63

[1]*West Virginia Bluebook,* 1964.

TABLE 40

Coal Mines Operating in Grant County, 1963

Company	Headquarters	1963 Production (Tons)	Days Worked
Abernathy Coal	Emoryville	789	36
Abrams Creek Coal	Elk Garden	425	40
Arnold Coal	Elk Garden	3,855	229
H. & H. Coal	Elk Garden	640	60
Joes Run Coal	Elk Garden	100	17
Kuhn Coal	Elk Garden	277/day	
Moorman Coal #2	Petersburg	22,150	196
Moorman Coal #3	Petersburg	1,134/day	
Lindsy Coal (surface)	Pennsylvania	44,185	218

Source: West Virginia Department of Mines, *Annual Report,* 1963.

TABLE 39

Quarry Operators, 1963

County	Company	Headquarters	Type of Product	Output (tons)	No. of Employees
Grant	Bean Lime and Stone	Moorefield	Agricultural Lime	2,532	10
Grant	Keplinger Lime	Maysville	Agricultural Lime	4,500	3
Grant	Terra Alta Limestone	Aurora	No Production in 1963		
Hardy	W. Va. Soil Conservation Baker Lime Plant	Romney	Agricultural Lime	8,138	5
			Other	12,054	5
			Agricultural Lime	19,020	
Pendleton	Greer Steel Company and Germany Valley Limestone	Riverton	Metallurgical	44,106	23
			Other	70,018	
Pendleton	North Fork Lime Producers	Riverton	Agricultural Lime	9,373	12
Pendleton	Ruddle Lime Co.	Riverton	Agricultural Lime	3,810	4

Source: West Virginia Department of Mines, *Annual Report,* 1963.

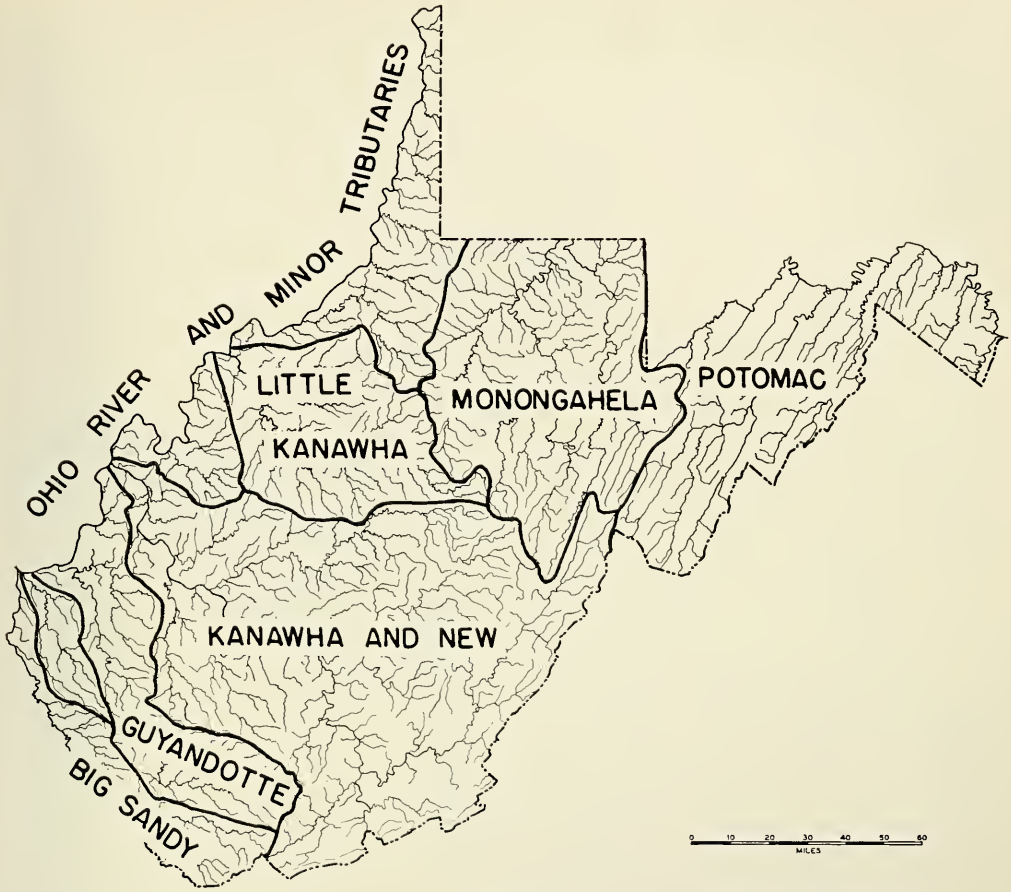

FIGURE 13

Drainage Basins of West Virginia.
(From Water Resources of West Virginia, 1963)

period came in 1960 when 94,026 tons of coal were mined. In 1963, the coal mines in operation produced 73,553 tons of coal. Approximately 60 per cent of Grant County's mining in 1963 was surface mining.

Table 40 lists the coal mines in operation in Grant County in 1963 and production information.

Since 1963 the Alpine Coal and the North Branch Coal companies have begun operations and there has been a considerable increase in county coal production.[2]

Gas

Gas operations in 1964 were limited to Hardy County. During the year, seven permits to drill were issued and two successful gas wells were developed. Since 1964 there has been an increase in the number of wells drilled in all three counties.[3]

[2]James R. Kerr, Bureau of Mines Minerals Yearbook, 1964, *The Mineral Industry of West Virginia.*
[3]*West Virginia Bluebook*, 1964.

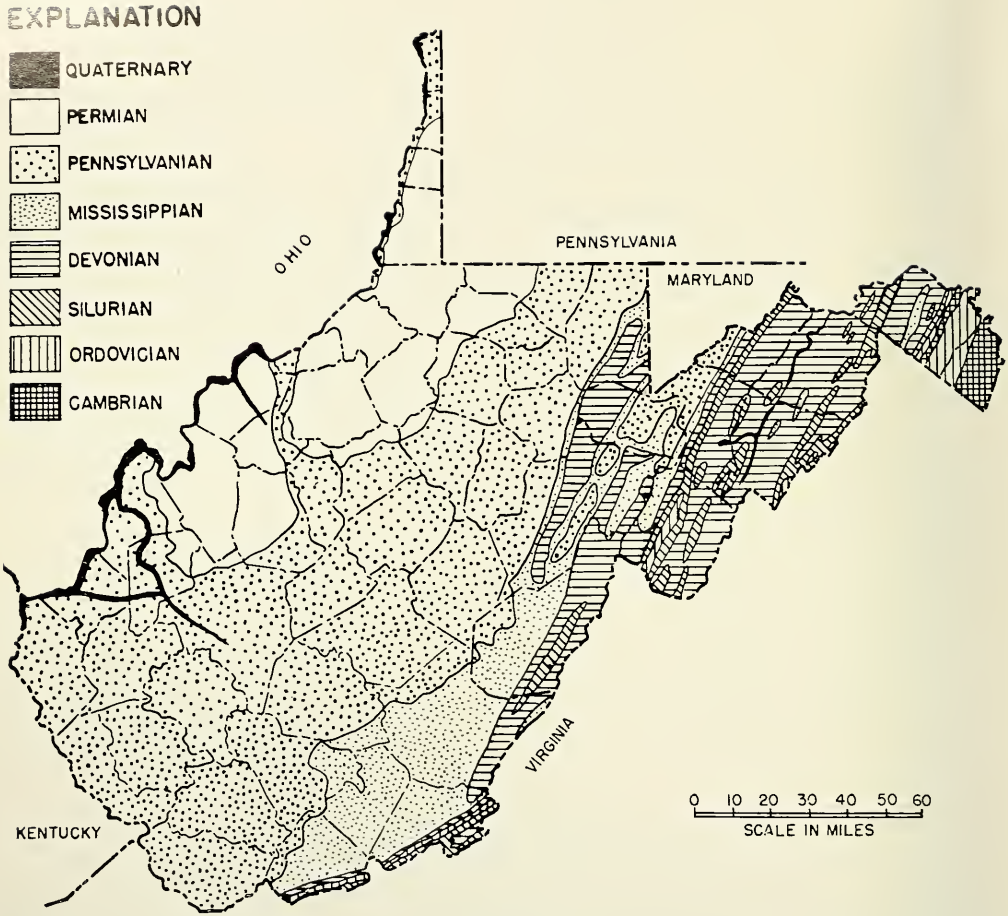

FIGURE 14

Generalized Geographic Map of West Virginia.
(From Water Resources of West Virginia, 1963)

APPENDIX

(Chapter IV)

TABLE 41

Areas of Drainage Basins—Pendleton County

Name of Stream	Square Miles
South Branch Potomac River	1,492.66
South Fork (Moorefield) River	334.02
North Fork Potomac River	326.06
Zike Run	2.33
Shafter Run	2.50
Sawmill Run	2.98
Big Run	2.69
Seneca Creek	68.37
Brushy Run	10.29
Roaring Creek	14.06
White Run	6.07
Mill Creek (Judy Spring)	8.54
Root Run	8.61
Blizzard Run	2.45
Briery Gap Run	2.31
Laurel Run	4.44
Red Lick Run	2.45
Teter Run	3.73
Big Run	28.64
Dry Run	9.50
Laurel Fork	28.70
Straight Fork	9.96
Mill Creek (Grant and Pendleton)	103.66
North Mill Creek	47.42
Brushy Run	7.22
Stoney Creek	4.33
South Mill Creek	46.71
Kessner Run	3.24
Long Run	3.15
Briggs Run	6.37
Reeds Creek	20.09
Mill Run	16.95
Deer Run	7.54
Hammer Run	5.77
Peters Run	5.12
Trout Run	17.61
Friends Run	12.68
Props Run	3.43
Smith Creek	20.74
Thorn Creek	50.91
Whitethorn Creek	15.49
Blackthorn Creek	19.44
Moyer Run	6.38
Hammer Run (Franklin Dist.)	4.63
East Dry Run	5.59
South Fork (Moorefield) River:	
Kettle Creek	21.29
Wilson Run	4.77
Camp Run	5.80
Straight Run	2.21
Rough Run	10.35
Fisher Run	3.25
Dice Run	2.91
Wagner Run	1.80
Stony Run	3.12
Road Run	4.13
Hawes Run	9.23
Broad Run	5.59
Miller Run	5.91
Little Fork	17.33
Stony Run (Sugar Grove Dist.)	8.00
Brushy Fork (Sugar Grove Dist.)	13.52

Source: West Virginia Geological Survey, *Pendleton County Report*, 1927.

TABLE 42

Areas of Drainage Basins—Grant and Mineral Counties

Name of Stream	Square Miles
North Branch Potomac River, above Hampshire County line	1,340.72
Dan Run (Broad Hollow)	4.60
Patterson Creek (entire)	283.20
Rocky Run	8.35
Turners Run	4.70
Painter Run (entire)	7.65
Long Pasture Run (entire)	2.40
Graveyard Run	0.55
Mill Run	1.65
Kellar Run	1.81
Horseshoe Run	2.29
Rinehart Run	1.78
Sugarcamp Run	1.15
Hazel Run	2.16
Cabin Run (entire)	23.18
Purgit Run (entire)	4.61
Ochre Run	0.82
Hollenbeck Run	3.44
Dowden Run	1.45
Sycamore Run	1.40
Beaver Run (entire)	8.21
Spring Run	0.64
Staggs Run (entire)	6.70
Miles Run	1.32
Johnson Run	1.20
Mud Run	1.02
Mill Creek (entire)	18.32
Sugar Run	0.85
Parrill Run	0.82
Liller Run	2.81
Wild Meadow Run	3.00
Mud Run	0.65
Elliber Run	3.36
Mikes Run (entire)	19.42
Dry Run	0.83
Hilky Run	4.56
Whip Run	5.51
Cave Run	0.69
Pursley Run	2.05
Clients Run	0.54
Buskirk Run	1.17
Harness Run	1.70
Rosser Run	6.93
Thorn Run (mouth below Williamsport)	9.10
North Fork (entire)	29.90
Elklick Run	9.74
Middle Fork	9.02
Thorn Run (mouth at Forman)	3.05
Ashcabin Run	2.83
Limestone Run	5.15
New Creek (entire)	53.00
Stony Run	1.92
Parr Spring Run	1.26
Block Run	2.55
Hoffman Run	1.30
King Run	1.89
Ash Spring Run	2.48
Big Run	1.80
Pokejoy Run	1.47
Linton Creek	5.08
Thunder Hill Run	2.02
Powder House Run	1.99
Slaughterhouse Run	0.88
Montgomery Run	2.13
Piney Swamp Run	5.03
Lynnwood Run	2.03
Howell Run	6.94
Deep Run (entire)	9.97
Cranberry Run	2.46
Abram Creek (entire)	44.50
Emory Run	5.91
Johnnycake Run (entire)	4.70
Wyckoff Run	1.19
Glade Run	4.50
Little Creek	1.35
Stony River (entire)	59.29
Mill Run	5.40
Laurel Run	2.46
Hemick Run	4.68
Red Sea Run	1.58
Wymer Run	1.38
Difficult Creek	7.58
Buffalo Creek (entire)	10.08
Little Buffalo Creek	3.87
Red Oak Creek	3.12
Elk Run	3.80
South Branch Potomac River	1,492.66
Mill Creek (entire)	103.66
Johnson Run (entire)	7.67
Sawmill Branch	1.71
North Mill Creek (entire)	47.42
South Mill Creek (entire)	46.71
Elkhorn Run	5.08
Spring Run	1.66
Long Run	2.60
Rough Run	2.10
Waterfall Run	1.48
Wolfpen Run	6.69
Durgon Creek (entire)	3.24
Mitchell Run	4.21
Lunice Creek (entire)	88.67
Robinson Run	8.02
Norman Run	6.14
Brushy Fork	10.28
South Fork (entire)	23.93
Bodkins Run	2.34
Shell Run	1.43
Saltblock Run	1.01
Hogland Run	4.30
North Fork (entire)	326.06
Jordan Run (entire)	20.62
Big Run	3.38
Laurel Run	4.23
Broad Run	2.19
Samuel Run	3.17
Broad Run	2.12
Moyer Run	2.88
High Ridge Run	2.60
Mill Run	1.62
Redman Run	3.50
Long Run	3.11
Shaver Run (South corner of Grant Co.)	0.50

Source: West Virginia Geological Survey, *Grant and Mineral County Reports*, 1924.

TABLE 43

Areas of Drainage Basins—Hardy County

Name of Stream	Square Miles
South Fork River (entire)	334.02
Wilson Run	4.77
Rodabaugh Run	2.41
Rohrbaugh Run	9.55
Dumpling Run	4.02
Brake Run	6.92
Stump Run	4.51
Kade Run	1.57
Baker Hollow	1.05
Shooks Run	6.79
Lost River	
Upper Cove Run	8.84
Capon Run	3.26
Lower Cove Run	12.00
Adams Run	3.95
Culler Run	12.05
Snyder Run	1.81
Howards Lick Run	9.60
Whitehead Run	2.71
Kimsey Run	33.41
Camp Branch Run (South Fork District)	10.83
Mill Gap Run	3.46
Trout Run	48.37
Thorny Bottom	17.75
Brushy Hollow	4.54
Halfmoon Run	1.67
Waites Run	20.36
Three Springs Run	3.40
Sperry Run	15.54
South Branch Potomac River	1,492.66
Mill Creek	50.10
Elmlick Run	8.82
Saw Mill Run	14.76
Devils Hole Run	4.89
Stony Run	18.94
Clifford Hollow	12.95
Anderson Run	40.74
Mudlick Run	22.48
Walnut Bottom Run	13.19
Long Hollow	7.06
Toombs Hollow	1.94
Williams Hollow	3.39
Dumpling Run	21.19
Fort Run	13.91
South Fork River	
Stony Run	7.09
Jenkins Run	5.36
Durgon Creek	8.79
Mitchell Run	4.31
Hutton Run	4.07
Falling Spring Run	1.11
Slate Rock Run	3.75
Whites Hollow	3.47
Moores Run	14.28
Water Lick Run	6.58
Horn Camp Run	11.44
Baker Run	24.38
Camp Branch	7.99
Skaggs Run	8.22
Longlick Run	7.50
Crab Run (Hardy portion only)	5.71
Gravel Run	2.42
North River	210.54

Source: West Virginia Geological Survey, *Hardy County Report,* 1927.

TABLE 44

Toble of Stream Data—Pendleton County

Streams	Total Distance (Miles)	Total Fall (Feet)	Rate of Fall/Mile (Feet)	Airline Distance (Miles)	Ratio T.D.° to A.L.D.
South Branch Potomac River	131.15	3,065	23.37	94.40	1.39
South Branch (In Pendleton County)	39.0	1,145	29.35	31.3	1.24
North Fork Potomac River	57.7	3,010	52.16	47.7	1.21
North Fork (In Pendleton Co.)	33.2	1,355	40.81	29.6	1.12
Zeke Run	2.85	1,560	547.38	2.7	1.06
Shafter Run	2.6	1,340	515.38	2.55	1.02
Sawmill Run	2.5	1,165	466.00	2.15	1.16
Big Run	2.65	1,390	524.52	2.25	1.18
Seneca Creek	19.3	2,550	132.12	11.5	1.68
Brushy Run	7.6	2,230	293.42	7.05	1.08
Roaring Creek	5.6	1,045	186.61	5.15	1.09
White Run	4.35	1,500	344.82	3.3	1.32
Mill Creek (Judy Spring)	2.9	850	293.10	2.35	1.23
Root Run	3.85	1,475	383.11	2.7	1.425
Blizzard Run	3.3	2,125	643.93	2.9	1.14
Briery Gap Run	3.0	2,175	725.00	2.7	1.11
Laurel Run	3.35	2,400	716.42	3.1	1.08
Red Lick Run	2.95	2,145	727.12	2.9	1.02
Teter Run	3.2	1,685	526.56	2.9	1.10
Big Run	12.8	1,725	134.76	5.95	2.15
Dry Run	5.0	1,300	260.00	4.45	1.12
Laurel Fork	15.0	1,505	100.33	11.3	1.33
Straight Fork	9.05	1,030	113.81	8.03	1.13
Mill Creek	2.64	40	15.15	2.45	1.08
North Mill Creek	16.13	1,160	71.92	12.23	1.32
Brushy Run	5.52	900	163.04	4.57	1.21
Stony Creek	2.91	330	113.40	2.50	1.16
South Mill Creek	14.01	600	42.83	11.48	1.22
Kessner Run	3.14	890	283.44	2.92	1.08
Long Run	3.15	925	340.54	2.8	1.125
Briggs Run	4.35	850	195.40	3.8	1.14
Reeds Creek	12.25	1,290	105.31	10.9	1.12
Mill Run	9.9	1,210	122.22	7.55	1.31
Deer Run	8.25	1,190	144.24	5.7	1.45
Hammer Run (Franklin Dist.)—(Mill Run)	4.45	1,020	229.21	2.95	1.51
Peters Run	4.15	910	219.28	3.4	1.22
Troutrun (Troublesome Valley)	7.6	1,025	134.86	5.55	1.37
Friends Run	8.15	2,115	259.51	7.0	1.16
Props Run	2.88	1,035	357.64	2.45	1.18
Smith Creek	10.4	2,240	215.38	8.07	1.29
Thorn Creek (To Forks of Whitethorn and Blackthorn Creeks)	9.0	395	43.89	6.1	1.48
Whitethorn Creek	8.0	570	71.25	7.1	1.13
Blackthorn Creek	8.7	1 100	126.44	7.25	1.20
Moyer Run	3.1	1,250	403.22	2.85	1.09
Hammer Run (Franklin Dist.)	4.3	1,200	279.07	3.0	1.43
East Dry Run	4.7	1,150	244.68	3.95	1.19
South Fork (Moorefield) River	64.4	1,800	27.95	52.4	1.23
South Fork (Pendleton Co. only)	37.5	925	24.66	29.7	1.26
Kettle Creek	6.8	790	116.18	6.24	1.09
Wilson Run	3.84	1,160	302.08	3.25	1.18
Camp Run	3.7	1,710	462.18	3.1	1.19
Straight Run	4.15	1,490	467.47	4.0	1.04
Rough Run	6.25	1,850	296.00	5.4	1.16
Fisher Run	4.35	1,390	319.54	3.85	1.13
Dice Run	3.97	1,570	395.46	3.62	1.10
Wagner Run	3.5	1,370	391.42	3.4	2 02
Stony Run	4.22	1,605	380.33	3.93	1.07
Road Run	4.45	1,470	330.33	4.12	1.08
Hawes Run	6.05	1,800	297.52	5.64	1.07
Broad Run	6.55	1,675	255.72	5.72	1.15
Miller Run	6.6	1,725	261.36	6.03	1.09
Little Fork	8.55	2,095	245.03	5.95	1.44
Stony Run (Sugar Grove)	6.22	2,030	326.37	5.45	1.14
Brushy Fork (Sugar Grove)	8.33	1 570	188.48	8.0	1.19

Source: West Virginia Geological Survey, *Pendleton County Report*, 1927.
°Ratio of total distance to airline distance.

TABLE 45

Table of Stream Data—Grant and Mineral Counties
(Grant County Not Listed Separately)

Streams	Total Distance (Miles)	Total Fall (Feet)	Rate of Fall/Mile (Feet)	Airline Distance (Miles)	Ratio T.D.° to A.L.D.
North Branch Potomac River, source to Hampshire County line	96.18	2,655	27.60	56.23	1.71
Dan Run (Broad Hollow)	3.82	650	170.16	3.75	1.02
Patterson Creek	48.09	900	18.71	37.48	1.28
Rocky Run	4.44	330	74.32	3.75	1.18
Turners Run	5.56	885	159.17	4.14	1.34
Painter Run	4.32	725	167.82	3.90	1.11
Long Pasture Run	3.45	370	107.25	2.95	1.17
Graveyard Run	1.56	205	131.41	1.48	1.05
Mill Run	3.82	805	210.73	3.38	1.13
Kellar Run	3.21	750	233.64	2.81	1.14
Horseshoe Run	3.08	370	120.13	2.07	1.49
Rinehart Run	2.30	825	358.69	2.22	1.04
Sugarcamp Run	2.56	775	302.73	2.30	1.11
Hazel Run	2.71	820	302.58	2.25	1.20
Cabin Run	10.75	360	33.49	8.88	1.21
Purgit Run	3.30	620	187.88	2.71	1.22
Ochre Run	1.95	560	287.18	1.72	1.13
Hollenbeck Run	3.50	755	260.34	2.86	1.22
Dowden Run	2.79	745	267.02	2.58	1.08
Sycamore Run	2.49	690	277.11	2.19	1.14
Beaver Run	5.03	210	41.75	4.60	1.09
Spring Run	2.07	710	343.00	1.87	1.11
Staggs Run	5.52	475	86.05	4.73	1.17
Mikes Run	2.02	315	155.94	1.89	1.07
Johnson Run	2.76	400	144.93	2.43	1.14
Mud Run	1.92	135	70.31	1.70	1.13
Mill Creek	8.73	770	88.20	7.20	1.21
Sugar Run	2.07	300	144.93	1.87	1.11
Parrill Run	2.07	345	166.66	1.99	1.04
Liller Run	3.05	610	200.00	2.56	1.19
Wild Meadow Run	3.40	400	117.65	3.16	1.08
Mud Run	1.97	250	125.00	1.90	1.05
Elliber Run	6.21	1,490	239.94	5.62	1.10
Mikes Run	7.43	610	82.10	4.93	1.51
Dry Run	2.40	390	162.50	2.17	1.11
Hilkey Run	3.55	520	146.48	2.71	1.31
Whip Run	3.75	415	110.66	3.27	1.15
Cave Run	2.17	1,305	601.38	1.88	1.15
Pursley Run	3.18	550	172.96	2.82	1.13
Clints Run	1.87	390	208.56	1.58	1.18
Buskirk Run	2.07	470	227.05	1.82	1.14
Harness Run	2.59	410	158.30	2.20	1.18
Rosser Run	5.77	925	160.31	4.36	1.32
Thorn Run	5.18	830	160.23	4.49	1.15
North Fork	11.15	1,070	95.96	9.27	1.20
Elklick Run	3.85	555	144.16	3.14	1.23
Middle Fork	7.45	730	97.99	6.43	1.16
Thorn Run	3.21	260	81.00	3.00	1.07
Ashcabin Run	4.19	800	190.93	4.04	1.04
Limestone Run	4.83	710	147.00	4.42	1.09
New Creek	17.66	1,200	67.95	16.57	1.07
Stony Run	2.76	1,195	432.97	2.27	1.22
Parr Spring Run	2.37	880	371.31	2.23	1.06
Block Run	3.40	1,625	477.94	2.78	1.22
Hoffman Run	2.17	930	428.57	2.07	1.05
King Run	2.20	1,015	461.36	2.07	1.06
Ash Spring Run	2.07	935	451.69	1.97	1.05
Big Run	2.17	930	428.57	1.82	1.19
Pokejoy Run	1.68	600	357.14	1.63	1.03
Linton Creek	2.10	590	280.95	1.87	1.12
Thunder Hill Run	3.35	750	283.58	2.52	1.33
Powder House Run	2.27	1,500	660.79	2.12	1.07
Slaughterhouse Run	1.28	1,220	953.12	1.16	1.10
Montgomery Run	2.10	1,130	538.10	1.85	1.14
Piney Swamp Run	5.47	1,560	285.19	4.04	1.35
Lynnwood Run	1.38	785	568.84	1.23	1.12
Howell Run	3.28	1,100	335.37	2.92	1.12
Deep Run	5.67	1,420	250.44	4.93	1.15
Cranberry Run	2.29	820	358.08	2.12	1.08
Abram Creek	18.79	1,565	83.29	12.58	1.49
Emory Run	3.40	700	205.88	3.01	1.13

TABLE 45

Table of Stream Data—Grant and Mineral Counties (Cont.)

Streams	Total Distance (Miles)	Total Fall (Feet)	Rate of Fall/Mile (Feet)	Airline Distance (Miles)	Ratio T.D.° to A.L.D.
Johnnycake Run	3.58	515	143.85	2.43	1.47
Wyckoff Run	1.58	385	243.67	1.25	1.26
Glade Run	2.64	400	151.52	1.45	1.82
Little Creek	1.75	300	171.43	1.66	1.05
Stony River	25.25	1,655	65.54	16.97	1.49
Mill Run	3.27	220	67.28	2.56	1.28
Laurel Run	2.76	285	103.26	2.07	1.33
Helmick Run	3.65	200	54.79	3.50	1.04
Red Sea Run	1.35	480	355.55	1.23	1.10
Wymer Run	2.17	390	179.72	1.97	1.10
Difficult Creek	4.36	700	160.55	3.41	1.28
Buffalo Creek	5.18	900	173.75	4.50	1.15
Little Buffalo Creek	3.21	800	249.22	2.42	1.33
Red Oak Creek	3.63	700	192.84	3.11	1.17
Elk Run	2.79	530	189.96	2.25	1.24
South Branch Potomac River, source to mouth	131.15	3,065	23.37	94.40	1.39
South Branch Potomac River, source to Hardy County line	63.15	2,710	42.91	49.60	1.27
South Branch Potomac River, Hardy County line to mouth	68.00	355	5.23	45.60	1.49
Mill Creek, (Junction, North and South Mill Creeks to mouth)	2.64	40	15.15	2.45	1.08
Johnson Run, source to 1,000-foot contour	1.85	1,175	635.14	1.78	1.04
Johnson Run, 1,000-foot Contour to mouth	4.24	85	20.05	3.60	1.18
Sawmill Branch	3.08	930	301.95	2.96	1.04
North Mill Creek	16.13	1,160	71.92	12.23	1.32
(Brushy Run)	5.52	900	163.04	4.57	1.21
(Stony Creek)	2.91	330	113.40	2.50	1.16
South Mill Creek	14.01	600	42.83	11.48	1.22
Elkhorn Run	5.95	1,325	222.69	4.39	1.36
Spring Run	0.91	220	241.76	0.88	1.03
Long Run	2.53	590	233.20	2.27	1.11
Rough Run	3.48	1,280	367.82	2.96	1.18
Waterfall Run	2.15	775	360.47	1.78	1.21
Wolfpen Hollow	4.20	1,500	357.14	3.79	1.11
(Kessner Run)	3.14	890	274.69	2.92	1.11
Durgon Creek	5.23	570	108.99	3.85	1.36
Mitchell Run	4.64	900	193.97	4.19	1.11
Lunice Creek	19.78	1,600	80.89	12.30	1.61
Robinson Run	6.95	930	133.81	5.06	1.37
Norman Run	5.25	325	61.90	4.40	1.19
Brushy Run	4.39	250	56.95	4.08	1.08
South Fork	11.20	2,000	178.57	8.98	1.25
Bodkins Run	2.37	350	147.68	2.25	1.05
Shell Run	1.78	350	196.63	1.73	1.03
Saltblock Run	2.29	820	358.08	2.19	1.05
Hoglan Run	3.65	310	84.93	2.96	1.23
North Fork, Junction Laurel and Straight Forks to Pendleton-Grant County line	31.76	1,280	40.30	27.62	1.15
North Fork, Pendleton-Grant County line to mouth	10.46	280	26.77	7.10	1.47
Jordan Run	6.31	800	126.78	5.92	1.07
Big Run	2.47	1,550	627.53	2.30	1.07
Laurel Run	3.01	1,450	481.73	2.76	1.09
Broad Run	1.58	870	550.63	1.55	1.02
Samuel Run	2.56	1,250	488.28	1.99	1.29
Broad Run	2.15	1,400	651.16	2.05	1.05
Moyer Run	2.76	1,760	637.68	2.47	1.12
High Ridge Run	2.37	1,425	601.27	2.25	1.05
Mill Run	2.21	1,440	651.58	1.97	1.12
Redman Run	2.99	1,005	336.12	2.49	1.20
Long Run	3.09	925	299.35	2.74	1.13

Source: West Virginia Geological Survey, *Grant and Mineral County Reports*, 1924.
°Ratio of total distance to airline distance.

TABLE 46

Table of Stream Data—Hardy County

Streams	Total Distance (Miles)	Total Fall (Feet)	Rate of Fall/Mile (Feet)	Airline Distance (Miles)	Ratio T.D.° to A.L.D.
South Branch Potomac River (Source to Mouth)	131.15	3,065	23.37	94.40	1.39
South Branch Potomac River (Source to Hardy County line)	63.15	2,710	42.91	49.60	1.27
South Branch Potomac River (Hardy County line to Hampshire County line)	21.5	160	7.44	17.3	1.24
South Branch Potomac River (Hampshire-Hardy County line to mouth)	47.7	190	3.98	28.4	1.68
South Fork River (Source to mouth)	64.4	1,800	27.95	52.4	1.23
South Fork River (Pendleton-Hardy line to mouth)	27.2	410	15.08	20.4	1.33
South Fork River (Source to Pendleton-Hardy line)	27.2	1,325	35.62	32.36	1.14
Stony Run	5.2	1,480	284.61	4.6	1.13
Rodabaugh Run	2.7	1,170	433.33	2.6	1.04
Rohrbaugh Run	5.1	1,630	319.61	3.6	1.42
Dumpling Run (S.F. Dist.)	3.2	1,050	328.12	2.5	1.28
Brake Run	4.0	1,405	351.25	3.3	1.21
Kade Run	2.2	650	295.45	2.0	1.10
Bakers Run	4.0	1,405	351.25	3.3	1.21
Shooks Run	3.7	1,660	448.64	3.6	1.03
Stump Run	3.8	1,440	378.94	3.7	1.03
Lost River (Source to where it emerges)	33.0	1,090	33.03	24.0	1.375
Upper Cove Run	6.5	700	107.69	4.7	1.38
Capon Run	2.6	580	223.07	2.2	1.18
Lower Cove Run	6.6	800	121.21	5.3	1.245
Adams Run	2.2	250	113.63	2.1	1.047
Culler Run	7.5	870	116.0	5.6	1.34
Snyder Run	2.7	410	151.85	2.3	1.17
Howards Lick Run	6.0	920	153.33	4.5	1.33
Whitehead Run	1.95	385	197.43	1.6	1.22
Kimsey Run	10.1	1,010	100.00	7.2	1.40
Camp Branch Run (S.F. District)	5.1	1,095	214.70	3.9	1.307
Gap Run	3.35	825	246.26	2.85	1.175
Trout Run	17.0	1,260	74.11	13.1	1.297
Thorny Bottom Run	8.9	620	69.66	7.9	1.126
Halfmoon Run	1.4	515	367.85	1.3	1.076
Waites Run	10.0	1,855	185.5	8.1	1.234
Three Springs Run	4.0	690	172.5	3.8	1.05
Sperry Run	7.6	1,145	150.65	5.8	1.31
Mill Creek (Mostly Hampshire County)	14.5	1,040	71.72	12.7	1.14
Elmlick Run	5.3	985	185.85	4.6	1.15
Saw Mill Run	6.0	865	144.17	3.5	1.71
Stony Run	4.6	830	180.43	3.2	1.44
Anderson Run	8.8	950	107.95	7.0	1.25
Mudlick Run	6.4	320	50.00	5.7	1.12
Walnut Bottom Run	5.8	1,275	219.82	5.1	1.14
Fort Run	7.7	1,520	197.40	6.2	1.24
Dumping Run	7.2	890	123.61	6.2	1.16
South Fork River:					
Stony Run	5.2	1,480	284.61	4.6	1.13
Jenkins Run	4.2	730	173.81	3.7	1.135
Durgon Creek	5.1	585	114.70	3.8	1.34
Mitchell Run	4.6	900	195.65	4.2	1.07
Hutton Run	4.7	815	173.40	4.1	1.146
Falling Spring Run	2.4	1,685	702.08	2.0	1.20
Slate Rock Run	3.0	815	271.66	2.8	1.07
Moores Run	8.8	950	108.00	5.8	1.52
Waites Hollow	3.2	775	24.21	3.0	1.066
Water Lick Run	4.3	530	123.25	3.9	1.10
Baker Run	9.2	1,680	182.60	6.9	1.33
Camp Branch	5.1	1,095	214.70	3.9	1.307
North River	48.5	1,275	26.29	29.7	1.63
Skaggs Run	6.4	675	105.47	5.0	1.28
Horn Camp Run	5.4	765	141.66	4.5	1.20
Cacapon and Lost River (Source to mouth)	110.9	2,025	18.28	66.7	1.66

Source: West Virginia Geological Survey, *Hardy County Report*, 1927.
°Ratio of total distance to airline distance.

Chapter V

FOREST RESOURCES AND RECREATION

RECREATIONAL ACTIVITY in the Upper South Branch Valley is closely related to the forest and wildlife resources of the region and they will, therefore, be discussed together. The forests of the area provide a habitat for game which, in turn, provides recreation for hunters. Within the forests are camping sites, beautiful scenery, and interesting and impressive geologic formations. The clear unpolluted mountain streams flowing through the forests harbor trout and varieties of bass, and provide recreation for fishermen from far and near. Many of the public recreation areas of the Upper South Branch Valley lie completely within the boundaries of national forests.

This chapter gives a detailed description of commercial and national forest resources in the Upper South Branch Valley plus a summary of the recreational facilities of the area.

FOREST RESOURCES

Forests, including national forests, in the three counties of the Upper South Branch Valley cover 859,000 acres, or about 75 per cent of the total area.

Commercial and Noncommercial Forest Land

Commercial forests in the Upper South Branch Valley total 843,200 acres, leaving only 15,800 acres in noncommercial forests. Commercial forest land area is defined as forest land that is (a) producing, or physically capable of producing, crops of industrial wood[1] (usually sawtimber); (b) economically available now or prospectively; and (c) not withdrawn from timber utilization through statute, ordinance or administrative order. Noncommercial forest land is land that is (a) withdrawn from timber utilization through statute, ordinance, or administrative order, but that otherwise qualifies as commercial forest land; or (b) incapable of yielding industrial wood products (usually sawtimber) because of adverse site conditions.

[1]A listing and description of the area's wood-using firms are included in the appendix of this chapter.

TABLE 48

Commercial Forest Land by Forest Type, 1961 (In Thousands of Acres)

Area	White Pine, Spruce	Loblolly-Shortleaf Pine	Oak Types	Maple-Beech-Birch	Other Hardwood Types
Upper South Branch Valley	10.4	37.9	554.5	206.4	34.0
Grant	1.2	11.3	154.5	41.1	10.3
Hardy	3.2	13.1	189.5	67.5	11.9
Pendleton	6.0	13.5	210.5	97.8	11.8

Source: Roland H. Ferguson, *The Timber Resources of West Virginia,* 1964.

Oak forests, which make up 554,000 acres of the commercial forest land, are the predominant type of forests in the Upper South Branch Valley. Trees of the maple-beech-birch type make up most of the remainder of the forests; they compose a total of 206,400 acres. The remaining area is composed of small amounts of white pine, spruce, loblolly-shortleaf pine, and various hardwood types.

Growing stock.[2] The volume of growing stock on the commercial forest land totals 943,700,000 cubic

[2]Growing stock is the net volume, in cubic feet, of live sawtimber and poletimber trees from stump to a minimum 4-inch top (of central stem) outside bark. Net volume equals gross volume less deduction for rot.

TABLE 47

Forest Land Area, Commercial and Noncommercial, 1961

Area	Total Land Area	Nonforest Land Area	Forest Land Area	
	1,000 Acres	1,000 Acres	Non-Commercial 1,000 Acres	Commercial Acreage 1,000 Acres
Upper South Branch Valley	1,124.5	265.5	15.8	843.2
Grant	305.3	82.6	4.3	218.4
Hardy	374.4	85.6	3.6	285.2
Pendleton	444.8	97.3	7.9	339.6

Source: Roland H. Ferguson, *The Timber Resources of West Virginia,* 1964.

TABLE 49

Volume of Growing Stock on Commercial Forest Land, 1961

(Millions of Cubic Feet)

Area	Sawtimber Stands	Poletimber Stands	Other Stands	Total Volume
Upper South Branch Valley	657.5	256.0	30.2	943.7
Grant	141.0	68.5	10.1	219.6
Hardy	209.6	90.1	11.7	311.4
Pendleton	306.9	97.4	8.4	412.7

Source: Roland H. Ferguson, *The Timber Resources of West Virginia*, 1964.

feet, distributed in the following manner: sawtimber stands—657,500,000 cubic feet; poletimber stands—256,000,000 cubic feet; and other stands—30,200,000 cubic feet. Table 49 gives a breakdown of the volume of growing stock on commercial forest land, by county.

Table 50 gives an even more detailed breakdown of growing stock on commercial forest land by listing the information by county and species.

Sawtimber.[3] The total volume of sawtimber found on commercial forest land in the Upper South Branch Valley is 2,353.4 million board feet. Of this amount, sawtimber stands total 2,007.6 million board feet; poletimber stands total 307.4 million board feet; and other stands total 38.4 million board feet. Table 51 summarizes this information by county.

[3]Sawtimber trees are trees of commercial species that (a) are of the following minimum diameters at breast height: softwoods 9 inches and hardwoods 11 inches; and (b) contain at least one merchantable sawlog.

TABLE 51

Volume of Sawtimber on Commercial Farm Lands, 1961

(Million Boord Feet)

Area	Sawtimber Stands	Poletimber Stands	Other Stands	Total Volume
Upper South Branch Valley	2,007.6	307.4	38.4	2,353.4
Grant	435.9	83.2	11.1	530.2
Hardy	633.6	110.4	19.1	763.1
Pendleton	938.1	113.8	8.2	1,060.1

Source: Roland H. Ferguson, *The Timber Resources of West Virginia*, 1964.

Hardwoods account for about 92 per cent (2,163.2 million board feet) of the total volume of sawtimber in the Upper South Branch Valley. Table 52 gives a breakdown of volume of sawtimber by species for each county in the Upper South Branch Valley.

National Forest Land

National forest land in the Upper South Branch Valley makes up 171,437 acres, or approximately 20 per cent of the total forest area. The Monongahela National Forest in Grant and Pendleton counties occupies 74,400 acres of forest land, while the George Washington National Forest in Hardy and Pendleton counties is composed of 97,037 acres.

Fire protection and fire control facilities. According to the forest supervisor of the Monongahela National Forest, the Forest Service now protects from forest fires its own 74,400 acres of acquired lands in Grant and Pendleton counties plus approximately

TABLE 50

Volume of Growing Stock on Commercial Forest Land by County and Species, 1961

(In Millions of Cubic Feet)

Area	Yellow Pines	Hemlock	Other Softwoods	Total Softwoods	White Oak	Northern Red Oak	Chestnut Oak	Other Oaks	Hickory
Upper South Branch Valley	30.2	13.6	18.8	62.6	60.9	105.8	126.4	62.8	58.7
Grant	7.5	1.7	3.1	12.3	17.4	23.7	31.1	15.6	16.9
Hardy	10.3	4.6	5.6	20.5	20.3	35.7	42.3	22.0	20.2
Pendleton	12.4	7.3	10.1	29.8	23.2	46.4	53.0	25.2	21.6

Area	Yellow Birch	Sugar Maple	Red Maple	Beech	Basswood	Yellow Poplar	Oak, Walnut, Cherry	Other Hardwoods	Total Hardwoods
Upper South Branch Valley	23.3	69.0	60.1	64.8	28.3	70.3	69.3	81.4	881.1
Grant	3.7	15.9	13.2	11.7	6.4	19.1	14.5	18.1	207.3
Hardy	7.6	21.7	19.3	19.9	9.2	22.9	23.1	26.7	290.9
Pendleton	12.0	31.4	27.6	33.2	12.7	28.3	31.7	36.6	382.9

Source: Roland H. Ferguson, *The Timber Resources of West Virginia*, 1964.

TABLE 52

Volume of Sawtimber in Counties by Species, 1961 (Millions of Board Feet)

Area	Yellow Pines	Hemlock	Other Soft-woods	Total Soft-woods	White Oak	Northern Red Oak	Chestnut Oak	Other Oaks	Hickory
Upper South Branch Valley	76.3	48.9	65.0	190.2	168.4	281.1	287.7	173.4	127.2
Grant	17.1	7.2	10.0	34.3	49.4	67.0	65.9	37.2	34.2
Hardy	24.7	14.4	22.6	61.7	57.1	99.9	91.8	47.3	42.8
Pendleton	34.5	27.3	32.4	94.2	61.9	114.2	130.0	88.9	50.2

Area	Yellow Birch	Sugar Maple	Red Maple	Beech	Basswood	Yellow Poplar	Ash Walnut, Cherry	Other Hard-woods	Total Hard-woods
Upper South Branch Valley	39.8	158.3	93.1	191.7	78.3	198.9	163.4	201.9	2,163.2
Grant	6.5	34.3	19.6	33.5	18.2	51.9	32.4	45.8	495.9
Hardy	12.4	51.4	29.1	55.7	25.9	66.2	55.7	66.1	701.4
Pendleton	20.9	72.6	44.4	102.5	34.2	80.8	75.3	90.0	965.9

Source: Roland H. Ferguson, *The Timber Resources of West Virginia,* 1964.

60,000 acres of private land which is adjacent to and inter-mingled with the federal ownership. Detection for the fire protection area of nearly 135,000 acres is provided by two federal lookout towers—Bell Knob Tower near "Dolly Sods" on Allegheny Mountain, and North Fork Mountain Tower located on that mountain in Pendleton County.

The forest supervisor of the George Washington National Forest reports that the Forest Service provides fire protection for its own 97,037 acres of federal land plus 38,696 acres of privately owned land in Hardy and Pendleton counties. Fire control lookouts are located at Reddish Knob, High Knob, and Cow Knob—all in Pendleton County. In periods of high to extreme fire danger, an aerial patrol lookout is maintained over the forested area.

Fire suppression forces in the national forests are usually volunteer National Forest Fire Wardens and their crews who are paid for their services only when they work on fire suppression. All physically able Forest Service employees also assist in suppressing fires as needed. Most fires are fought with ground crews using hand tools, although tractor-plow units are available where the topography, fuel type, and other conditions permit their use. The George Washington National Forest also has available one pumper truck per district, with high-band, short-wave radio.

Number of fires and acres burned. In the Monongahela protection area in Grant and Pendleton counties, it is estimated that approximately three fires burning a total of 45 acres occur in a year on the average. The George Washington protection area in Hardy and Pendleton counties has an average of approximately seven fires a year burning a total of 183 acres.

For all forests in Grant, Hardy, and Pendleton counties, the West Virginia State Forester supplied the statistics shown in Table 53.

TABLE 53

Number of Forest Fires and Acres Burned, 1951-1965

County	1951-1955 Fires	1951-1955 Acres	1956-1960 Fires	1956-1960 Acres	1961-1965 Fires	1961-1965 Acres
Grant	10	720	4	111	7	37
Hardy	6	194	5	41	10	646
Pendleton	10	1,334	7	510	6	677

Source: West Virginia State Forester, 1966.

RECREATION

Recreation in the Upper South Branch Valley is very dependent on the forests and wildlife resources of the area. The forested area with its beautiful scenery has become increasingly popular for hunters, fishermen, campers, and tourists; and tourism is becoming more and more important to the economy of the Upper South Branch Valley.

Spruce Knob—Seneca Rocks National Recreation Area

One of the most important developments in the area of recreation is the recent (September, 1965) governmental approval of plans for establishing the 100,000-acre Spruce Knob-Seneca Rocks National Recreation Area. The area is located in Pendleton County, and the proposed improvement plan will cost approximately $19 million.[4] The United States Forest Service

[4]The Morgantown Post, September 19, 1965.

will develop and maintain the park, which will include Spruce Knob, North Mountain, Cave Mountain, Eagle Rock, Seneca Rock, Blue Rock, and the Smoke Hole and Seneca Caverns.

The recreation area will consist of 26,000 acres in the Spruce Knob area and 74,000 acres in the Seneca Rock vicinity. Tentative plans include reserving 5,000 acres on North Mountain as a wilderness area, improving forest roads, building a road to directly connect Seneca Rocks with the Smoke Hole Recreation area, providing new recreation and camping areas, and building a 30-foot rock observation tower on the top of Spruce Knob.[5]

The area will provide visitors with such recreation as fishing, hunting, camping, picnicking, hiking, horseback riding, white water canoeing, cave exploration, or just plain sightseeing. Perhaps visitors may even ski in the winter and swim in impounded mountain streams during the summer.

West Virginia's Senator Robert Byrd "visualizes a growing recreational industry oriented around the Spruce Knob-Seneca Rocks National Recreation Area which will result in more hotels, motels, restaurants, service stations, and other service industries, and thus an enhanced level of employment for West Virginians and a greatly enlarged tax base."[6]

Lost River State Park

The only state park in the Upper South Branch Valley is Lost River State Park which is composed of 3,610 acres in Hardy County. The park is equipped with 24 cabins, swimming facilities, a restaurant, picnic grounds, horseback riding, children's playgrounds, game courts, and trails for hiking and sightseeing. Groceries and refreshments can be purchased in the park. The park does not provide camping facilities or hunting areas; however, fishing can be done quite near the park.

Origin of visitors. A recent study of cabin vacationists in West Virginia sponsored by West Virginia University[7] revealed that 39.7 per cent of the visitors to Lost River Park were from within the State; 24.2 per cent came from Maryland, 14.8 per cent came from Virginia; 7.7 per cent were from Washington, D.C., and 5.4 per cent were from Pennsylvania.

Monthly distribution of visitors. The same study revealed that 80 per cent of the yearly visitors to the park came in the months of June, July, and August, with July being the busiest month.

[5]The Charleston Gazette, October 12, 1965.
[6]The Charleston Gazette, April 18, 1965.
[7]Raymond M. Haas, Office of Research and Development of the West Virginia Center for Appalachian Studies and Development, *Cabin Vacationists in West Virginia State Parks and Forests,* June, 1963.

TABLE 54
State of Origin of Visitors to Lost River Park

State	Percentage of Visitors
Delaware	1.0
Kentucky	0.3
Louisiana	0.3
Maryland	24.2
Montana	0.3
New Jersey	2.3
New York	0.7
North Carolina	0.3
Ohio	2.7
Pennsylvania	5.4
Utah	0.3
Virginia	14.8
Washington, D.C.	7.7
West Virginia	39.7

Source: Raymond M. Haas, Office of Research and Development of the West Virginia Center for Appalachian Studies and Development, *Cabin Vacationists in West Virginia State Parks and Forests,* June, 1963.

TABLE 55
Monthly Distribution of Visitors to Lost River State Park

Month of Visit	Per Cent of Visitors
January	0
February	0
March	0.3
April	0.3
May	1.7
June	16.8
July	34.7
August	28.5
September	3.0
October	7.7
November	4.7
December	2.3

Source: Raymond M. Haas, Office of Research and Development of the West Virginia Center for Appalachian Studies and Development, *Cabin Vacationists in West Virginia State Parks and Forests,* June, 1963.

Brandywine Lake Recreation Area

The Brandywine Lake Recreation Area, located near Brandywine in Pendleton County, is the newest of the developed recreation areas in the George Washington National Forest. The area, which was developed cooperatively by a number of public agencies, was dedicated in 1964. The lake was built by the Soil Conservation Service under the sponsorship of the Potomac Valley Soil Conservation District. In addition to its recreation value, the lake provides flood control storage and helps reduce soil erosion.

The Forest Service provides the area with sandy beaches and facilities for camping, picnicking, hiking, and nature study. The West Virginia Department of Natural Resources stocks the lake with rainbow trout.

Water Recreation Areas

Facilities for water recreation and water sports in the Upper South Branch Valley are provided by a variety of ponds, lakes, and streams. Besides the Brandywine Lake Recreation Area in Pendleton County, water recreation facilities are provided by the VEPCO Dam and Reservoir complex in Grant County, Warden Lake Recreation Area and Trout Pond in Hardy County, and Hawse Run Lake in Pendleton County.

Fishing streams. The clear, unpolluted streams of the Upper South Branch Valley have an abundant supply of trout and bass. Smallmouth bass are found in all three counties in the South Branch of the Potomac River, while Cacapon River in Hardy County provides the fishermen with both smallmouth and largemouth bass. Trout fishing is rewarding in the North Fork of the South Branch, North Fork of Lunice Creek, and the North Fork of Patterson Creek in Grant County; Lost River and Dumpling Run in Hardy County; and South Branch of Potomac, Seneca Creek, Trout Run, Thorn Creek, Big Run and North Fork of the South Branch in Pendleton County.

Fish hatcheries. Two fish hatcheries are located in Grant County—the nine-acre Petersburg Trout Hatchery and the 41-acre Spring Run Trout Hatchery.

Hunting and Game

In West Virginia, hunting seasons have been established for 14 kinds of wildlife; however, only five kinds provide sufficient game for hunters: squirrel, deer, rabbit, ruffed grouse, and wild turkey. Studies reveal that hunters seek most actively the following game: (1) squirrel, (2) deer, (3) rabbit, (4) ruffed grouse, (5) wild turkey, (6) groundhog, (7) raccoon, (8) quail, (9) pheasant, and (10) bear.

There is an abundance of many of these types of wildlife in the Upper South Branch Valley as is evidenced by records of annual kill; Grant, Hardy, and Pendleton are among the ten leading counties in West Virginia in annual kill of deer, wild turkey, and black bear. Deer, particularly, are heavily concentrated in all counties in the Upper South Branch Valley; however, the annual deer kill in Hardy County in 1964 was greater than the sum of deer killed in the other two counties in the same year.

County 4-H Camps

Three permanent county 4-H camps are located in the Upper South Branch Valley—Camp Echo in Grant, Camp Pinnacle in Hardy, and Thorn Spring Park in Pendleton. These camps are used for group camping, picnics, and reunions.

Other Recreation Facilities

Grant County. Besides the recreational facilities already listed for Grant County, there are several privately owned camping sites and cottages in the county.

Petersburg also has a Community Park which is located on the western side of Main Street adjacent to the South Branch of the Potomac River. The park, under the direction of the Petersburg Park Committee, has picnic facilities, tennis courts, a ball field, and a recently completed pool with dressing room and sanitation facilities.

Hardy County. Other recreational facilities in Hardy County include Moorefield Town Park, Wardensville Town Park, Arkansas Community Park, approximately 17 roadside parks and picnic areas and five camp sites. Community buildings are located at Frosty Hollow, Kessel, Arkansas, Inkerman, Wardensville, Mathias and Moorefield. Moorefield High School is equipped with tennis courts, and a football field with lights.

A recent innovation in vacation attractions in the county is the establisment of vacation farms. These farms offer a few weeks of "farm living" to city visitors and provide room and board; there are approximately 13 vacation farms in the county.

Pendleton County. Besides the Spruce Knob-Seneca Rock Recreation Area and other recreational facilities already mentioned, Pendleton County also has 12 roadside parks.

APPENDIX
(Chapter V)

WOOD-USING FIRMS OF UPPER SOUTH BRANCH VALLEY

A report published by the Office of Research and Development of the Center for Appalachian Studies at West Virginia University lists seven wood-using firms in the Upper South Branch Valley.[8] (Table 56).

Grant County

There are three wood-using firms in Grant County, two of which are located in Petersburg. These firms employ a total of 16 people and produce a variety of wood products.

Hardy County

Hardy County also has three wood-using firms which produce a variety of products. Total employment in these firms is much higher than in Grant County because Raygold Industries alone, which produces cabinets, employs 225 persons. The other two firms in the county employ a total of 16 persons.

Pendleton County

Pendleton County has only one wood-using firm, Max Ruddle Lumber Company, which employs 40 persons. This firm uses red oak and white oak in the production of flooring.

[8]A. Edwin Grafton, Office of Research and Development of the West Virginia Center for Appalachian Studies and Development, *A Manual of West Virginia's Wood-Using Industries with Directory*, 1965.

TABLE 56

Wood-Using Firms of the Upper South Bronch Valley

County	Name of Company	Location	Product	Species Used	Wood Raw Materials Used	Number of Employees
Grant	Hartzell Wood Co.	Petersburg	Dimension (Gun Stocks)	Walnut	300 MBF Lumber	5
Grant	Iman's Planning Mill	Petersburg	Truck Beds	Red Oak Southern Pine Spruce	10 MBF Lumber	2
Grant	Kingsford Company	Maysville	Charcoal	Hardwoods	30M tons of wood	9
Hardy	Raygold Industries	Moorefield	Cabinets	Maple Pine Poplar	1,500 MBF Lumber 2,000 M sq. feet fiberboard 200 M sq. feet plywood	225
Hardy	Regester Rustic Fencing	Moorefield	Fencing	Chestnut Locust Sassafras	70 M pieces of rails and posts	7
Hardy	Van Hessen and Co.	Moorefield	Dimension	Walnut	550 MPF Lumber	9
Pendleton	Max Ruddle Lumber Co.	Franklin	Flooring	Red Oak White Oak	1,500 MPF Lumber	40

Source: A. Edwin Grafton, Office of Research and Development of the West Virginia Center for Appalachian Studies and Development, *A Manual of West Virginia's Wood-Using Industries with Directory*, 1965.

Chapter VI
AGRICULTURE

THIS CHAPTER deals with the nature of the agriculture industry of the Upper South Branch Valley and the characteristics of farm operators. A description of soil characteristics and land use was given in Chapter III, so the only treatment of land in this chapter is farm land use.

FARMS

The land area of the Upper South Branch Valley is approximately 1,124,000 acres. Of this total, 640,699 acres, or 57 per cent, is reported as land in farms. Grant, Hardy, and Pendleton counties have 151,526 acres, 199,363 acres, and 289,810 acres in farms, respectively, which amounts to 49.6, 53.3, and 65.1 per cent of the areas of the individual counties. The average size farm in Grant and Pendleton counties is 309 acres, while the average Hardy County farm is 251 acres.

Commercial Farms

There are 2,219 farms in the area, 1,254 of which are classified as commercial. Commercial farms, as defined by the 1964 Census of Agriculture, are farms with a total value of products sold amounting to $2 500 or more. Farms with sales of $50 to $2,499 are classified as commercial by the Census if the farm operator was under 65 years of age and (1) he did not work off the farm 100 or more days during the year and (2) the income received by the farm operator and members of his family from nonfarm sources was less than the value of all farm products sold in 1964.

Table 57 shows commercial farms by class and the percentage of total farms falling in each class for 1964. Over 56 per cent of the farms in the area were classified as commercial farms, compared with 37.6 per cent for the State as a whole. Of the 1,254 commercial farms in the Upper South Branch Valley, 5.3 per cent had sales of $40,000 or more; 8 per cent had sales of $20,000 to $39,999; 15.1 per cent had sales of $10,000 to $19,999; 21.8 per cent had sales of $5,000 to $9,999, 20.3 per cent had sales of $2,500 to $4,999, and 29.5 per cent had sales of $50 to $2,499. In 1964, less than 10 per cent of the commercial farms in the State had a value of sales greater than $5,000, while 28.5 per cent of all farms in the Upper South Branch Valley fell in this category.

Noncommercial Farms

The farms other than commercial farms in the area are either part-time farms, part retirement farms, or abnormal farms. Part-time farms are those whose operator works off the farm 100 days or more and whose total sales range from $50 to $2,499. Part retirement farms are those farms whose operator is 65 years or older and whose total sales range from $50 to $2,499. There are 502 part-time farms and 461 part retirement farms in the Upper South Branch Valley, representing 43.5 per cent of the total farms in the area.

Farms by Type

In order to be classified as a particular type of farm, the Census of Agriculture specifies that a com-

TABLE 57

Number of Farms, Commercial and Noncommercial, 1964

Farm Classifications	West Virginia		Upper South Branch Valley		Grant		Hardy		Pendleton	
	No. of Farms	Per Cent	No. of Farms	Per Cent	No. of Farms	Per Cent	No. of Farms	Per Cent	No. of Farms	Per Cent
Total Farms	34,504	100.0	2,219	100.0	492	100.0	794	100.0	933	100.0
Total Commercial	12,798	37.6	1,254	56.5	279	56.7	441	55.5	534	57.2
Class I ($40,000 or more)	289	0.8	67	3.0	15	3.0	27	3.4	25	2.7
Class II ($20,000-$39,999)	466	1.4	101	4.6	16	3.3	45	5.7	40	4.3
Class III ($10,000-$19,999)	973	2.8	190	8.6	34	6.9	84	10.6	72	7.7
Class IV ($5,000-$9,999)	1,602	4.6	273	12.3	78	15.9	84	10.6	111	11.9
Class V ($2,500-$4,999)	2,494	7.2	254	11.4	57	11.6	72	9.1	125	13.4
Class VI ($50-$2,499)	7,154	20.8	369	16.6	79	16.0	129	16.1	161	17.2
Total Noncommercial[1]	21,526	62.4	965	43.5	213	43.3	353	46.6	399	42.8

[1]Part-time, part retirement, and abnormal farms.
Source: United States Census of Agriculture, County Preliminary Reports, 1964.

TABLE 58

Total Number of Farms by Type, 1964

	The State	Upper South Branch Valley	Grant	Hardy	Pendleton
Total Farms	34,504	2,219	492	794	933
Cash Grain	253	12	1	8	3
Tobacco	630	.	.	..	..
Other Field Crop	43	.	.	.	..
Vegetable	66	1	1	..	.
Fruit and Nut	452	2	1	..	1
Poultry	1,102	492	102	193	197
Dairy	1,950	57	22	24	11
Livestock other than poultry and dairy	5,879	581	132	167	282
General[1]	902	45	8	18	19
Miscellaneous[2] and unclassified	23,227	1,029	225	384	420

[1]Field seed crops, hay, silage, or cash income from three or more sources and meet the criteria for any other type.
[2]Nursery and greenhouse products, forest products, mules, horses, colts, and ponies.
Source: United States Census of Agriculture, County Preliminary Reports, 1964.

mercial farm has to have one particular product or group of products which account for 50 per cent or more of the total value of all farm products sold during the year. For example, if a commercial farm sells poultry and poultry products amounting to at least one-half of its total value of sales during the year, this farm would be classified as a poultry type farm.

Table 58 summarizes data on farms by type for the State and for Grant, Hardy, and Pendleton counties. These comparisons point out the tremendous significance of poultry and livestock production in the Upper South Branch Valley as compared with crops. Four hundred ninety-two farms are classed as poultry and dairy.

It should be noted that noncommercial farms are not classified by type of farms and are included as unclassified" farms in Table 58.

FARM OPERATORS

Ownership

Of a total of 2,119 farm operators in 1964 in the Upper South Branch Valley, 1,866 were full owners of their farms, 272 were part owners, 9 were classed as farm managers, and 72 were tenants. Only 141 of the farm operators did not reside on the farms they were operating. About 1,036 farm operators worked off the farm, and 742 worked off the farm 100 days or more.

Age

The average age of the farm operator in Pendleton County in 1964 was 57 years, in Grant County 55.6, and in Hardy County 54.9. For the entire state, the average age of the farm operator was 55 years. Twenty-eight per cent of all farm operators in the area were 65 years or older.

Education

The number of years of school completed by farm operators in the Upper South Branch Valley varied greatly by county in 1964. Of all farm operators, 5.7 per cent completed four years of college or more, while 4.3 per cent completed from one to three years of college. Those who completed four years of high school made up 14.1 per cent of all farm operators; those who completed one to three years of high school, 5.8 per cent; those who completed five to seven years of schooling, 19.2 per cent; and those who completed zero to four years, 7.7 per cent. Table 59 gives a breakdown by county of the number and percentage distribution of farm operators falling into the various educational categories.

Non-Farm Income

For the first time, in 1964, the Census of Agriculture collected information on income received by members of farm households from non-farm sources. It was felt that income from non-farm sources is becoming increasingly important in our agricultural economy, especially for the smaller, noncommercial farm operations.

In 1964, non-farm income accruing to all members of farm households in the Upper South Branch Valley totaled $5,370,311. This figure was reported by 2,004 farm operators. Though no data are available at this time on the distribution of non-farm income by size and type of farm, it is probable that a sizeable amount of this income is reported by noncommercial farm operators working off their farms a large portion of the time. It must be remembered, however, that this total includes income reported by wives and children of farm operators who work off the farm to supplement the family income.

TABLE 59

Years of School Completed by Farm Operators, 1964

Years of School Completed	West Virginia		Upper South Branch Valley		Grant		Hardy		Pendleton	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Total	34,504	100.0	2,219	100.0	492	100.0	794	100.0	933	100.0
Elementary 0-4 yrs.	2,882	8.4	170	7.7	35	7.1	91	11.5	44	4.7
5-7 yrs.	5,966	17.3	426	19.2	86	17.5	215	27.1	125	13.4
8 yrs.	13,758	39.9	958	43.2	199	40.4	242	30.5	517	55.4
High School 1-3 yrs.	3,567	10.3	128	5.8	43	8.7	58	7.3	27	2.9
4 yrs.	5,356	15.5	312	14.1	100	20.3	78	9.8	134	14.4
College 1-3 yrs.	1,396	4.0	98	4.3	18	3.7	35	4.4	45	4.8
4 yrs. or more	1,579	4.6	127	5.7	11	2.3	75	9.4	41	4.4

Source: United States Bureau of the Census, 1964 *United States Census of Agriculture, Preliminary Reports*, 1964

Table 60 shows a breakdown of total non-farm income by the source of income. As would be expected, wages and salaries, comprising 69 per cent of the total reported, represent the largest single source of non-farm income.

Only 15.5 per cent of all farm-operator households in the Upper South Branch Valley reported a total yearly income of $5,000 or more. This includes income from farm products sold and income of all members of the household from sources other than farm operated; 7.4 per cent of all farm-operator households reported an income of $4,000 to $4,999; 10.7 per cent reported an income of $3,000 to $3,999; 13.1 per cent reported an income of $2,000 to $2,999; 17.4 per cent reported an income of $1,000 to $1,999; and 35.9 per cent reported an income of below $1,000. A breakdown of income per household for each county is provided in Table 61.

Some farms in the Upper South Branch Valley, such as vacation farms, receive income from hunting, fishing and other recreational services. In Grant County six such farms reported a total recreational income of $2,310. Hardy County farms reported $22,120 in recreational income distributed among 46 farms. Recreational farm income in Pendleton County totaled $22,364 for 20 farms.

FARM LAND USE

Cropland

As shown in Table 62, there were 73,467 acres of cropland in the Upper South Branch Valley in 1964. This represents over 11.5 per cent of the area's total land in farms, compared with 23.2 per cent for West Virginia. Of this total, 56,466 acres were harvested, while the remaining cropland acreage was either pastured, put in soil improvement grasses, or left idle.

Woodland

In 1964, over 50 per cent of the total land in farms in the Upper South Branch Valley was in woodland, a portion of which was used for pasture. In the same year, 196,010 acres were classified as other pasture, not cropland or woodland. Less than 2 per cent of the total land in farms was made up of land used for houselots, roads, wasteland, etc.

TABLE 61

Number and Per Cent of Farm Households Reporting Income by Size of Income, 1964

Amount of Income	West Virginia		Upper South Branch Valley		Grant		Hardy		Pendleton	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Total Income	31,405	100.0	2,004	100.0	429	100.0	721	100.0	854	100.0
Under $500	3,277	10.4	380	19.0	108	25.2	142	19.7	130	15.2
$500 to $999	3,280	10.4	340	16.9	122	28.4	92	12.8	126	14.8
$1,000 to $1,499	2,930	9.5	195	9.7	5	1.2	81	11.2	109	12.8
$1,500 to $1,999	2,300	7.3	153	7.7	32	7.5	33	4.6	88	10.3
$2,000 to $2,499	2,156	6.9	126	6.3	23	5.4	56	7.8	47	5.5
$2,500 to $2,999	1,732	5.5	136	6.8	34	7.9	42	5.8	60	7.0
$3,000 to $3,999	3,590	11.4	215	10.7	30	7.0	85	11.8	100	11.7
$4,000 to $4,999	3,310	10.5	149	7.4	18	4.2	51	7.1	80	9.4
$5,000 and over	8,830	28.1	310	15.5	57	13.2	139	19.2	114	13.3

Source: United States Bureau of the Census, 1964 *United States Census of Agriculture, Preliminary Reports*, 1964.

TABLE 60

Total Non-Farm Income by Source, 1964

Sources of Income	West Virginia		Upper South Branch Valley		Grant		Hardy		Pendleton	
	Households	Dollars	Households	Dollars	Households	Dollars	Households	Dollars	Households	Dollars
All Sources	31,405	116,394,621	2,004	5,370,311	429	1,048,643	721	2,080,032	854	2,241,636
Wages and Salaries	20,924	85,472,043	1,196	3,683,253	200	725,175	476	1,455,546	520	1,502,532
Non-farm business or professional practice	3,342	11,206,031	224	480,436	54	97,976	98	192,618	72	189,842
Social security, pensions, veteran and welfare payments	13,025	15,559,468	917	888,062	185	158,759	291	288,805	441	440,498
Rent from farm and non-farm, property, interest, etc.	8,041	4,057,079	978	318,560	241	66,733	384	143,063	353	108,764

Source: United States Bureau of the Census, 1964 *United States Census of Agriculture, Preliminary Report*, 1964.

TABLE 62

Major Farm Land Uses, 1964

Land Uses	West Virginia		Upper South Branch Valley		Grant		Hardy		Pendleton	
	Acres	Per Cent	Acres	Per Cent	Acres	Per Cent	Acres	Per Cent	Acres	Per Cent
Total Land in Farms	5,278,592	100.0	640,699	100.0	151,526	100.0	199,363	100.0	289,810	100.0
Total Cropland	1,226,949	23.2	73,467	11.5	15,968	10.5	27,955	14.0	29,544	10.2
Harvested	733,499	13.9	56,466	8.9	14,276	9.4	18,102	9.1	24,088	8.3
Pastured	360,298	6.8	13,734	2.1	941	0.6	8,193	4.1	4,600	1.6
Other[1]	133,152	2.5	3,267	0.5	751	0.5	1,660	0.8	856	0.3
Total Woodland	2,285,105	43.3	359,085	56.0	80,885	53.4	119,863	60.1	158,337	54.6
Pastured	910,094	17.2	128,617	20.1	29,080	19.2	38,085	19.1	61,452	21.2
Not Pastured	1,375,011	26.1	230,468	35.9	51,805	34.2	81,778	41.0	96,885	33.4
All Other Pasture	1,604,857	30.4	196,010	30.6	51,153	33.8	48,091	24.2	96,766	33.4
Other land[2]	161,681	3.1	12,137	1.9	3,520	2.3	3,454	1.7	5,163	1.8

[1]Soil improvement, grass, idle, crop failure.
[2]House lots, roads, wasteland, etc.
Source: United States Census of Agriculture, *County Preliminary Reports*, 1964.

Comparisons

When compared with the entire State, the Upper South Branch Valley has a greater proportion of total land in farms classified as woodland. Less than 45 per cent of total land in farms was classed as woodland for the State, compared with 56 per cent in the Upper South Branch Valley. Table 62 also indicates that the bulk of this additional woodland was not used for pasture. Most of the differential in woodland acreage can be accounted for by the fact that less than 12 per cent of total land is classified as cropland in the Upper South Branch Valley, compared with 23 per cent for the entire State.

Table 63 indicates the distribution of farms reporting cropland harvested by acres in 1964. For the most part, there are no significant differences between the State and the Upper South Branch Valley in the distribution of cropland reported. Slightly more than 63 per cent of the total farms in the State with cropland harvested report less than 20 acres compared with 53.1 per cent for the Upper South Branch Valley. Over 83 per cent of the farms with cropland harvested in the Upper South Branch Valley reported less than 50 acres of cropland harvested, and only 5 per cent reported more than 100 acres in 1964.

Table 64 shows the distribution of acreage by major type of crops grown, 1964. The major crop in terms of acreage was hay. Only 71 per cent of the total cropland harvested was hay and hay-type crops. Corn and small grains accounted for about 27 per cent of total cropland harvested. Hardy County, with slightly over 41 per cent of total cropland harvested in corn and small grains, was an exception to the three-county acreage.

SALES OF FARM PRODUCTS

It should be obvious from the foregoing discussion that production of livestock and livestock products plays a vital role in the agricultural economy of the Upper South Branch Valley. Table 65 indicates the total value of farm products sold in 1964 for the State, the Upper South Branch Valley, Grant, Hardy, and Pendleton counties. In 1964, total value of sales of livestock and their products amounted to $14,480,788 out of the $15,127,160 value of all farm products sold in the Upper South Branch Valley. This represents 96 per cent of sales of all farm products in the three-county area. All types of poultry and poultry products are the largest single group of farm products sold, accounting for almost 65 per cent of total farm sales.

TABLE 63
Acreage Distribution of Cropland Harvested, 1964

Number of Acres of Cropland Harvested	West Virginia		Upper South Branch Valley		Grant		Hardy		Pendleton	
	No. of Farms	Per Cent	No. of Farms	Per Cent	No. of Farms	Per Cent	No. of Farms	Per Cent	No. of Farms	Per Cent
Farms reporting	31,296[1]	100.0	1,950[2]	100.0	446[3]	100.0	651[4]	100.0	853[5]	100.0
1-19	19,731	63.1	1,036	53.1	211	47.2	382	58.6	443	51.9
20-49	8,016	25.6	592	30.4	152	34.1	164	25.2	276	32.4
50-99	2,477	7.9	225	11.5	60	13.5	70	10.8	95	11.1
100-199	853	2.7	86	4.4	19	4.3	31	4.8	36	4.2
200+	219	0.7	11	0.6	4	0.9	4	0.6	3	0.4

[1]Represents 90.7 per cent of all farms in West Virginia.
[2]Represents 87.9 per cent of all farms in Upper South Branch Valley.
[3]Represents 90.7 per cent of all farms in Grant County.
[4]Represents 82.0 per cent of all farms in Hardy County.
[5]Represents 91.4 per cent of all farms in Pendleton County.
Source: United States Census of Agriculture, *County Preliminary Reports*, 1964.

TABLE 64
Major Crops Grown, 1964

Crop	West Virginia		Upper South Branch Valley		Grant		Hardy		Pendleton	
	Acres	Per Cent	Acres	Per Cent	Acres	Per Cent	Acres	Per Cent	Acres	Per Cent
Total Cropland Harvested	733,499	100.0	56,466	100.0	14,276	100.0	18,102	100.0	24,088	100.0
All Corn	85,336	11.6	9,802	17.3	2,239	15.7	4,933	27.3	2,630	10.9
All Small Grains	41,182	5.6	5,684	10.1	1,406	9.8	2,509	13.9	1,769	7.3
All Hay	565,654	77.2	40,454	71.7	10,522	73.7	10,440	57.6	19,492	81.0
All Other Crops	41,327	5.6	526	0.9	109	0.8	220	1.2	197	0.8

Source: United States Census of Agriculture, *County Preliminary Reports*, 1964.

Sales of all other livestock and livestock products except poultry and poultry products amounted to $4,164,202, or 27.5 per cent of the total value of farm products sold in 1964. Sales of dairy products accounted for a little over 4 per cent of total sales. This data indicates that the majority of the agricultural resources in the Upper South Branch Valley are devoted to the production of livestock and livestock products, with little emphasis on crops for sale.

Figure 15 gives an indication of past trends in sales of farm products in the Upper South Branch Valley for the period 1950-64, while Figure 16 shows average value of products per farm for 1950-64 for the

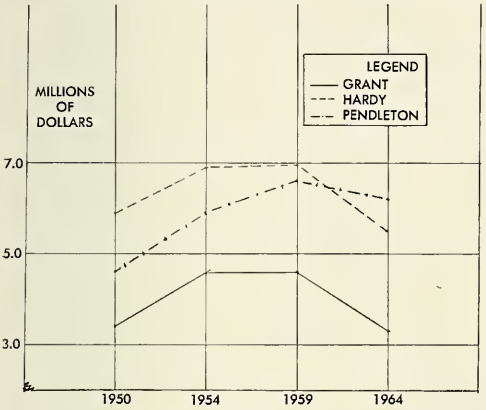

FIGURE 15

Total Value of Sales of Farm Products, 1950-1964. (From Census of Agriculture)

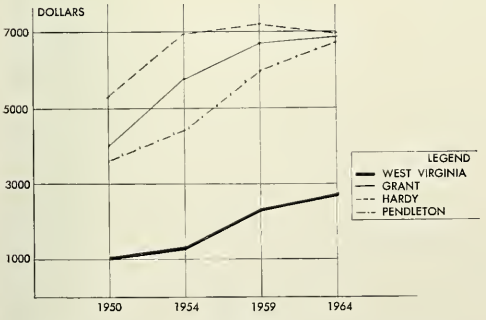

FIGURE 16

Average Value of Sales Per Farm, 1950-1964. (From Census of Agriculture)

TABLE 65

Value of Sales by Source, 1964

Sales	West Virginia		Upper South Branch Valley		Grant		Hardy		Pendleton	
	Sales (Dollars)	Per Cent	Sales (Dollars)	Per Cent	Sales (Dollars)	Per Cent	Sales (Dollars)	Per Cent	Sales (Dollars)	Per Cent
Total Sales	92,491,502	100.0	15,127,160	100.0	3,335,002	100.0	5,505,322	100.0	6,286,836	100.0
All crop sales	22,905,037	25.1	599,578	4.0	127,177	3.8	230,813	4.2	241,588	3.8
All livestock sales	69,303,897	74.9	14,480,788	96.0	3,205,515	96.2	5,252,389	95.8	6,022,884	96.2
Poultry and poultry products	22,252,463	24.4	9,746,753	64.4	2,177,659	65.3	3,509,758	63.8	4,059,336	64.6
Livestock and livestock products other than poultry and dairy	28,594,754	30.9	4,164,202	27.5	901,415	27.0	1,455,335	26.4	1,807,452	28.7
Dairy products	18,176,680	19.6	569,833	4.1	126,441	3.9	287,296	5.6	156,096	2.9

Source: United States Census of Agriculture, *County Preliminary Reports*, 1964.

Upper South Branch Valley and the State. Sizeable declines in the proportion of the total labor force employed in agriculture since 1950 are again reflected in sales of agricultural products for the period. Average sales per farm have either increased or held steady during this period with the exception of Hardy County. Average sales per farm in Hardy decreased approximately $250 between census periods 1959 and 1964. Average sales per farm in 1964 were $6,778 in Grant, $6,934 in Hardy, and $6,738 in Pendleton County, in comparison with $2,681 for the entire state.

Grant, Hardy, and Pendleton counties have been, and continue to be, three of the most important agricultural counties in the state. Table 66 lists total farms, land in farms, and sales of farm products by source for the Upper South Branch Valley expressed as a percentage of the State totals in 1964. The Upper South Branch Valley has less than 7 per cent of total farms and about 12 per cent of the total land in farms, but it accounts for approximately 16.5 per cent of the value of farm products, 21 per cent of all livestock products, and 43 per cent of the poultry and poultry products sold in the State.

TABLE 66

Farms, Land in Farms, Sales by Source, Expressed as Percentage of West Virginia Totals, 1964

Sales	The State Per Cent	Upper South Branch Valley Per Cent	Grant Per Cent	Hardy Per Cent	Pendleton Per Cent
Total Farms	100.0	6.4	1.4	2.3	2.7
Total Land in Farms—Acres	100.0	12.1	2.9	3.8	5.4
Total Sales—Dollars	100.0	16.4	3.6	6.0	6.8
All crop sales	100.0	2.6	0.6	1.0	1.1
All livestock sales	100.0	20.9	4.6	7.6	8.7
Poultry and poultry products	100.0	43.2	9.7	15.6	18.0
Livestock and livestock products other than poultry and dairy	100.0	14.6	3.2	5.1	6.3
Dairy products	100.0	6.4	1.4	2.3	2.7

Source: United States Census of Agriculture, *County Preliminary Reports*, 1964

Chapter VII
PUBLIC SERVICES

THIS CHAPTER DEALS with the community and public services that are provided for residents of the Upper South Branch Valley. Information presented here includes such things as transportation facilities, educational facilities, and other services that are necessary for active, progressive communities. Much of the information was obtained through correspondence and personal interviews and may not be complete in all cases.

EDUCATIONAL SERVICES

Educational Facilities

According to information supplied by the county superintendents of schools in Grant, Hardy, and Pendleton counties, there are seven high schools, twenty-five elementary schools, and one vocational school located in the Upper South Branch Valley. The high schools are located in Petersburg, Bayard, Moorefield, Wardensville, Mathias, Circleville, and Franklin; while the elementary schools are scattered throughout the area. School buildings range from very recently constructed to quite old, and seating capacity in the buildings varies from 60 to 725. A list of all schools, construction dates, locations, and seating capacities is given in Table 67.

Value of facilities. The 1964 *Annual Report of the State Superintendent of Schools* reports the total value of school buildings, grounds, and equipments in the Upper South Branch Valley to be $3,818,580. The value of Grant County facilities totaled $1,360,550; the value of Hardy County facilities totaled $936,030, and the value of Pendleton County facilities totaled $1,522,000 (Table 68).

Instructional Personnel

Pupil-teacher ratio. In 1964, there were 249 teachers in all grades in the Upper South Branch Valley—81 in Grant, 92 in Hardy, and 76 in Pendleton. The

TABLE 67
School Buildings in the Upper South Branch Valley

School	County	Location Town or District	Date Constructed*	Present Seating Capacity
Bayard High	Grant	Bayard	1918	200
Franklin High	Pendleton	Franklin	1930 (1961)	350
Franklin High Vocational	Pendleton	Franklin	1951	60
Mathias High	Hardy	Mathias	1941	225
Moorefield High	Hardy	Moorefield	1940 (1957) (1960, 1963)	600
Petersburg High	Grant	Petersburg	1920	725
Wardensville High	Hardy	Wardensville	1941 (1954)	225
Circleville High and Elementary (One Building)	Pendleton	Circleville	1938	450
Baker Elementary	Hardy	Lost River District	1947	140
Bayard Elementary	Grant	Bayard	1908	140
Brandywine Elementary	Pendleton	Brandywine	1940	180
Burch Elementary	Hardy	Moorefield District	1944	70
Dixie Elementary	Pendleton	Riverton	Early 1900	120
Dorcas Elementary	Grant	Dorcas	1945	115
Dover Elementary	Hardy	Moorefield District	1940	70
Durgon Elementary	Hardy	South Fork District	1925	70
Forman Elementary	Grant	Lahmansville	1948	65
Franklin Elementary	Pendleton	Franklin	1950 (1956)	510
Lost City Elementary	Hardy	Lost City	1924	70
Mathias Elementary	Hardy	Mathias	1952	250
Maysville Elementary	Grant	Maysville	1948	250
Moorefield Elementary	Hardy	Moorefield	1911	500
Mount Storm Elementary	Grant	Mount Storm	1934	145
Oak Dale Elementary	Hardy	South Fork District	1937 (1953)	100
Old Fields Elementary	Hardy	Moorefield District	1947	140
Peru Elementary	Hardy	South Fork District	1928	70
Petersburg Elementary	Grant	Petersburg	1924	600
Seneca Rocks Elementary	Pendleton	Mouth of Seneca	1956 (1960)	200
Sugar Grove Elementary	Pendleton	Sugar Grove	Early 1900	100
Toll Gate Elementary	Hardy	South Fork District	1928 (1950)	120
Upper Tract Elementary	Pendleton	Upper Tract	1950 (1958)	250
Wardensville Elementary	Hardy	Wardensville	1951	250

*Dates in parenthesis represent years in which additions were made to the original facilities.
Source: Grant, Hardy, and Pendleton County Superintendents of Schools, 1966.

TABLE 68
Value in Dollars of School Buildings, Grounds, and Equipments, 1963-64

Facilities	West Virginia	Upper South Branch Valley	Grant	Hardy	Pendleton
Total	360,949,640	3,818,580	1,360,550	936,030	1,522,000
Lands	23,715,005	155,185	37,750	25,335	92,100
Schoolhouses	289,333,168	3,060,700	1,108,700	722,000	1,230,000
Furniture	18,715,143	187,400	68,100	80,300	39,000
Apparatus	6,787,684	61,150	24,000	27,250	9,900
Libraries	6,233,780	67,519	26,000	19,919	21,600
Teaching aids and instructive material	5,325,137	51,115	28,000	12,615	10,500
School buses	8,306,271	216,611	56,000	48,611	112,000
Transportation equipment	2,533,272	18,900	12,000	..	6,900

Source: State Superintendent of Free Schools, *Fifty-First Annual Report*, 1964.

teacher/pupil ratio was approximately 1:23, or 1 teacher for every 23 pupils; this is approximately the same as the State ratio for the same year, which was 1:23.5 or 23.5 pupils to each teacher. The teacher/pupil ratio in Grant County was 1:23.7, in Hardy was 1:23.3, and in Pendleton 1:22.2.

Grade of teaching certificate. Of the 249 teachers in the Upper South Branch Valley, 53 have master's degrees; 17 of these are employed in elementary schools and the remaining 36 in secondary schools. Bachelors' degrees are held by 154 teachers—90 in elementary schools and 64 in secondary schools. Only 41 teachers do not hold first class teaching certificates (Table 69).

High school graduates. The approximate number of 1965 high school graduates for the various schools

TABLE 69

Instructional Personnel Classified by Grade of Certificate, 1963-64

Grade of Certificate	West Virginia	Upper South Branch Valley	Grant	Hardy	Pendleton
Elementary					
Master	1,691	17	7	7	3
Bachelor	5,930	90	19	35	36
Second Class	675	12	5	1	6
Third Class	1,115	21	7	5	9
Short Course	131	2	1	1	
First Grade	76	2	1		1
Total	9,618	144	40	49	55
High School					
Doctorate	4				
Master	2,672	36	13	17	6
Bachelor	4,916	64	25	24	15
Second Class	113	3	2	1	
Third Class	138	1	1		
Total	7,843	104	41	42	21

Source: State Superintendent of Free Schools, *Fifty-First Annual Report*, 1964.

was as follows: Franklin High—125; Petersburg High—104; Bayard High 24; Moorefield High—84; Mathias High—32; Wardensville High—24.

Libraries[1]

Two libraries are located in the Upper South Branch Valley—the Hardy County Public Library at Moorefield and the Pendleton County Public Library at Franklin. The Hardy County Library serves a population of approximately 9,308 and has a total circulation of 19,539. There are 8,194 volumes in the library, and total yearly expenditures amount to $3,590. The Pendleton County Library serves a population of 758, has 3,340 volumes, and has a total circulation of 5,614; yearly expenditures amount to $284.

Colleges

There are no colleges within the boundaries of Grant, Hardy or Pendleton counties; however, Potomac State College, a two-year college and branch of West Virginia University, is located 40 miles from Petersburg at Keyser, West Virginia. Shepherd College at Martinsburg, Fairmont State College at Fairmont, Davis and Elkins College at Elkins, and West Virginia University at Morgantown are all within a few hours driving distance of the Upper South Branch Valley.

HEALTH FACILITIES

Health Personnel

The Upper South Branch Valley presents a brighter picture than most other regions in the State in regard to health personnel. Hardy County is one of only three counties in the State which meet the American Medical Association ratio of physicians to population.[2]

Health personnel in the Upper South Branch Valley consists of approximately 16 physicians, 9 dentists, 2 optometrists, 24 active registered professional nurses, 2 registered practical nurses, and 2 veterinarians. Each county has a part-time health officer and sanitarian, and Grant and Hardy counties each have a school nurse.[3]

The American Medical Association recommends that the ratio of physicians to population be one physician for every 700 persons. In Grant County the ratio is one physician for every 1,032 persons, in Hardy County, one physician for 660 persons, and in Pendleton County, one physician for 1,988 persons. As for dentists, only Pendleton County meets A.M.A. standards for dentist per population. Table 70 gives the A.M.A. recommendations for physicians, dentists, public health nurses and sanitarians, along with the ratios in West Virginia and the Upper South Branch Valley. Not one county meets American Public Health Association standards for sanitarians, a particularly glaring need in light of water and sewage disposal problems in the area.[4]

Hospitals

The only hospital serving the area is located at Petersburg in Grant County. Opened to the public in

[1] *West Virginia Bluebook*, 1964.

[2] West Virginia Department of Health, Planning Division, *Materials Prepared for Regional Action Meetings*, 1964.

[3] Eastern West Virginia Planning and Development Association, Inc., *A Demonstration Health Facilities Proposal for the Multi-County Region Consisting of Grant, Hampshire, Hardy, Mineral, and Pendleton Counties, West Virginia*, December, 1965.

[4] West Virginia Department of Health, Planning Division, *Materials Prepared for Regional Action Meetings*, 1964.

TABLE 70
Health Personnel Ratios, 1964

	Standard	West Virginia
Physician ratio	1/ 700	1/ 1,153
Dentist ratio	1/ 2,000	1/ 2,494
Public health nurse ratio	1/ 5,000	1/12,700
Sanitarian ratio	1/15,000	1/19,755

	Grant	Hardy	Pendleton
Physician ratio	1/1,032	1/ 660	1/ 1,988
Dentist ratio	1/4,129	1/ 3,079	1/ 1,988
Public health nurse ratio	1/8,258	1/ 9,237	None
Sanitarian ratio	½/8,258	½/ 9,237	½/ 7,952

Source: West Virginia Department of Health, Planning Division, *Materials Prepared for Regional Action Meetings*, 1964.

1958, the hospital has 40 beds and offers surgical, medical, obstetrical, pediatric, laboratory and X-ray facilities.

UTILITIES

Electricity

The Monongahela Power Company provides electric service to all of Pendleton County and an area of 90 acres in Grant County; the Potomac Edison Company serves Grant and Hardy counties. A very small section of the area is served by REA power.

Monongahela Power. According to information supplied by the company, Monongahela Power serves 2,557 customers in Pendleton County and 468 in Grant. Of the Pendleton County customers, 2,212 are residential; 340 are commercial; 4 are industrial; and 1 is street lighting. In Grant County customers are distributed in this manner: residential—394; commercial—58; industrial—15; and street lighting—1.

In Pendleton County, the average monthly use of power during 1965 by the three principal categories was as follows: residential—520,105 kilowatt-hours; commercial—134,656 kilowatt-hours; industrial—317,930 kilowatt-hours. Average monthly use of power in Grant County was residential—108,350 kilowatt-hours; commercial—3,384 kilowatt-hours; and industrial—55,185 kilowatt-hours.

Potomac Edison. The Potomac Edison Company could only furnish information concerning the number of residential customers in the area it serves; 2,200 residential customers are served in Grant County and 2,400 in Hardy. Estimated usage during the year in Grant and Hardy counties combined amounts to 18,502 megawatt-hours for residential use, 8,365 megawatt-hours for commercial use, and 4,675 megawatt-hours for industrial use.

Gas

Bottled gas is the primary source of gas for the residents of the Upper South Branch Valley; however, several landowners are tapped on to the Atlantic Seaboard Company pipelines as part of the right-of-way agreement.

Water and Sewage

Four communities in the Upper South Branch Valley have public water works, and three communities have public sewage systems. Communities with both public water works and public sewage systems are Petersburg, Moorefield, and Franklin; Bayard has public waters but no public sewage system. Information in this section was provided by the various municipal water works; however, no information was obtained for Franklin.

Petersburg. The source of water for Petersburg is the South Branch of the Potomac River. Approximately 800 customers are served by the municipal water system, and the average daily demand is 220,000 gallons. Conventional methods of water treatment are used, i.e., coagulation, sedimentation, filtration, and chlorination; and type of waste treatment is reported as primary treatment.

Petersburg is planning a new sewage system for which contract awards of $183,600 for a treatment plant and $98,310 for interceptors have been made.

Moorefield. The South Fork of the South Branch of the Potomac is the source of Moorefield's water. The City Water Works reports 688 customers and an average daily demand of 349,569 gallons of water. Moorefield also uses conventional methods of water treatment and has a primary treatment plant.

Bayard. The source of water for Bayard consists of three natural springs and three wells. An average daily demand of 25,000 gallons is estimated for the 175 customers in the community. The quality of the water is reported as good and treatment is light chlorination.

Bayard has no public sewage system.

Franklin. Franklin uses a four-acre stabilization pool which is the lagoon type of waste treatment. In this method, waste waters are usually introduced into shallow manmade ponds or small lakes in which a balanced biological system breaks down the pollutants into simple, innocuous compounds such as water and carbon dioxide.

General information. As for the source of water for the entire areas of the counties in the Upper South Branch Valley, Grant County reports that 32.4 per cent of its housing units are served by a public or priv-

ate system, 40.5 per cent are served by individual wells, and 27.1 per cent are served by other sources; Hardy County reports that 22.8 per cent of its housing units are served by a public or private system, 52.4 per cent by individual wells, and 24.8 per cent by other sources; and Pendleton County reports 17.1 per cent of its units are served by a public or private system, 53.6 per cent are served by individual wells, and 29.3 per cent are served by other sources (Table 71).

The sewage disposal systems in the three counties are shown by percentages and compared to those in the State as a whole in Table 72.

TABLE 71

Source of Water, 1960
(Per Cent)

Source of Water	West Virginia	Grant	Hardy	Pendleton
Public or private	56.0	32.4	22.8	17.1
Individual well	33.0	40.5	52.4	53.6
Other	11.0	27.1	24.8	29.3

Source: West Virginia Department of Health, Planning Division, *Materials Prepared for Regional Action Meetings*, 1964.

TABLE 72

Sewage Disposal Facilities, 1960
(Per Cent)

Sewage Disposal	West Virginia	Grant	Hardy	Pendleton
Public Sewer	39.0	26.6	16.1	13.6
Septic Tank or Cesspool	25.0	20.3	22.6	22.9
Other or None	36.0	53.1	61.3	63.5

Source: West Virginia Department of Health, Planning Division, *Materials Prepared for Regional Action Meetings*, 1964.

Telephone

The telephone companies serving the Upper South Branch Valley are C & P (part of the nationwide Bell System), the General Telephone Company of the Southeast, and the Hardy Telephone Company. Two small sections of Pendleton County are served by Virginia telephone companies, and the Circleville area in Pendleton County is served by the locally owned West Virginia Mutual Telephone Association.

The C & P Telephone Company serves 304 subscribers in Grant County and 1,100 in Pendleton County. Most of the 628 Upper South Branch Valley residents served by the Hardy Telephone Company are in Hardy County; however, a few are in Pendleton County. The General Telephone Company does not serve Pendleton County; but it does serve 1,165 subscribers in Grant County and 827 in Hardy.

PUBLIC COMMUNICATIONS

Newspapers

Each county in the Upper South Branch Valley is served by a weekly newspaper. The *Grant County Press* serves not only Grant County but parts of Hardy, Pendleton, and Mineral counties; circulation of the newspaper is 3,000. Hardy County's weekly newspaper is the *Moorefield Examiner*. The *Examiner* (circulation 3,012) serves Hardy and parts of Grant, Hampshire and Mineral counties. The *Pendleton Times*, with a circulation of 3,265, serves primarily Pendleton County but has some subscribers in Grant and Hardy counties.

Radio

The only radio station in the area is WELD in Fisher, Hardy County. However, reception is quite good from stations in Keyser and Weston, West Virginia, and Roanoke, Harrisonburg, Mt. Jackson, and Winchester, Virginia.

Television

Although there are no television stations located in the Upper South Branch Valley, stations from Pittsburgh, Washington, and Harrisonburg are received in the area.

TRANSPORTATION

Bus Lines

There is very limited bus service in the Upper South Branch Valley. Hardy County has no bus service at all, and the only service in the other two counties is (1) Greyhound on Route 50 near Mt. Storm in Grant County and (2) Bowman Bus Service which makes two trips a day from Harrisonburg, Virginia, to Franklin, West Virginia.

Railroads

The major railroad in the Upper South Branch Valley is a branch of the Baltimore and Ohio Railroad Company which enters the area at the northern border of Hardy County, traverses the valley of the South Branch of the Potomac River, and terminates at Petersburg in Grant County. The Petersburg yard handles an average of 200 car loads inbound and 35 car loads outbound per month. The trains are Diesel powered and originate in the Cumberland, Maryland, yard. The only other railroad in the area is located in Grant County on the Maryland border, where a section of the Western Maryland Railway runs along the boundary between Maryland and West Virginia.

Airlines

There are no commercial airlines in the Upper South Branch Valley; however, there is a Civil Aeronautics Administration Emergency Airport located approximately one mile southeast of Petersburg in Grant County. The airfield has a runway 2,800 feet long and 296 feet wide and is capable of handling larger commercial aircraft when necessary.

Air service is available to the residents of the Upper South Branch Valley in nearby cities such as Martinsburg and Elkins, West Virginia, Cumberland, Maryland, and Weyers Cave, Virginia.

Truck Transportation

A number of trucking companies serve Grant, Hardy, and Pendleton counties. Among the principal ones are South Branch Motor Freight, Inc., Cook Motor Lines, Inc., Bell Lines, Inc., Coastal Tank Lines, Inc., and Accelerated Transport-Pony Express, Inc. These carriers can serve the principal commercial and industrial centers directly or through connecting trucking companies.[5]

A number of other companies serve the three counties, including carriers having operating authority only within the area.

Highways

The Upper South Branch Valley is served by federal highways 220, 50, and 33. State routes serving the area are routes 28, 4, 259, 59, 55, 42, 93, and 90. There are 280.61 miles of primary road in the area and 1,002.21 miles of secondary road (Table 73).

MISCELLANEOUS SERVICES

Community Service Organizations

Progressive development of any community is enhanced by community organizations which initiate, plan, or carry out projects that serve to improve the community. This section contains listings of the community organizations in the various counties of the Upper South Branch Valley.[6]

Grant County. Community organizations in Grant County include the following:

Rural Area Development Committee
Grant County Area Redevelopment Association
Grant County Planning Commission
Petersburg Kiwanis Club
Petersburg Lion's Club

[5]West Virginia Motor Truck Association, Inc., 1966.
[6]Any omission of community organizations is unintentional.

TABLE 73

Road System Mileage by Surface Type by County, 1964

County	A Primitive	B Unimproved	C Grade and Drain	D Soil Surface	E Gravel or Stone	F Surface Treated	G-1 Mixed Bituminous	G-2 Mixed Penetration	H-1 Bituminous Penetration	H-2 Bituminous Penetration	I Asphalt Concrete	J Cement Concrete	K Brick	Total Miles
Secondary System														
Grant	12.88	15.01	1.69	34.76	87.60	77.00	0.40	23.40	..	..	7.49	0.03	..	260.26
Hardy	2.04	15.09	1.64	38.80	162.65	82.56	..	48.60	..	..	1.53	0.07	..	352.98
Pendleton	19.82	22.84	6.11	12.05	234.92	16.52	..	68.53	..	..	8.18	..	..	388.97
Primary System														
Grant	..	..	..	..	..	..	..	1.68	..	..	84.19	0.45	..	86.32
Hardy	..	..	..	5.10	..	2.60	..	27.83	..	..	50.34	1.19	..	87.06
Pendleton	..	..	..	..	..	15.96	..	42.48	0.48	0.38	47.83	0.10	..	107.23

Source: *West Virginia Bluebook*, 1964.

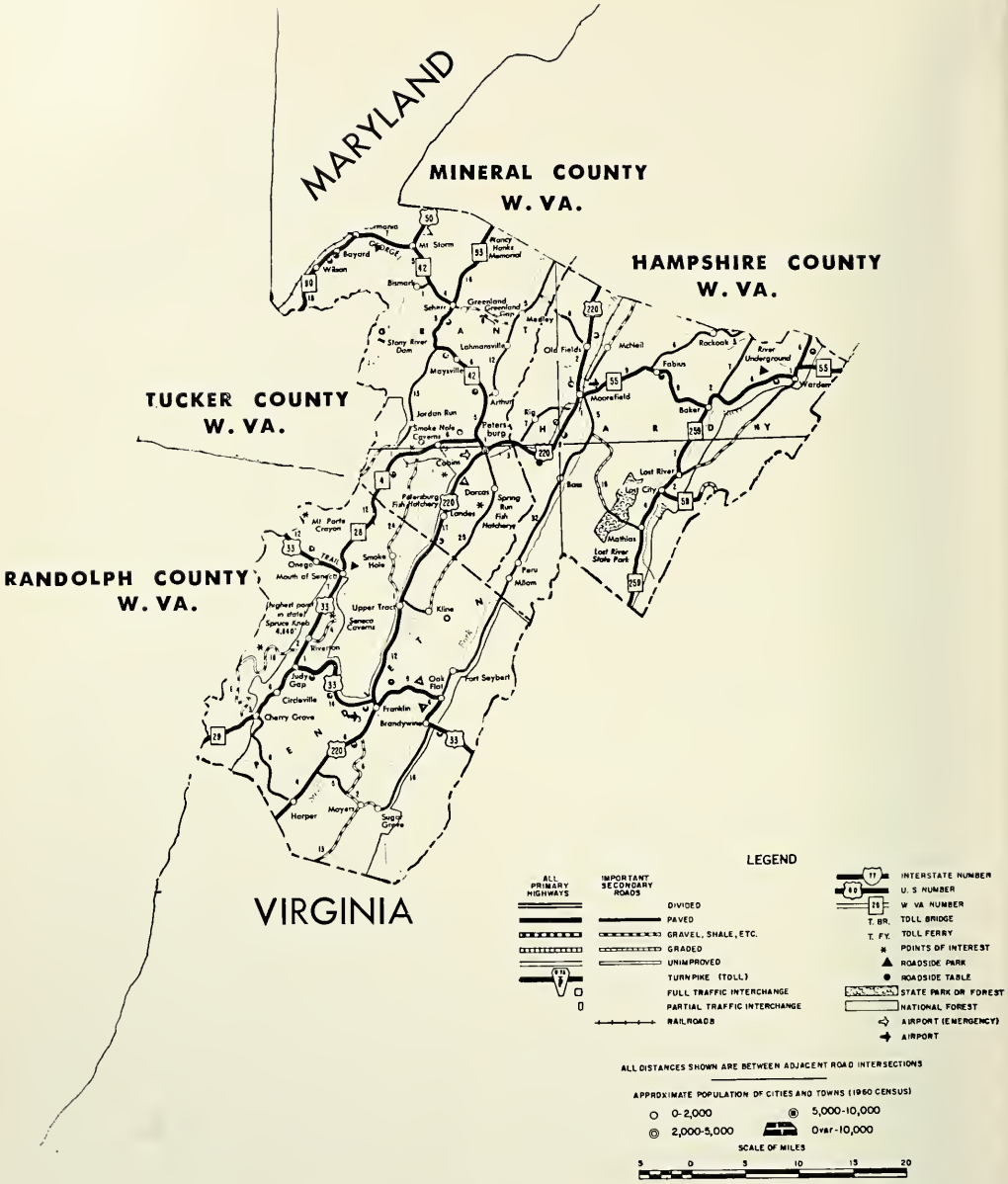

FIGURE 17

General Highway Map of the Upper South Branch Valley, 1963.

Petersburg Business and Professional Women's Club
Grant County Farm Bureau
Grant County Home Demonstration Council
4-H Leaders Organization
Boy Scouts Council
Petersburg Industrial Development Organization
Petersburg High School Key Club
Petersburg High School Keyettes
Petersburg Garden Club
Petersburg Art Club
Home Demonstration Clubs

Hardy County. Community organizations in Hardy County include the following.

Hardy County Rural Area Development, Inc.
Hardy County Development Authority
County Planning Commission
Mathias Development Company
Mathias Ruritan Club
Bean Settlement Ruritan Club
Moorefield Development Company
Moorefield Federated Women's Clubs
Moorefield Jaycees
Moorefield Lion's Club
Wardensville Lion's Club
Hardy County Cancer Society
Red Cross
March of Dimes

Pendleton County. Community organizations in Pendleton County include the following:

Pendleton County Development Council
Pendleton County Industries, Inc.
South Branch Garden Club
Franklin Lion's Club
Sugar Grove Lion's Club
Upper Tract Ruritan Club
Circleville Ruritan Club

Post Offices

There are 38 post offices in the Upper South Branch Valley—14 in Grant County, 11 in Hardy, and 13 in Pendleton. Table 74 gives the location and classification of the various post offices.

Banks and Loan Companies[7]

The South Branch Valley National Bank in Moorefield is the only national bank in the area. Total capital accounts in the bank in 1964 amounted to $415,826; total deposits amounted to $3,117,051.

The area's four state banks are (1) the Pendleton County Bank in Franklin, (2) the Grant County Bank in Petersburg, (3) the Potomac Valley Bank in Petersburg, and (4) the Capon Valley Bank in Wardensville. Total capital accounts and total deposits for the area's state banks are listed in Table 75.

TABLE 75

Total Capital Accounts and Total Deposits of State Banks, 1964

Bank	Total Capital Accounts	Total Deposits
Pendleton County Bank	$298,999	$2,940,949
The Grant County Bank	489,353	4,328,536
Potomac Valley Bank	388,600	3,313,005
Capon Valley Bank	144,008	1,276,500

Source: *West Virginia Bluebook,* 1964.

[7]*West Virginia Bluebook,* 1964.

TABLE 74

Location and Classification of Post Offices in Upper South Branch Valley, 1964

Grant County		Hardy County		Pendleton	
Location	Class	Location	Class	Location	Class
Arthur	4	Kessel	4	Brandywine	4
Bayard	3	Lost City	4	Brushy Run	4
Cabins	4	Lost River	4	Cherry Grove	4
Dorcas	4	Mathias	3	Circleville	4
Gormania	3	Milam	4	Deer Run	4
Greenland	4	Moorefield	2	Fort Seybert	4
Lahmansville	4	Old Fields	4	Franklin	2
Landes	4	Perry	4	Mouth of Seneca	4
Maysville	4	Rig	4	Moyors	4
Medley	4	Wardensville	3	Mozer	4
Mount Storm	3	Fisher	4	Riverton	3
Petersburg	2			Sugar Grove	4
Rough Run	4			Upper Tract	4
Wilson	4				

Source: *West Virginia Bluebook,* 1964.

Two small loan companies are located in the area—the Easy Loan Company in Moorefield and Union Finance Corporation in Petersburg.

Professional services. Besides the professional services discussed in the health facilities section of this chapter, there are also 14 active attorneys, one architect, and two optometrists in the three-county area.

Hotels, motels, and tourist homes. There are four hotels in the Upper South Branch Valley—one in Grant County, two in Hardy, and one in Pendleton. Motels and tourist homes in the area total 21; however, 12 of these are located in Grant County, while Hardy and Pendleton have only three and six, respectively.

GOVERNMENT

Although this section describes services provided by the government in the Upper South Branch Valley, it does not include those services that have been discussed in previous sections, such as educational facilities or public utilities.

Municipal Government

All of the incorporated towns in the area have the mayor-city council form of government, and all of the councils have five members with the exception of the town of Bayard, whose council has four members.

County Income and Expenditures

County expenditures. During 1962, the county governments in the Upper South Branch Valley had a total of $2,245,000 in direct expenditures, $77,000 of which were for capital investments. The various expenditures amounted to $1,757,000 for education, $30,000 for highways, $20,000 for public welfare, $289,000 for all other services and $99,000 for administration, while $50,000 were listed unallocatable. A breakdown of these expenditures by county appears in Table 76.

County revenue. The total general revenue, excluding inter-local revenue, amounted to $2,417,000. Intergovernmental sources accounted for $1,312,000 of the revenues, while local sources accounted for $1,096,000. Property taxes were responsible for all but $21,000 of the local sources. Amounts and sources of revenue are listed by county in Table 77.

TABLE 76

Expenditures by County, 1962
(Thousands of Dollars)

Type of Expenditure	Upper South Branch Valley	Grant	Hardy	Pendleton
Education	1,757	519	719	527
Highway	30	13	14	3
Public welfare	20	2	8	10
All other services	289	241	32	16
Administrative	99	31	35	33
Other unallocatable	50	15	22	13

Source: *Census of Government,* 1962.

Assessed Value of Property and Taxes Levied

The assessed valuation of real estate, personal property, and public utilities in the Upper South Branch Valley amounts to $50.9 million. Taxes levied on these properties total $679,054. Of these taxes, 61.6 per cent is allocated for school use, 32.4 per cent for county and district use, 5.5 per cent for municipal use, and .5 per cent for state use (Table 78).

Welfare Payments

The West Virginia Department of Welfare contributed a total of $665,452 to the Upper South Branch Valley in 1964 in the form of public assistance awards, general assistance, boarding care, and administration and service (Table 79).

Voter Registration and Per Cent Voting

In 1964, there were 15,520 voters registered in the Upper South Branch Valley for the primary election. Grant County voters are registered predominantly as Republicans; however, Hardy and Pendleton registered voters are predominantly Democrats (Table 80).

Of the 15,520 voters registered in the Upper South Branch Valley for the 1964 primary election, 49.4 per cent of them voted. West Virginia as a whole also had 49 per cent of the registered voters participating in the 1964 primary election (Table 81).

TABLE 77

Income by County, 1962
(Thousands of Dollars)

Sources	Upper South Branch Valley	Grant	Hardy	Pendleton
Total General Revenue	2,408	851	846	711
Intergovernmental	1,312	424	453	435
State	1,303	424	453	426
Other	9	...	..	9
Local sources	1,096	427	393	276
All taxes	551	158	273	120
Property taxes only	530	154	264	112

Source: *Census of Government,* 1962.

TABLE 78

Assessed Valuation and Taxes Levied, 1963

Tax Classification	Upper South Branch Valley	Grant	Hardy	Pendleton
Assessed Valuation				
Total	50,948,660	15,872,440	21,016,050	14,060,170
Real estate	22,676,635	7,749,490	9,430,345	5,496,800
Personal property	19,639,125	6,489,650	8,092,105	5,057,370
Public utility	8,632,900	1,633,300	3,493,600	3,506,000
Taxes Levied				
On total	679,054	228,223	302,971	147,860
On real estate	281,323	110,494	122,419	48,410
On personal property	238,724	84,018	107,239	47,467
On public utility property	159,007	33,711	73,313	51,983
Taxes Levied by Purpose				
Total	679,054	228,223	302,971	147,860
State current	3,333	1,023	1,357	953
County and district	219,932	87,781	77,679	54,472
Schools	418,498	121,341	209,734	87,423
Municipal	37,291	18,078	14,201	5,012

Source: West Virginia State Tax Commissioner, *Thirteenth Biennial Report,* 1962-63.

TABLE 79

Summary of State Welfare Expenditures in Upper South Branch Valley, 1964

Area	Public Asst. Awards	General Assistance	Boarding Care	Administration and Service	Total
Grant	$177,057	$ 3,611	$ 4,120	$10,692	$195,480
Hardy	192,479	4,281	6,281	11,611	214,652
Pendleton	233,791	2,609	6,303	12,617	255,320
Upper South Branch Valley	603,327	10,501	16,704	34,920	665,452

Source: *West Virginia Bluebook,* 1964.

TABLE 81

Percentage of Registered Voters Voting in 1964 Primary

Area	No. Registered—1964	No. Voting—Governor	Per Cent Voting
West Virginia	1,042,397	519,776	49.0
Upper South Branch Valley	15,520	7,680	49.4
Grant	5,253	2,850	54.2
Hardy	5,828	2,549	43.7
Pendleton	4,439	2,281	51.3

Source: *West Virginia Bluebook,* 1964.

(Turn Page for Table 80.)

TABLE 80

Political Registration of Upper South Branch Valley Voters, 1964 and 1962

Area	Total Registration			Democratic Registration			Republican Registration			Other Party Registration		
	1962 General	1964 Primary	Difference	1962 General	1964 Primary	Difference	1964 General	1964 Primary	Difference	1962 General	1964 Primary	Difference
Upper South Branch Valley (45)°	15,565	15,520	−45	8,310	8,275	−35	7,175	7,166	− 9	80	79	−1
Grant (16)°	5,217	5,253	+36	1,137	1,209	+72	4,058	4,027	−31	22	17	−5
Hardy (16)°	5,851	5,828	−23	4,367	4,295	−72	1,455	1,500	+45	29	33	+4
Pendleton (13)°	4,497	4,439	−58	2,806	2,771	−35	1,662	1,639	−23	29	29	..

°Number of precincts.
Source: *West Virginia Bluebook*, 1964.

Chapter VIII
BUSINESS AND INDUSTRY

THIS CHAPTER DEALS with businesses and industries that have not been discussed in previous chapters and includes a summary of overall employment by industries. Business and industrial activities such as mining, forestry, agriculture, utilities and certain others have already been discussed, either as separate chapters or as parts of other chapters. This chapter will cover retail and wholesale trade, manufacturing, and "selected" services.

Employment by Business and Industry

A detailed summary of employment by business and industry is given in Table 82, which lists per cent distribution of employment in each county. The greatest source of employment is agriculture, accounting for 27.1, 28.6, and 39.1 per cent of employment in Grant, Hardy, and Pendleton counties, respectively. Other leading sources of employment are construction, furniture, lumber wood products, and retail trade. In Hardy County, the industry grouping of food and kindred products is also an important source of employment.

RETAIL TRADE

According to the 1963 United States Census of Business, there were 280 retail trade establishments in the Upper South Branch Valley with total sales of $18,092,000. Of these establishments, 170 had payrolls which totaled $16,222,000, or 90 per cent of total sales.

TABLE 82

Per Cent Distribution of Business and Industry Employment by County, 1960

Industry	Grant	Hardy	Pendleton
Agriculture	27.1	28.6	39.1
Forest and fish	.3	.1	.2
Mining	2.9	.4	.4
Construction	7.4	8.1	11.9
Furniture, lumber, wood products	7.9	7.5	8.6
Primary metal industry	.0	.1	.6
Fab. metal industry	.0	.1	.0
Machinery except electrical	.0	.2	.0
Electrical machinery	.0	.0	.0
Motor vehicle and vehicle equipment	.0	.1	.0
Transportation equipment	.0	.0	.2
Other durable goods	.5	2.0	.9
Food and kindred products	.8	8.0	1.0
Textile mill products	.0	.0	.2
Apparel and other fabrical textiles	.3	.9	.5
Printing, publishing	.5	.4	.2
Chemical and allied products	1.5	.1	.0
Other non-durables	1.3	3.5	.3
Railroad and railway express	1.0	.7	.0
Trucking service and warehousing	1.8	2.1	.8
Other transportation	.7	1.3	1.6
Communications	.0	.9	.4
Utilities and sanitary service	.9	1.3	.2
Wholesale trade	3.7	2.4	2.0
Food and dairy product stores	1.3	2.7	1.8
Eating and drinking places	1.9	2.2	2.0
Other retail trade	11.7	6.2	6.0
Finance, insurance, real estate	2.1	1.1	.8
Business services	.0	.1	.5
Repair services	2.4	2.0	.7
Private households	2.3	3.0	2.9
Other personal services	1.9	1.5	2.4
Hospitals	2.3	.3	.3
Entertainment and recreation services	.2	.8	.0
Private education	.1	.3	.0
Government education	4.8	5.0	6.3
Welfare, religion and non-profit	.9	.7	.4
Other professional related services	1.1	.7	.3
Public administration	3.2	4.2	3.4
Industry not recorded	2.8	.6	3.1

Source: United States Bureau of the Census, *Census of Population*, 1960.

TABLE 83

Kind of Retail Business Groups by Number of Establishments and Amount of Sales, 1963

	United States		West Virginia		Upper South Branch Valley	
	Establishments	Sales ($1,000)	Establishments	Sales ($1,000)	Establishments	Sales ($1,000)
Total	1,707,931	244,201,777	16,915	1,779,336	280	18,092
Per cent	100.0	100.0	100.0	100.0	100.0	100.0
Avg. sales per establishment	..	143	..	105	..	65
Kind of Business Group						
Lumber, Building Materials, Hardware, Farm Equipment Dealers						
Number	92,703	14,605,836	700	93,276	13	952
Per cent of total	5.4	6.0	4.2	5.2	4.6	5.3
Avg. sales per establishment	..	158	..	133	..	73
General Merchandise Group Stores						
Number	62,063	30,002,764	867	240,957	31	1,213
Per cent of total	3.6	12.3	5.1	13.5	11.1	6.7
Avg. sales per establishment	..	483	..	278	..	39
Food Stores						
Number	319,433	57,079,186	4,417	474,599	72	3,650
Per cent of total	18.7	23.4	26.1	26.7	25.7	20.2
Avg. sales per establishment	..	179	..	107	..	51
Automotive Dealers						
Number	98,514	45,376,290	975	341,820	15	3,957
Per cent of total	5.8	18.6	5.8	19.2	5.4	21.9
Avg. sales per establishment	..	461	..	351	..	264
Gasoline Service Stations						
Number	211,473	17,759,917	2,289	146,369	34	1,752
Per cent of total	12.4	7.3	13.5	8.2	12.1	9.7
Avg. sales per establishment		84	..	64	..	52
Apparel, Accessory Stores						
Number	116,223	14,039,979	919	105,030	8	355
Per cent of total	6.8	5.7	5.4	5.9	2.9	NA°°
Avg. sales per establishment	..	121	..	114	..	44
Furniture, Home Furnishings, Equipment Stores						
Number	93,649	10,925,843	767	81,659	8	222
Per cent of total	5.5	4.5	4.5	4.6	2.9	NA
Avg. sales per establishment	..	117	..	106	..	28
Eating and Drinking Places						
Number	334,481	18,412,414	3,238	94,546	49	1,091
Per cent of total	19.6	7.5	19.1	5.3	17.5	6.0
Avg. sales per establishment	..	55	..	29	..	22
Drug Stores, Proprietory Stores						
Number	54,372	8,486,682	433	58,585	6	(D)
Per cent of total	3.2	3.5	2.6	3.3	2.1	NA
Avg. sales per establishment	..	156		135		(D)
Other Retail Stores						
Number	244,868	21,309,222	1,716	110,599	38	3,005
Per cent of total	14.3	8.7	10.1	6.2	13.6	16.6
Avg. sales per establishment	..	87	..	64	..	79
Nonstore Retailers						
Number	79,792	203,644	594	31,896	6	28
Per cent of total	4.7	2.5	3.5	1.8	2.1	.2
Avg. sales per establishment	..	3		54		5

°°NA indicates percentages not available.

Food stores made up 25.7 per cent of the total establishments and 20.2 per cent of total retail sales in the area. Auto dealers, composing only 5.4 per cent of total establishments, accounted for 21.9 per cent of total retail sales. Table 83 lists the various kinds of retail business groups and gives total number of establishments for each group, total sales for each group, per cent distributions, and data on average sales per establishment. The data on average sales per establishment provide a means for comparing the nature of businesses in the Upper South Branch Valley with the rest of West Virginia and the United States. The table shows that businesses in the Upper South Branch Valley are usually smaller than those in the rest of West

TABLE 83

Kind of Retail Business Groups by Number of Establishments and Amount of Sales, 1963

	Grant		Hardy		Pendleton	
	Establish-ments	Sales ($1,000)	Establish-ments	Sales ($1,000)	Establish-ments	Sales ($1,000)
Total	99	7,405	103	6,484	78	4,203
Per cent	100.0	100.0	100.0	100.0	100.0	100.0
Avg. sales per establishment	..	75	..	63	..	54
Kind of Business Group						
Lumber, Building Materials, Hardware, Farm Equipment Dealers						
Number	3	(D)*	6	389	4	563
Per cent of total	3.0	NA	5.8	6.0	5.1	13.4
Avg. sales per establishment	..	(D)	..	65	.	141
General Merchandise Group Stores						
Number	7	461	9	300	15	452
Per cent of total	7.1	6.2	8.7	4.6	19.2	10.8
Avg. sales per establishment	..	66	..	33	.	30
Food Stores						
Number	27	1,802	27	1,272	18	576
Per cent of total	27.3	24.3	26.2	19.6	23.1	13.7
Avg. sales per establishment	..	67	..	47	..	32
Automotive Dealers						
Number	6	1,592	5	1,240	6	1,592
Per cent of total	6.1	21.5	4.9	19.1	5.1	26.8
Avg. sales per establishment	..	265	.	248	.	265
Gasoline Service Stations						
Number	14	907	6	476	14	369
Per cent of total	14.1	12.2	5.8	7.3	18.0	8.8
Avg. sales per establishment	..	65	..	79	..	26
Apparel, Accessory Stores						
Number	4	355	3	(D)	1	(D)
Per cent of total	4.0	4.8	2.9	NA	1.3	NA
Avg. sales per establishment	..	89	..	(D)	..	(D)
Furniture, Home Furnishings, Equipment Stores						
Number	4	222	2	(D)	2	(D)
Per cent of total	4.0	3.0	2.0	NA	2.6	NA
Avg. sales per establishment	..	56	..	(D)	..	(D)
Eating and Drinking Places						
Number	23	475	17	397	9	219
Per cent of total	23.2	6.4	16.5	6.1	11.5	5.2
Avg. sales per establishment	..	21	..	23	..	24
Drug Stores, Proprietory Stores						
Number	2	(D)	3	(D)	1	(D)
Per cent of total	2.0	NA	2.9	NA	1.3	NA
Avg. sales per establishment	..	(D)	..	(D)	..	(D)
Other Retail Stores						
Number	9	457	19	1,902	10	646
Per cent of total	9.1	6.2	18.4	29.3	12.8	15.4
Avg. sales per establishment	..	51	..	100	..	65
Nonstore Retailers						
Number	0	0	6	28	0	0
Per cent of total	0.0	0.0	5.8	.4	0.0	0.0
Avg. sales per establishment	..	..	..	5	..	..

*(D) indicates too few establishments to report sales without divulging information about individual firms.
Source: United States Bureau of the Census, *Census of Business, Retail Trade,* 1963.

Virginia and the United States.

Trends in volume of retail sales are shown in Figure 18. Using 1957 as 100 for index purposes, it can be seen that Hardy County and Grant County have increased sales in recent years while sales in Pendleton County have dropped. Hardy County has approximately paralleled the United States index, while Grant County has had a steep upward trend since 1961.

WHOLESALE TRADE

In 1963, the Upper South Branch Valley contained 24 wholesale trade establishments whose total sales amounted to $16,849,000. Sixteen were merchant wholesalers and the remainder were various other types of wholesalers. Wholesaling establishments in Hardy County accounted for more than half of the total sales in the area, although the county contained

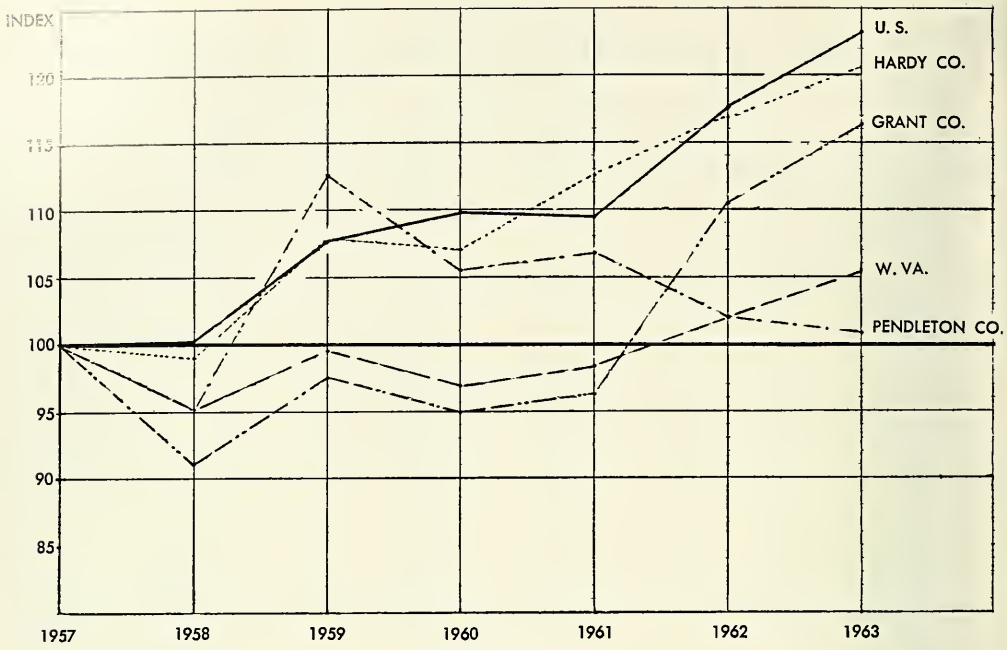

FIGURE 18

Index of Retail Sales in Grant, Hardy, and Pendleton Counties, West Virginia, and the United States, 1957-1963. (Source: West Virginia Chamber of Commerce)

TABLE 84

Wholesale Trade Data, 1963

	West Virginia	Upper South Branch Valley	Grant	Hardy	Pendleton
Number of Establishments	2,028	24	14	6	4
Sales ($1,000)	1,395,823	16,849	5,868	9,164	1,817
Avg. sales per establishment ($1,000)	688	702	419	1,527	454
Payroll entire year ($1,000)	92,991	650	349	206	95
Avg. payroll per establishment	46	27	25	34	24
Payroll, workweek ended nearest November 15 (Dollars)	1,793,679	12,844	5,955	5,369	1,520
Avg. payroll per establishment	884	535	425	895	380
Paid employees, workweek ended nearest November 15 (Number)	18,615	183	76	84	23
Avg. No. paid employees per establishment	9	8	5	14	6
Active proprietors of unincorporated businesses	816	18	12	3	3
Merchant wholesalers:					
Number of establishments	1,517	16	11	2	3
Sales ($1,000)	762,966	(D)	(D)	(D)	(D)
Other Operating Types					
Number of establishments	511	8	3	4	1
Sales ($1,000)	632,857	(D)	(D)	(D)	(D)

Source: United States Bureau of the Census, *Census of Business, Wholesale Trade*, 1963.

only one-fourth of all the wholesaling establishments (Table 84).

The importance of wholesaling in Hardy County is also indicated by the average sales per wholesaling establishment; Hardy County average sales were much higher than average sales in Grant and Pendleton counties.

SELECTED SERVICES

In 1963 there were 96 selected service establishments in the Upper South Branch Valley with total receipts of $1,324,000.

These establishments were as follows: personal services—41; hotels, motels, camps, and tourist courts—16; miscellaneous business services—1; auto repair and services, garages—13; miscellaneous repair services—14; motion pictures—5; other amusement, recreation services—6 (Table 85).

MANUFACTURING

The most recent manufacturing information available is the *Census of Manufacturing*, 1958, published by the United States Bureau of the Census. These data are summarized in Table 86. In 1958 there were 63 manufacturing establishments in the Upper South Branch Valley. Total employment amounted to 536 persons—463 production workers and 73 non-production workers.

Data on manufacturing from the 1963 Census of Manufacturing are not available for each county in the Upper South Branch Valley. Data gathered from other sources of information indicate a sizeable increase in manufacturing activity since 1958. In 1965, it is estimated that manufacturing firms in the Upper South Branch Valley employed approximately 975 persons. This would indicate that over 500 additional jobs have been made available through increases in the manufacturing sector of the local economy since 1958.

TABLE 85

Selected Services Data, 1963

	West Virginia	Upper South Branch Valley	Grant	Hardy	Pendleton
Number of establishments	7,607	96	35	37	24
Number of establishments with payroll	3,541	44	15	17	12
Total receipts, all establishments ($1,000)	255,780	1,324	415	435	474
Avg. per all establishments	34	14	12	12	20
Total receipts, establishments with payrolls ($1,000)	235,220	1,114	343	331	440
Avg. per establishments with payroll	66	25	23	20	37
Payroll, entire year ($1,000)	72,172	205	55	65	85
Payroll, workweek ended nearest November 15 (Dollars)	1,321,137	3,923	1,159	1,329	1,435
Paid employees, workweek ended nearest November 15 (Number)	20,598	121	41	34	46
Active proprietors of unincorporated businesses (Number)	7,235	98	32	40	26
Number of Establishments by Kind of Business					
Hotels, motels, tourist courts, camps	488	16	6	3	7
Personal services	3,520	41	18	13	10
Miscellaneous business services	649	1	.	.	1
Auto repair, auto services, garages	1,037	13	4	4	5
Miscellaneous repair services	1,065	14	4	10	.
Motion pictures	179	5	2	3	.
Other amusement, recreation services	669	6	1	4	1

Source: United States Bureau of the Census, *Census of Business*, 1963.

TABLE 86

Manufacturing Data, 1958

	Upper South Branch Valley	Grant	Hardy	Pendleton
Number of manufacturing establishments	63	22	20	21
Total employment in manufacturing	536	134	241	161
Payroll all employees in manufacturing ($1,000)	1,316	304	704	308
Number of production workers in manufacturing	463	109	208	146
Wages of production workers ($1,000)	1,027	226	518	283
Number of non-production workers in manufacturing	73	25	33	15
Wages of non-production workers	289	78	186	25

Source: United States Bureau of the Census, *Census of Manufactures*, 1958.

The manufacturing sector of the local economy is dominated by the production of food and lumber products. However, a number of firms producing other types of products are located in the area and are important sources of employment. One of the more notable changes in the manufacturing economy since complete census data was last available has been the addition of firms producing wearing apparel.