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A Study of the Resources, People & Economy of Carbon County, Wyoming: 1962

Floyd K. Harmston
University of Wyoming

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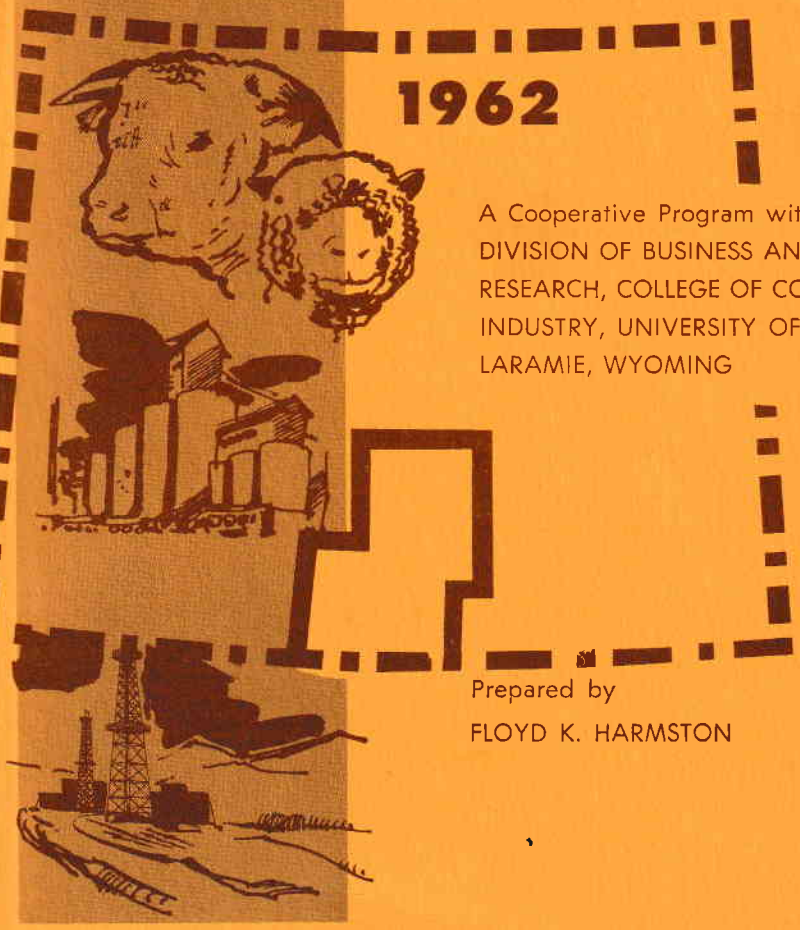
Geoffrey J.D. Hewings
22-x-1970

**a study
of the resources,
people, & economy
of Carbon County,
Wyoming**



1962

A Cooperative Program with the
DIVISION OF BUSINESS AND ECONOMIC
RESEARCH, COLLEGE OF COMMERCE AND
INDUSTRY, UNIVERSITY OF WYOMING,
LARAMIE, WYOMING



Prepared by
FLOYD K. HARMSTON

a publication of the
WYOMING NATURAL RESOURCE BOARD
215 Supreme Court Building, Cheyenne, Wyoming

A STUDY OF THE RESOURCES, PEOPLE, AND ECONOMY
of
CARBON COUNTY, WYOMING

A Publication of
The Wyoming Natural Resource Board

by
FLOYD K. HARMSTON

Division of Business and Economic Research
COLLEGE OF COMMERCE AND INDUSTRY
UNIVERSITY OF WYOMING
LARAMIE, WYOMING
1962



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FOREWORD

This study was carried out under a cooperative agreement between the Wyoming Natural Resource Board and the Division of Business and Economic Research. The Resource Board's interest in this type of research stems from its responsibility for the economic development of the state.

The study itself was made with several objectives in mind. Being a descriptive work, it should be useful to people interested in investing in the county to help them understand the local situation. However, it is not intended as an industrial development brochure and the information it contains is given in an entirely non-biased manner.

A second objective is to help local people understand the economy in which they operate. It is easy for people to go off on tangents and waste money on development schemes which have no basis for success. Usually these things happen because of lack of information. This study should be of help in giving local businessmen necessary information for planning future moves.

A third objective is to add to our very scanty knowledge of the various forces which make a local economy run. It seems of considerable importance to know that when a traveler spends a dollar in the area an additional 70 to 76 cents is created; or that a dollar of new payroll is worth over a dollar to businessmen through the power of its "turnover" and that it actually creates extra payrolls and other personal income. It is also important to know that a dollar of new money doesn't turn over six or eight times, as many people seem to believe.

It is hoped that this study will help the inhabitants of Carbon County take advantage of coming developments and promote logical economic growth in the county.

This study does not attempt to answer all questions. It is hoped that it will provide an analytical framework for further analysis of specific situations and will thus contribute to overall development of the area.

ACKNOWLEDGEMENTS

An undertaking as complex as this study requires the help of a great many people.

We are especially grateful to the business and industrial establishments in Carbon County for furnishing detailed information of a confidential nature.

Useful information has been furnished by the City of Rawlins, County of Carbon, U. S. Bureau of the Census, State-Federal Agricultural Statistician, State Department of Revenue, State Ad Valorem Tax Department, Public Service Commission of Wyoming, Wyoming Employment Security Commission, State Bank Examiner, State Liquor Commission, and the U. S. Treasury Department.

Survey work on this county was done by J. C. Routson of the commerce college faculty.

Constructive criticism of the draft was made by Victor Bauer, Industrial Development Engineer, Pacific Power and Light Company.

Floyd K. Harmston

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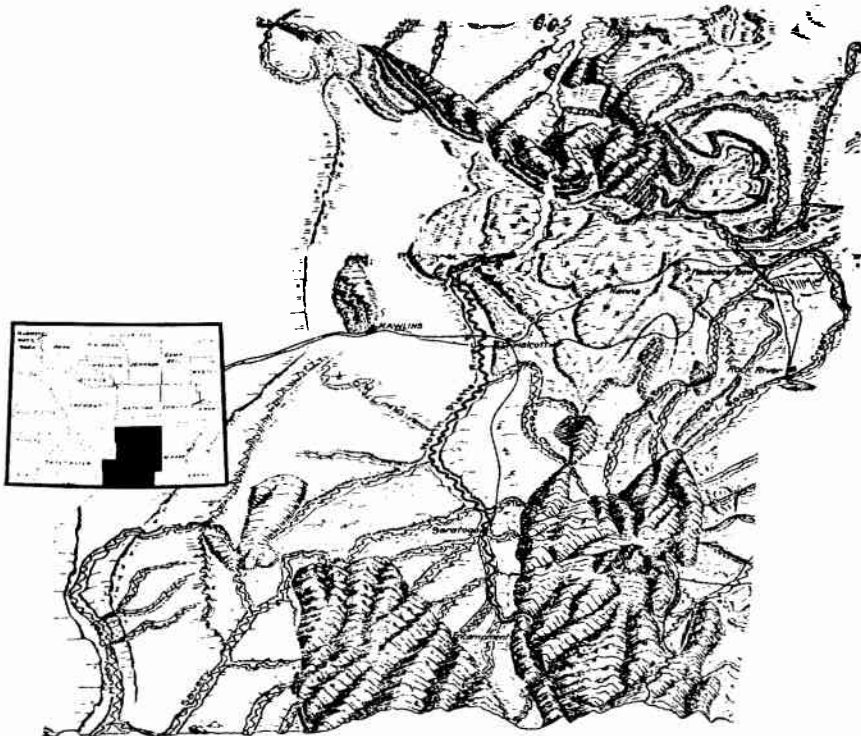
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Figure 1
PHYSICAL FEATURES
OF
CARBON COUNTY
WYOMING



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CHAPTER I

Summary and Conclusions

This is a study of Carbon County, Wyoming, a county large in area and fairly small in population. It is a typical western mountain and desert county, but with a somewhat higher elevation than most, averaging over 6,500 feet.

The inhabited portion of the county is arid. Hay is grown on irrigated land for livestock operations. The mountains afford summer pasture and the deserts provide winter range, particularly for sheep.

The county history is interesting. It includes the usual conflicts between Indians and settlers, bad men and law-abiding men, miners and non-miners, tie hacks and townspeople, and out of it all has grown a prosperous economy. The Union Pacific Railroad was a dominating influence for many years, but its influence is rapidly decreasing, and is being replaced by the impact of Interstate Highway U. S. 80. Once copper mining had an important impact, but was soon lost. In recent years uranium mining and exploration exerted an influence on the economy.

Perhaps the one item of greatest significance in economic history of the county was the establishment of the oil refinery at Sinclair. The production and refining of crude oil produces about one-third of the basic income of the county.

In addition to vast areas of grazing land, the resources of Carbon County consist of water (associated with the North Platte and Little Snake drainages), oil and gas, coal, iron ore, unknown amounts of uranium ore, and associated ores of gold, copper, lead, and zinc.

The population of the county in 1960 was 14,937. This population seems to be quite mobile, which is accounted for by a large proportion of single men in all age brackets.

Present Economy

The county's economy of today rests on the basic industries of oil production and refining, mining, manufacturing (forest products), agriculture (cattle and sheep), and transportation (Union Pacific Railroad and east-west highway U.S. 80). The basic income produced by these industries is supplemented by the introduction of new money through out-of-county purchases by people in the general trade area, money spent by state and federal government, money spent by travelers and truckers, money spent in the search for oil and other minerals, and miscellaneous other payments made to residents of the county.

An analysis of the economy for 1954, a year of low economic activity, and 1959, a year of high economic activity, reveals that the basic

structure of the economy works approximately the same regardless of outside influence. Each dollar of basic income circulates through the economy and produces about 90 cents worth of entirely new business.

The core of this analysis is to be found in Tables XXX and XXXI of Chapter VI. These tables tell just how much income will result, directly and indirectly as the result of the introduction of a dollar of basic income. Uses of these tables for analysis of current income are discussed in Chapter VI and for determining the impact of new developments in Chapter VII.

Future Economy

In general, the economic development of the county is expected to grow from the present situation. Oil and gas production should remain high and the refining of oil should increase gradually. While there are outside possibilities for the re-development of the coal industry they are not expected immediately. Uranium production may or may not develop into a major industry. Much depends upon the success of present exploration.

In spite of a number of temporary setbacks in recent years, the forest products industry has a bright future and complete utilization of this natural resource is a distinct possibility.

The cattle industry should continue strong, although there will be fairly violent fluctuations in price as has been the case in the past. The sheep industry is currently undergoing a number of stresses which may result in its being less important to the county in the future.

The Union Pacific Railroad has been cutting down on local employment since 1954 because of the dieselization program and should reach a stable level soon. The influence of "piggyback" operations is expected to keep major trucking operations from contributing much to the area since less truck terminals will be required.

Other sources of basic income also will see some quite significant changes. State and federal government will continue to make fairly large payments to local government and to agriculture. They will also continue to contribute significant amounts to the area in other ways so long as the interstate highway system is under construction.

The money spent by truckers will probably decrease as "piggyback" operations become more common. However, other travelers on Interstate Highway 80 will increase their expenditures several fold.

The search for oil and minerals is a temporary situation that can be expected to taper off eventually.

So long as the uranium industry is strong in the Jeffery City area of Fremont County, Carbon County will continue to draw large amounts of income by selling to out-of-county shoppers.

Development of the iron ore deposits is not in the picture at present, but may be at a later time.

Increased strip-mining of coal in the Hannah area is waiting for a market to develop.

Other types of economic development could come to the county, but would depend upon local initiative.

CHAPTER II

General Information

Carbon County, Wyoming is largely a high, arid plateau with some rough but rather low mountains occupying much of the northern part of the county and two mountain ranges in the southeast. The plateau itself is over 6,000 feet in elevation with most of it above 6,500 feet. The mountains of the southeast have peaks from eleven to twelve thousand feet with most of the mountainous area lying between seven and ten thousand feet.

Most of the county lies within the drainage basin of the North Platte River, exception being the southwestern corner which is on the Little Snake River, a tributary of the Colorado.

The topography of the county is quite variable (see Figure 1). Part of the area is quite rough and hilly while part is fairly flat. The continental divide is located along the western edge of the county for about two-thirds of its length then crosses to the center of the southern boundary.

Climate

This section of Wyoming has a mean average temperature of approximately 42 degrees in the inhabited areas. This is comparable to most of the industrial areas of the United States north of the Mason-Dixon line. It is not so cold as some of the northern states bordering Canada such as Montana, North Dakota, Minnesota, Wisconsin and upper New England. It compares well with the valley areas of the Rocky Mountain States and of the Southern Great Lakes and Mid-east industrial belts.

Temperatures start at the low point in January and gradually build to the season's high in July, then recede again. January temperatures average 21.4 degrees at Rawlins in the center of the county, and 17.3 at Dixon on the south edge. July temperatures average 67.0 degrees at Rawlins and 65.4 degrees at Dixon. (Figure 2.)

Low humidity tempers the effects of both heat and cold. Rawlins gets 9.90 inches of moisture per year, coming largely as February snows, spring rains in May and June and early fall rains and snow. At Dixon the precipitation is 12.95 inches and it is spread fairly evenly over the year. (Figure 3)

Figure 2
NORMAL MONTHLY TEMPERATURES
RAWLINS AND DIXON, WYOMING

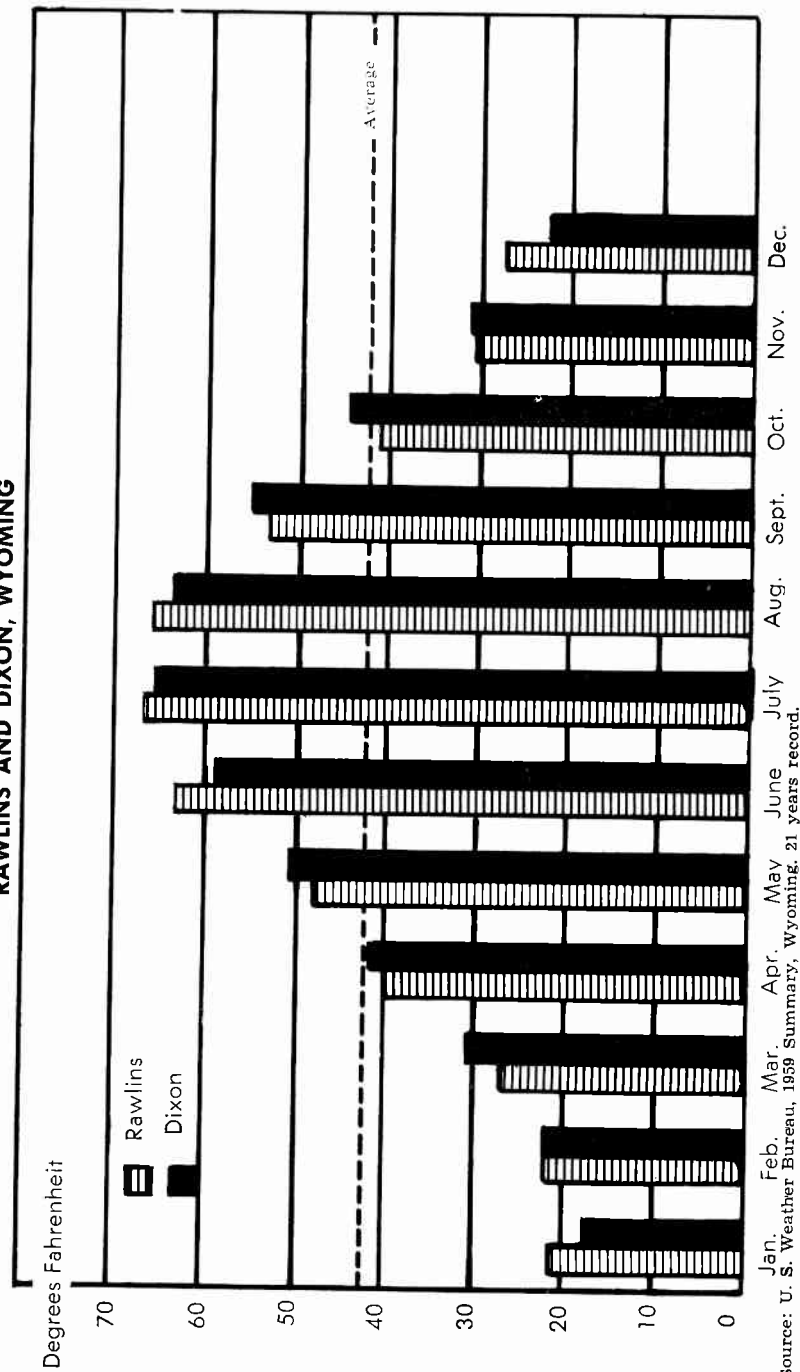
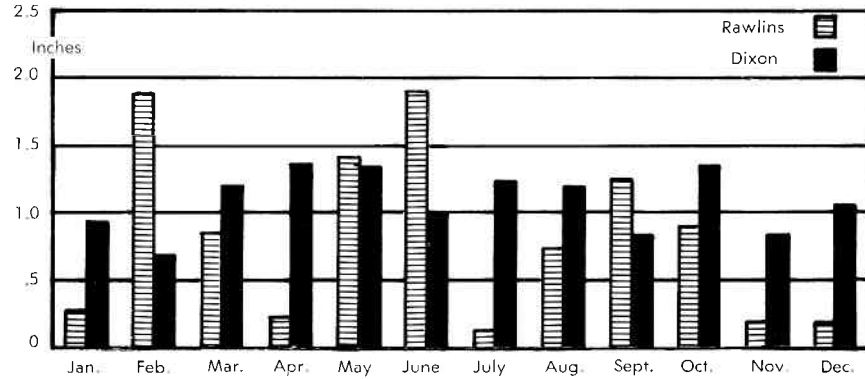


Figure 3
NORMAL MONTHLY PRECIPITATION
RAWLINS AND DIXON, WYOMING

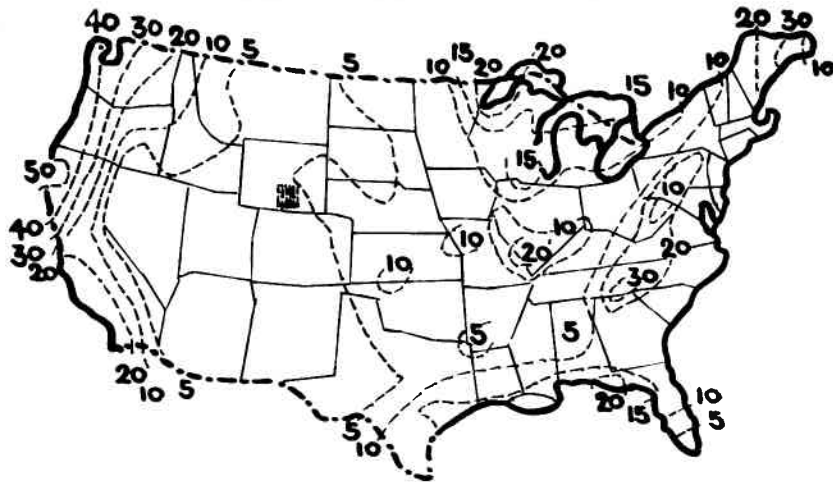


Source: U. S. Weather Bureau, 1959 monthly summary, Wyoming 20 years record. Average Rawlins, 9.90 inches; Dixon 12.95 inches.

Growing season is fairly short here because of the altitude. Saratoga, located in a mountain valley, has a growing season of 94 days; Rawlins 95 days; and Dixon 89 days.

In general this area has a great deal of sunshine. There are very few foggy days in the year (Figure 4) and the number of hours of sunshine during a winter day compares favorably to much of the southwest. (See Figure 5.)

Figure 4
AVERAGE NUMBER OF DAYS OF DENSE FOG PER YEAR
CARBON COUNTY, WYOMING



Source: U. S. Weather Bureau

Figure 5
AVERAGE HOURS OF SUNSHINE PER WINTER DAY
CARBON COUNTY, WYOMING



Snowfall is heavy only in the Medicine Bow and Sierra Madre Mountains which occupy the southeast corner of the county. Over the rest of the county, the fall is light and what does fall usually evaporates quite fast.

In general, the climate of this area can be said to be characterized by cool, stormy springs; cool summers; warm, open falls; and fairly cold winters. Wind plays an important role. There is usually a breeze of some kind which is most welcome in summer. Extremely high winds are infrequent, none of which stem from tornado or hurricane activity. About the only complaint stems from the combination of wind and snow which causes ground blizzards during the winter.

Low humidity and absence of temperature extremes make for a generally good climate from a human living standpoint.

History

"On the 21st March," wrote William Ashley in the year 1825, "the appearance of the country justified another attempt to resume my former course W. N. W. The principal or highest part of the mountain having changed its direction to east and west, I ascended it in such manner as to leave its most elevated ranges to the south and travelled northwest over a very rough and broken country generally covered with snow . . . The next day (24th) we travelled west across the plain, which terminated at the principal branch of the north fork of the River Platte on which we encamped for the night."¹

¹ Dale, Harrison C., *The Ashley-Smith Explorations and the Discovery of a Central Route to the Pacific 1822-1829*, The Arthur H. Clark Company, Glendale, California, pp. 130-131.

Thus in that year the first access to what is now Carbon County, Wyoming was established. Ashley's men stopped to trap beaver in the streams of this area and soon many others of that fraternity were making headquarters here, where they established a lucrative trade with the Indians.

As frontiersman Jim Baker put it, "When I came here the Indians were as thick as bees and as buzzin'!"² All things that fit excellently to the purpose were regarded by the Indian as "good medicine." Bows made from the woods found in this area were regarded as "Good Medicine" Bows.³ Hence, the derivation of a name.

The Indian was very jealous of his hunting privileges here where bison, wapiti (elk), deer, mountain sheep and pronghorn (antelope) were found abundantly. It wasn't long after white men came that they began to be very actively resented.

"The next decade was a bloody one. When Henry Fraeb, with his small band . . . hewed an outpost in the shadows of Battle Peak, the red men some five hundred strong, hiding their women in the brush of the mountain that today bears the name Squaw, rushed a surprise attack one day in August, 1841."⁴

Fraeb was killed early in the fight and young Jim Baker (then 22 years old) took command of the thirty trappers and they held off the redskins until nightfall, which allowed them to escape on foot. A town, a lake, a stream, and a mountain took the name of Battle from this incident.

John Fremont followed much of Ashley's trail in 1843. In 1849 Captain Evans and his band of Cherokees brought the first wagon train through this area and the "Cherokee Trail" was a going concern.

In 1862 the "Overland Route" was charted by Ben Holladay following the "Cherokee Trail." Holladay's stage coach line ran from Denver to Salt Lake City and included forty-six stations. Some of the locations in Carbon County were at Cooper Creek, Medicine Bow, Elk Mountain, and North Platte.

That same year a bill passed by congress subsidized the laying of the Union and Central Pacific Railroad Lines. Creighton's telegraph lines were also strung along the route at about this time. The Indians began to sense the coming destruction of their hunting ground so their depredations increased in fury. Wagon trains were captured and burned, stage stations attacked and the wires of the telegraph line cut.

Track gangs laying rails into Carbon County in July, 1868 were continually in danger from Indian raids and had to be armed at all times.

The coming of the railroad marked the end of the domination of the red-man and the white trapper. While Indian raids continued for

² Pence, Mary Lou and Homsher, Lola M., *The Ghost Towns of Wyoming*, Hastings House, New York, 1956, p. 113.

³ Rawlins Republican Bulletin, Union Pacific Old Timers Edition, May 2, 1939, p. 51.

⁴ Pence and Homsher, *Loc. cit.*, p. 114.

some years, they had begun to diminish in fury and gradually they ceased altogether.

The new era saw the establishment of Carbon County's major industries. Old trappers like Jim Baker took up land and settled down to ranching. Herds of cattle and sheep were brought in by others.

The railroad itself created at least two industries, the production of railroad ties and the mining of coal.

During the period from 1867 to 1870, three million cross ties and 75 thousand cords of fuel wood were cut from the Medicine Bow Mountains.⁵

With the development of coal mining the demand for fuel wood ceased and a demand for mine props developed. From 1870 to 1880 the harvest amounted to 1,200,000 ties and 400,000 mine props.⁶

Railroad tie producing operations were carried out largely by "one man manufacturing plants" in the guise of Swedish "tie hacks." These men cut down the trees, trimmed them and hacked out the finished ties with a broad ax.

As an illustration of their competence, a contract entered into in 1916 specified hand hewn ties, 92 percent of which had to grade first class.⁷

First class ties were 8 feet long, with tolerance to 8' 1". Top and bottom faces had to be hewn to smooth parallel surfaces and the ends cut or sawn square. The ties had to have a uniform side width of seven to eight inches, with a uniform face width of eight to 11½ inches. The company received 66 cents each for first class and 56 cents for second class ties. The wood had to be from good, sound, lodge pole pine timber.⁸

During the early period ties were piled along side the larger streams and floated down to the Platte River thence on to Fort Steele with the high waters of spring.

The use of hand-hewn ties continued until the early 1940's when sawyers finally began producing superior ties. Production of lumber for the local market began with the earliest settlers and has remained largely a local proposition with small saw mills.

According to General Dodge, one of the major reasons for selecting this route for the Union Pacific was the availability of coal.⁹

The first coal mines were established under an agreement with the railroad by the Wyoming Coal and Mining Company in 1869. This established what has come to be one of Wyoming's most interesting "Ghost Towns."

⁵ From Unpublished Historical Records of Medicine Bow National Forest.

⁶ *Loc. cit.*

⁷ Records of Wyoming Timber Company, University Archives.

⁸ *Loc. cit.*

⁹ Dodge, Grenville M., *How We Built the Union Pacific*, The Monarch Printing Company, Council Bluffs, Iowa, 1870, p. 22.

The town of Carbon began with the driving of a shaft for mine number one and was built rapidly, consisting of a main business district; and a conglomeration of miner's shacks, many of which were largely dug into the banks of gullies with stone or slab fronts and dirt roofs.

The town had its usual trials and tribulations. Indians attacked repeatedly and forced people into the mines for protection. Cowboys and sheepherders came to town for periodic sprees in the myriad of saloons, gambling halls, and houses of prostitution. They had horse races, pigeon shoots, and big community dances for recreation also.

A few mine explosions occurred with some loss of life. Once the miners' wives exploded and drove away the girls of easy virtue. Dutch Charlie Burris was hanged to a telegraph pole and let hang all night for ambushing a deputy sheriff. Occasionally miners went on strike and there was violence among ethnic groups. Calamity Jane ran freight wagons from here into the hinterlands. The whole business district burned one night was rebuilt on the opposite side of the tracks.

The Wyoming Coal and Mining Company operated for five years, then was superceded by the Union Pacific Coal Company (organized in 1874 to operate all mines on railroad lands). Miners were largely imported Finns and Englishmen. The Finns gradually drifted into ranching and the timber business. The English stayed with mining.

By 1902, the mines of Carbon were depleted and the rail line was removed making it a Ghost town.

Aside from its contribution of coal, the old town can be said to have been important as the source of many of the prominent settlers of Carbon County.

Mines were opened 11 miles to the north in 1899 and operated until 1954, when a change over to diesel engines eliminated the need for coal. The two towns of Hanna and Elmo which grew up around them have not vanished as rapidly as did Carbon. Only one mine, an open-pit operation, remains to keep them alive.

At the same time that Carbon was being established, Rawlins came into being. Machine shops and a round house were built at a point which had been named Rawlins Springs by General Dodge in honor of General John A. Rawlins.¹⁰ An initial population of 2,000 was housed in tents and shacks. As the railroad moved on the population diminished. The census of 1870 found only 612 people in Rawlins and 1,368 in the county.

The history of Rawlins is important since it became the county seat and principle shopping center for the county. Trends in population are shown in the accompanying table.

One of the first acts of the people of Rawlins was the establishment of a public school, which was paid for by popular subscription, and the organization of a school district one year later.

¹⁰ Dodge, *Op. cit.*, p. 26.

Table I
POPULATION TRENDS
RAWLINS AND CARBON COUNTY, WYOMING
1870-1960

Year	Rawlins	Carbon County
1870	612	1,368
1880	1,451	3,438
1890	2,235	6,857
1900	2,317	9,589
1910	4,256	11,282
1920	3,969	9,525
1930	4,868	11,391
1940	5,531	12,644
1950	7,415	15,742
1960	8,968	14,937

Source: U. S. Census Publications.

The next was the laying of a water line to the Platte River at Fort Steele in 1900.

The Union Pacific added to its facilities from time to time: a 35 stall engine house in 1900; a passenger station in 1901, an "eating house" in 1903, a 22 pen stock yards in 1907; a 500 ton coaling station in 1917; a powerhouse, a storage house and an employees club in 1918; and a freight house in 1920.¹¹

Rawlins was incorporated in 1886 and a charter was granted by the Wyoming territorial legislature.

It became the county seat of Carbon County in 1886, and the location of the state penitentiary in 1901.

Other developments of economic importance to Rawlins include the building of the state highway system in the 1920's, establishment of the refinery at Sinclair (Parco), and the coming of the interstate highway system in the 1960's.

The county of Carbon with its present boundaries was established by various acts of the territorial legislatures between 1869 and 1888.

In 1890 Wyoming became a state and Carbon County had 9,589 inhabitants, 2,317 of whom lived in Rawlins.

The 1890's brought another major development to Carbon County, one of those bright lights that flare so brightly then die out. This time it was copper that created the "boom."

In the spring of 1898 a sheepherder, turned prospector, named Ed Haggarty, with the backing of a businessman, George Ferris, sunk a thirty foot shaft which struck a rich vein of copper ore. By October of that year wagonloads of ore were being hauled to the railroad.

In 1899 Ed Haggarty sold out and a year later his partner died. The mine then passed into the hands of some promoters who sold 20 to 30 million dollars worth of stock on the basis of a half million dollar investment. Eventually this situation led to the downfall of the area.

In the meantime, however, other mines were opened; a 500 ton per day smelter was built; and a 16 mile tramway was put up to transport ore from the opposite side of the mountain to the smelter.

In 1904 Encampment was a thriving town. It was estimated that there were 5000 miners and prospectors in the region. A number of smaller towns were established nearer the mines.

In 1908 the Saratoga and Encampment Valley Railroad was finished, and the bubble began to burst. With indictment of the Ferris-Haggarty officers, high production costs, and general-mismanagement, the mines began closing. The district had produced slightly over two million dollars worth of ore. Today Encampment is a town of 300 sustained by ranching, timber operations, and vacation trade. The other towns are bare traces on the mountain side.

The Saratoga and Encampment Valley Railroad is operated as a spur line by the Union Pacific and its pay loads are largely railroad ties, some lumber, and cattle.

The town of Saratoga grew up from a previous community called Warm Springs. It has always been a resort type community—first a health resort for sufferers from arthritis, now both a health resort and a vacation spot.

A number of centers have developed in the county to help service the livestock industry. Three of these are located in the valley of the Little Snake River in the southwestern part of the county. Baggs, Dixon, and Savery were named for early settlers in the area.

At the north end of the Medicine Bow Range are the small towns of Medicine Bow, Elk Mountain, and McFadden. Medicine Bow was first a stage station, then a pumping station for water for the Union Pacific engines. It has settled into a small service center for ranchers and highway travelers. Its main claim to fame is as the setting for the first of the wild west novels, "The Virginian" by Owen Wister.

Elk Mountain also began as a stage station and is a ranching center. McFadden is an oil field town, named for a president of the Ohio Oil Company.

Oil was also responsible for the establishment of the third largest city in the county, Sinclair. In 1922, the Producers and Refiners Corporation constructed a refinery at a spot six miles east of Rawlins called Grenville (for Grenville Dodge). The president of the company, Frank E. Kistler, then laid out a company town which he named Parco. A second industry was then added, a ceramic brick plant. The town was incorporated in 1923. In the 1930's Producers and Refiners sold out to the Sinclair Oil Company and shortly thereafter the name of the town was changed to Sinclair.

As of 1960 Carbon County has 11,937 inhabitants. Rawlins is the home of 8,968 of them, Saratoga 1,133; Sinclair 621; the Elmo-Hanna area has 716, less than one-half of their 1950 population; Medicine Bow has 392, Encampment 333, and the rest of the towns have less than 200 each.

The Union Pacific is still an important element in the economy.

Most of the history of Carbon County has been tied to economic factors. The Indians were here because of good hunting, white men came because of the transportation situation and stayed to establish ranching operations, or to supply the railroad with ties and coal. The big copper boom drew many people who disappeared just as fast once the boom was over.

Transportation received increased emphasis in the 1920's and 1930's with building and improvement of highway 30. Servicing travelers on this highway is an important part of the present day economy.

Lure of the Platte River Valley as a vacation place is also important. A number of dude ranches as well as other types of vacation business have developed there in recent years.

CHAPTER III

Natural Resources

So far as is known at this time the natural resources of Carbon County consist of five million acres of land, eighty-four percent of which is used for grazing livestock; from 600 to 800 thousand acre feet of surface water plus unknown amounts of ground water; 2.3 billion board feet of saw timber; nearly five billion tons of coal; enough reserves to produce three and a half million barrels of oil and one million cubic feet of natural gas annually; at least two million tons of iron ore plus unknown amounts of associated minerals of gold, copper, lead, and zinc; and about thirty other minerals about which little is known at this time. (See Table II.) These resources will be discussed in greater detail in this chapter.

Land

Ownership

There are 5,114,240 acres of area in Carbon County, 16,640 acres of which is water surface. Of the dry land area of 5,097,600 acres, the Federal Government owns 2,682,986 acres or 52.6 percent of the total. Private individuals and corporations own 39.1 percent, or 1,994,105 acres, and state and local government owns the rest (420,509 acres or 8.3 percent).

Table II
NATURAL RESOURCES
CARBON COUNTY, WYOMING
1962

Resources	Amount	Unit
Land	5,097,600	acres
Water	600-800,000	acre feet
Saw timber	2,342,130,000	board feet
Coal	4,843,280,000	tons
Oil	reserves for 3,500,000*	barrels
Gas	reserves for 1,000,000*	cubic feet
Iron ore	2,000,000	tons
Other	unknown amounts	

*Annual production.

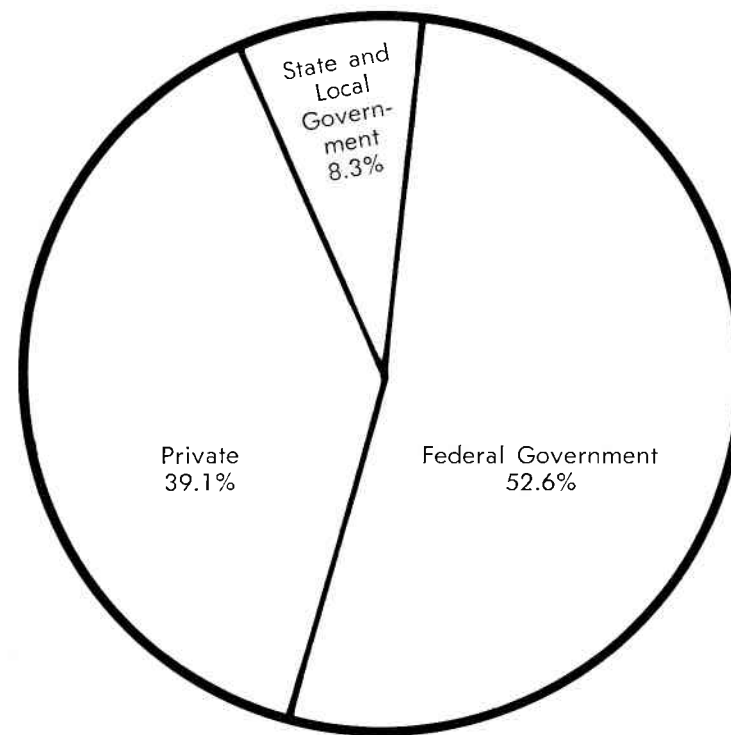
Federal Government holdings may be classified as follows:

Bureau of Land Management		1,979,796 acres
Section 3 lands	1,901,195 acres	
Section 15 lands	78,601 acres	
U. S. forest Service		630,894 acres
Bureau of Reclamation		67,609 acres
Fish and Wildlife Service		4,196 acres
Defense Department		1 acre
Civil Aeronautics Administration		490 acres
Total		2,682,986 acres

Utilization

The terrain of Carbon County is quite rough as may be seen by reference to Figure 1. Except for the mountainous sections in the south-eastern portion, it is also quite arid. The land in the county is used primarily for the grazing of livestock (84 percent). Other uses include

Figure 6
LAND OWNERSHIP
CARBON COUNTY, WYOMING
1958



about 3 per cent in cropland, a large part of which is in hay crops for livestock feed, and about 12 per cent is in commercial forest. The non-commercial forest land has been included with grazing statistics.

The grazing land is owned largely by the Bureau of Land Management and by private owners. The state-owned lands that are used for grazing are leased to individual owners, as are the section 15 lands owned by the Bureau of Land Management. The latter are largely isolated tracts which can be most easily handled that way. The section 3 grazing land (referring to section 3 of the Taylor Grazing Act) is operated on a fee basis.

Commercial forest land occurs largely in areas owned by the U. S. Forest Service. About 80 per cent of the private and state owned commercial forest occurs within national forest boundaries also.¹ Forest land controlled by the Bureau of Land Management occurs largely adjacent to the national forest. There are two mountain ranges in the southeast section of the county, Medicine Bow and Sierra Madre. However, both are in the Medicine Bow National Forest.

As will be noted by comparing figures quoted above with the commercial forest figures in Table III, a considerable acreage of national forest land is used primarily for grazing. Much of the commercial forest land has grazing as a secondary use. Thus the national forest is very important to local stock men, particularly for summer grazing.

Table III
PRIMARY USES OF LAND
CARBON COUNTY, WYOMING
1959

Uses	Private	Federal	State & Local	Total	%
Residential town	1,300				
Streets and roads			10,000	11,720	0.2
Suburban	420				
Commercial forest	13,670	587,700	7,580	608,950	11.9
Cropland					
Irrigated crops	89,350				
Dryland crops	13,360				
Fallow	5,660				
				173,110	3.4
Unused	17,110				
Soil improvement	2,760				
Pastured	44,870				
Improved pasture	44,930				
Grazing	1,745,145	2,095,286	402,929	4,288,290	84.1
Minerals	15,530			15,530	0.4
TOTAL	1,994,105	2,682,986	420,509	5,097,600	100.0

Source: Estimates prepared from information supplied by 1959 Census of Agriculture, State Board of Equalization, State-Federal Agricultural Statistician, and Information Circular No. 3, this office.

¹ Opinion of S. H. Van, Commercial Timber Manager for Medicine Bow National Forest.

Mineral lands are largely those operated for coal, but also include a number of other mines.

Crops grown in the county are predominantly hay and grain. Improved pastures are largely irrigated, although there are some pastures, as well as hay and grain produced without irrigation.

Water²

Carbon County is largely dependent upon surface water supplies. Most of the county is in the North Platte River Drainage (Figure 7). However, the southwest corner of the county is drained by tributaries of the Little Snake hence of the Colorado River.

Ground water supplies occur in three major strata. Older tertiary strata underlie most of the western edge of the county. This is a part of the formation which also underlies the Green River Basin, where it has an aggregate thickness of as much as 5,500 feet. The strata, in ascending order, are the Wasatch, Green River, and Bridger formations of Eocene Age.

They consist of a complex series of interbedded clay, siltstone, "paper shale," and fine to coarse-grained sandstone beds. These sediments contain water under both confined and unconfined conditions.

While water under artesian pressure has been encountered in some of the sandstones, in many cases these formations are impermeable below the water table and do not yield water readily to wells. In general it may be said that the older tertiary strata are of limited value as water sources.

Younger tertiary rocks, particularly the North Park formation, occur on both sides of the North Platte River as shown in Figure 7. This formation contains a zone of saturation which ranges in thickness from about 800 to 1,700 feet. Although the material is only moderately permeable, the considerable thickness of the saturated material affords an opportunity for developing considerable quantities of ground water. At the present time only livestock and domestic wells produce from the North Park formation.

Stock and domestic water is also obtained from the alluvial fill adjacent to the North Platte. This could also be a source of considerable water.

Surface runoff has definite seasonal patterns, with most of it occurring in April, May, June, and July (Figure 8). June, of course, is the big month. Considerable storage exists at the north end of the county, but this is beyond all of the towns. Proposed additional storage nearer to Sinclair and Rawlins would be of more value to this county.

Not only is seasonal flow quite pronounced, year to year variations are also quite extreme (Figure 9). Need exists for storage to correct

² Information on ground water from unpublished materials of Ground Water Division, U. S. Geological Survey.

Figure 7
WATER RESOURCES
CARBON COUNTY, WYOMING
1960



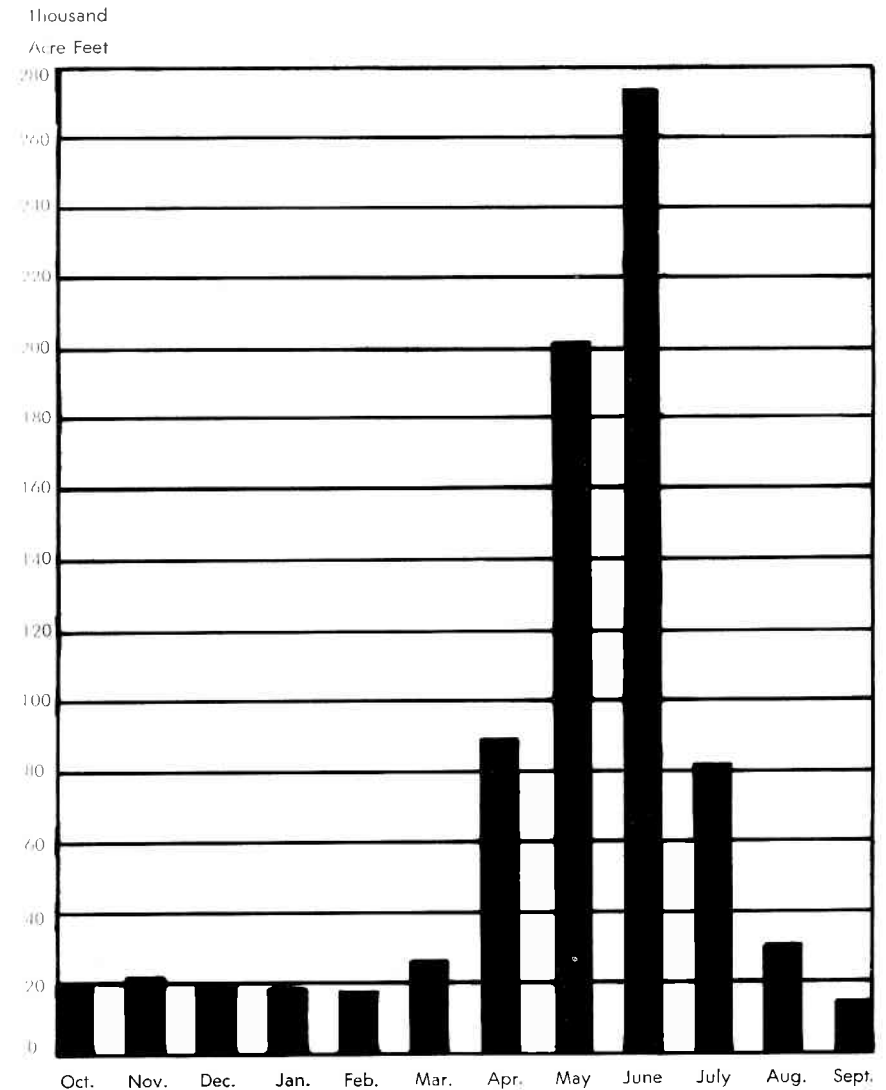
Source: U. S. Geological Survey, Unpublished Material.

this deficiency also. Generally speaking about 600 to 800 thousand acre feet of run-off can be expected each year.

Forests

Carbon County has a considerable timber area, particularly in the southern half of the county. Much of the area growing trees, however, is not now growing commercial timber.

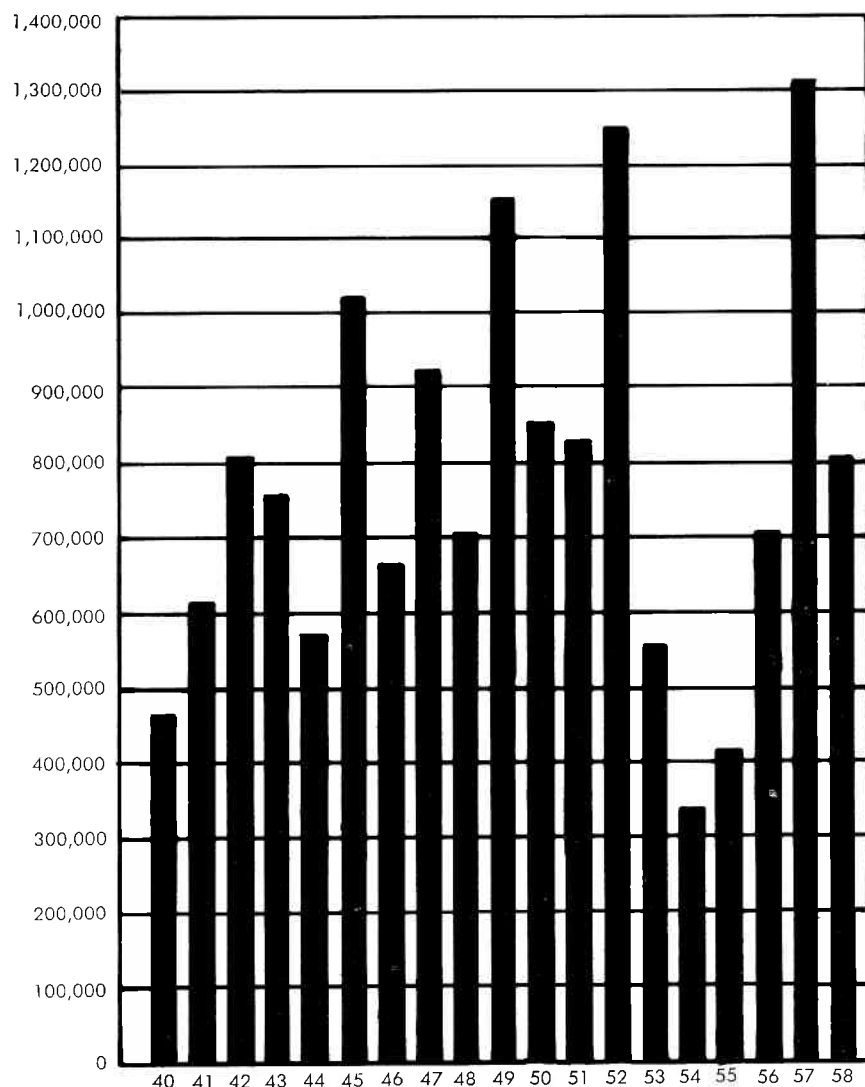
Figure 8
AVERAGE MONTHLY RUNOFF OF NORTH PLATTE RIVER
NEAR SINCLAIR, WYOMING
For Ten Year Period 1948-1957



Source: State Engineer's Reports.

Figure 9

**ANNUAL RUNOFF OF NORTH PLATTE RIVER
NEAR SINCLAIR, WYOMING
1940-1958 Water Years**



According to the best information currently available, there are 608,950 acres of land on which commercial timber stands are found. This is about 70 percent of the area indicated in Figure 10 as timbered.

The national forest owns 80 per cent of the commercial forest area and 91 per cent of the commercial sawtimber. In Table IV a breakdown is given of acreages bearing sawtimber and those bearing timber useful only for poles, posts, and house logs.

**TABLE IV
ACRES OF COMMERCIAL FOREST
CARBON COUNTY, WYOMING
1962**

Ownership and Species	Acres	
FOREST SERVICE		487,700
Douglas Fir	3,746	
Sawtimber	2,288	
Poles, etc.	1,458	
Ponderosa Pine, Sawtimber	91	
Lodgepole Pine	304,148	
Sawtimber	129,221	
Poles, etc.	174,927	
Englemann Spruce	122,107	
Sawtimber	96,898	
Poles, etc.	25,209	
Aspen, Poles, etc.	57,608	
BUREAU OF LAND MANAGEMENT*		100,000
STATE OF WYOMING		7,580
Sawtimber	4,270	
Poles, etc.	3,310	
PRIVATE**		13,670
Sawtimber	6,430	
Poles, etc.	7,240	
TOTAL		608,950

Source: Estimates prepared from records of various agencies.

*Largely pole timber with lodgepole pine predominating.

**Lodgepole Pine and Englemann Spruce

Among the commercial sawtimber species Lodgepole Pine and Englemann Spruce predominate. Lodgepole Pine is the species most used for poles, posts, and house logs.

Best current estimates are that the commercial sawtimber stand in Carbon County amounts to 2.3 billion board feet. Lodgepole Pine makes up 51.7 percent, Englemann Spruce 47.9 percent, and Douglas Fir 0.3 percent and other species 0.1 percent. (See Table V.)

Table V
COMMERCIAL SAWTIMBER BY SPECIES AND OWNERSHIP
CARBON COUNTY, WYOMING
1960
 (Thousands of Board Feet)

Species	National Forest	Bureau of Land Management	State of Wyoming	Private	Total
Douglas Fir	5,740	2,000			7,740
Ponderosa Pine	230				230
Lodgepole Pine	1,053,390	106,000	20,670	31,110	1,211,170
Engelmann Spruce	1,076,830	6,000	15,630	23,540	1,122,000
Other		1,000			1,000
TOTAL	2,136,190	115,000	36,300	54,650	2,342,140

Figure 10
TIMBERED AREAS
CARBON COUNTY, WYOMING
1962

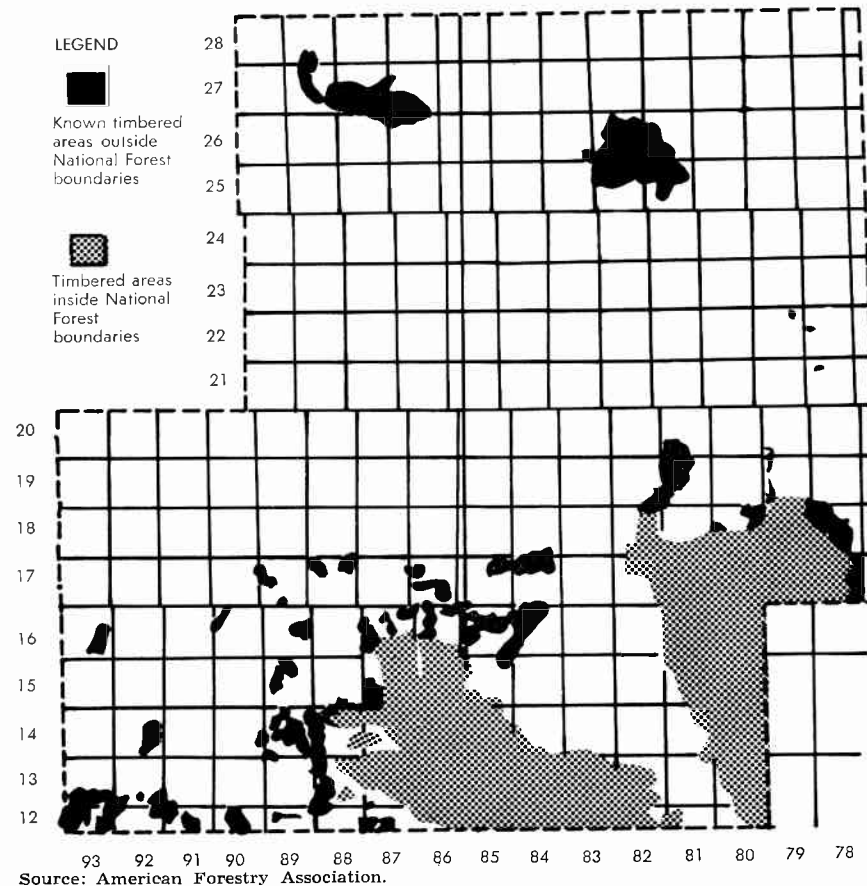
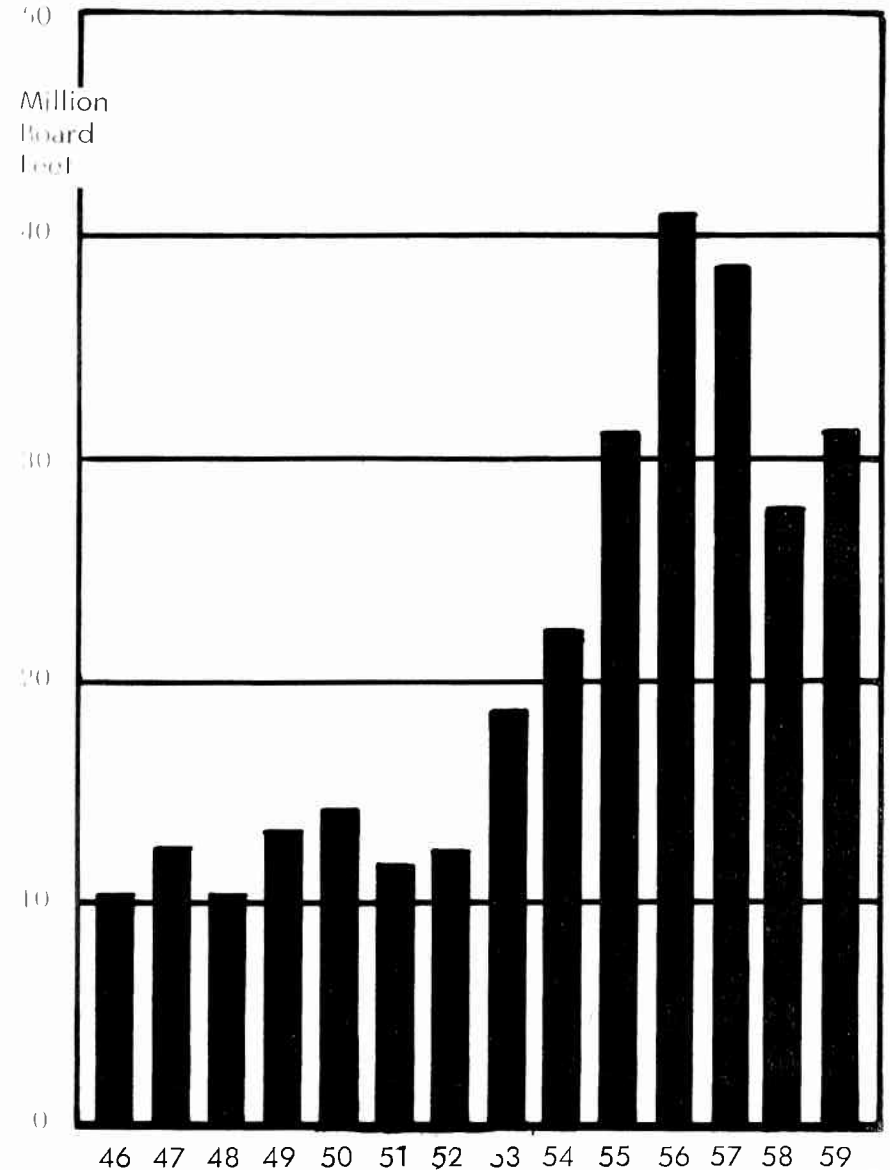


Figure 11
HARVEST OF SAWTIMBER FROM COMMERCIAL FORESTS
CARBON COUNTY, WYOMING
1946-1959



Source: Supervisor, Medicine Bow National Forest
 Wyoming State Forester
 U. S. Bureau of Land Management

Using a two percent annual cut as the basis for determining allowable annual harvest, it would appear that forests of the county should be able to support an industry taking 46.8 million board feet per year. As may be seen by reference to Figure 11 the annual cut in some post-war years has approached this figure. This is particularly true of recent years.

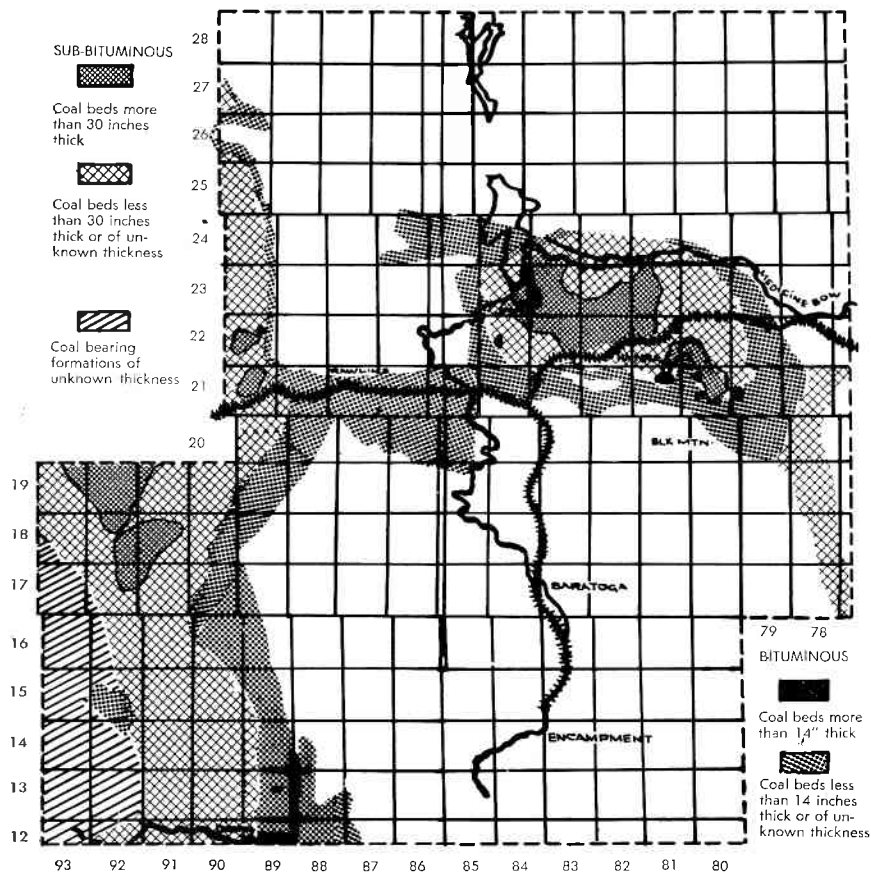
Coal

The United States Geological Survey has estimated that there were 4,943,520,000 tons of coal in original reserves of Carbon County. (See Table XL in appendix). Bituminous coal reserves amount to 100,240,000

tons and sub-bituminous 4,843,280,000 tons. In the category with less than 1000 feet of over burden there were 3,150,050,000 tons of sub-bituminous coal 30 inches or more in thickness and 2,439,930,000 with seams 5 feet or more thick. In this same category there were 65,650,000 tons of bituminous coal in beds 14 inches or more in thickness and 57,810,000 tons in seams 28 inches or more thick.

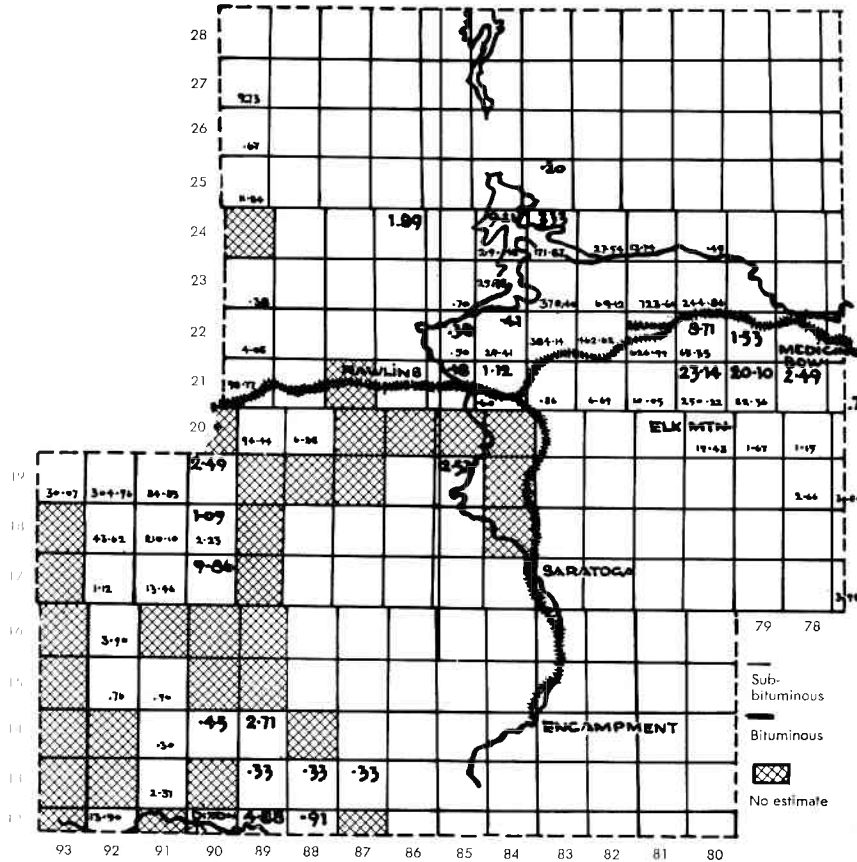
During the 50 years of active coal mining in the county (1912-1961) a total of 31,138,760 tons has been mined, all of which came from the category under 1000 feet of overburden. If we assume that one-half of the coal will be left in the mining process we can determine how much reserve should be left. There were original reserves of 1,219,965,000 tons of available sub-bituminous coal in seams 5 feet or more in thick-

Figure 12
COAL-BEARING AREAS
CARBON COUNTY, WYOMING
1950



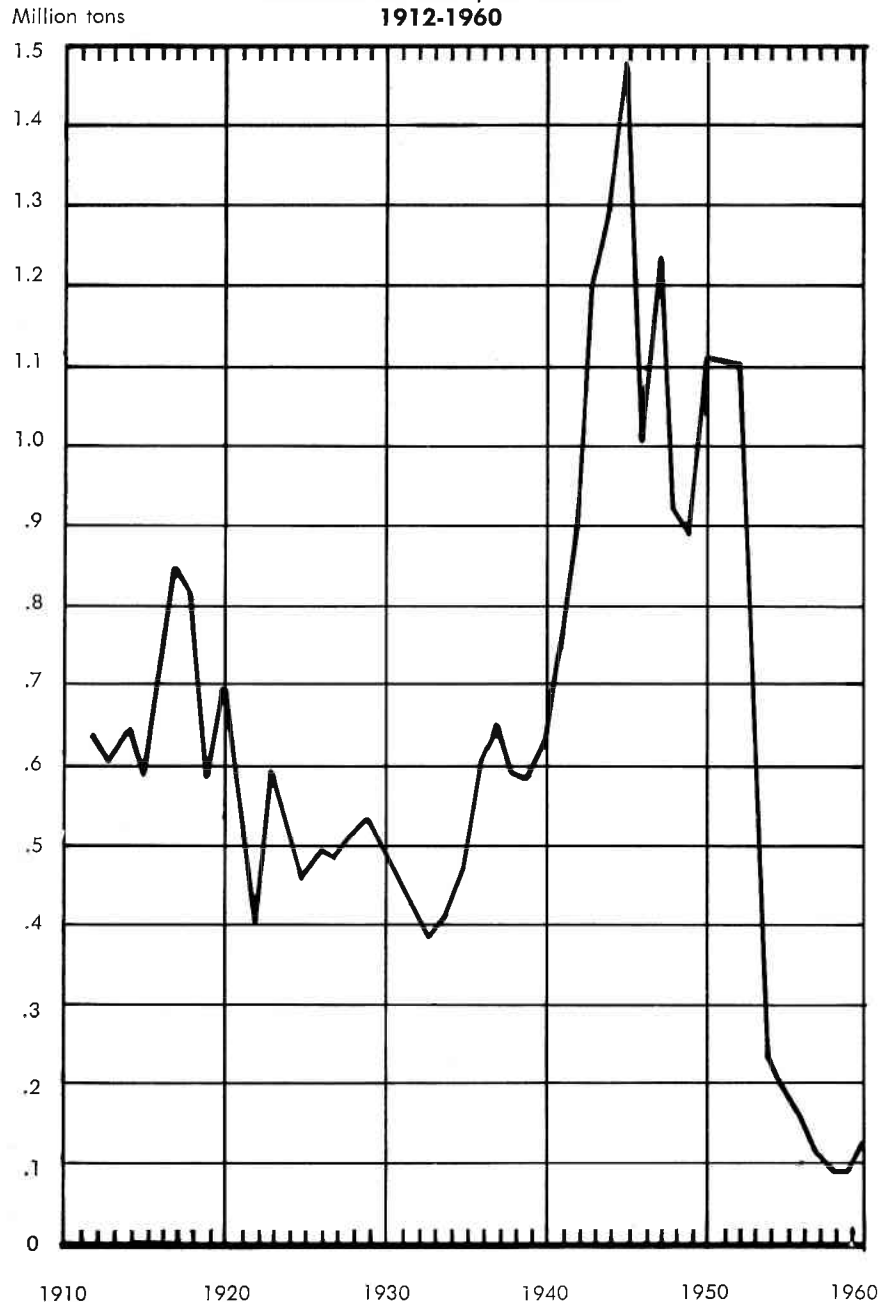
Source: U. S. Geological Survey Circular 81

Figure 13
COAL RESERVES
CARBON COUNTY, WYOMING
1950
(In Millions of Tons Per Township)



Source: U. S. Geological Survey Circular 81.

Figure 14
COAL PRODUCTION
CARBON COUNTY, WYOMING
1912-1960



Source: State Mine Inspector's Report

ness, having 1000 feet or less of overburden. There were also 28,905,000 tons of available bituminous coal 28 inches or more in thickness in this category. This makes a total of 1,248,870,000 tons from which the mined coal should be subtracted. The final reserve figure would still be 1,217,731,000 tons approximately.

During the year of greatest production (1945) there were about 1.5 million tons of coal mined. If we assume that future mining might be at this rate, there are readily available reserves of minable coal in Carbon County to last for 812 years. Thus, by taking only the most easily available coal, reserves are sufficient to fulfill any foreseeable need.

Petroleum

The first producing oil well was brought in at the Rock River field in 1918. The first million barrel year for the county was 1920. After a slight increase, oil production then tapered off until 1936, when the present growth pattern was begun. Carbon County entered the three million barrel ranks in 1941 and held there for four years, dropped quite drastically in production in 1945, 1946, and 1947, then regained the three million mark in 1948. In 1950, production dropped below three million barrels again but regained that status in 1954 and has held it since. (See Figure 15)

Natural gas production received heavy emphasis in the 1920's with production consistently above 12 million cubic feet and has declined in importance since then.

As of 1959 there were 28 fields in the county which were producing or had produced in the past. Some of these have been abandoned. In addition, there are other fields where oil or gas indications have been found, but where no production is recorded. (See Figure 16.)

Allen Lake field is one of the early producers which is now abandoned. It was discovered in 1918, but was shut in until 1933 when gas was taken from it. Production fluctuated widely with a high point at three quarters of a million cubic feet in 1936 and a low point of fifteen hundred in its last year of 1944.

Allen Lake East started producing in 1944 with gas production which reached 590 million cubic feet the next year and played out in 1948. This field has been a consistent but small oil producer since 1949.

The South Baggs field is a small gas producer discovered in 1954.

Bailey Dome also began as a gas producer which faded fast. It was discovered in 1944, had a production of 635 million cubic feet that year, then dropped rapidly to 12 thousand cubic feet in 1952. Oil production began in 1945 with 103 thousand barrels and after considerable fluctuation, settled at about 30 thousand in recent years.

Bell Springs was a small gas field discovered in 1924, capped until 1944, whence it produced mostly under one hundred million cubic feet annually until abandoned in 1953.

Figure 15

PETROLEUM PRODUCTION
CARBON COUNTY, WYOMING

1920-1960

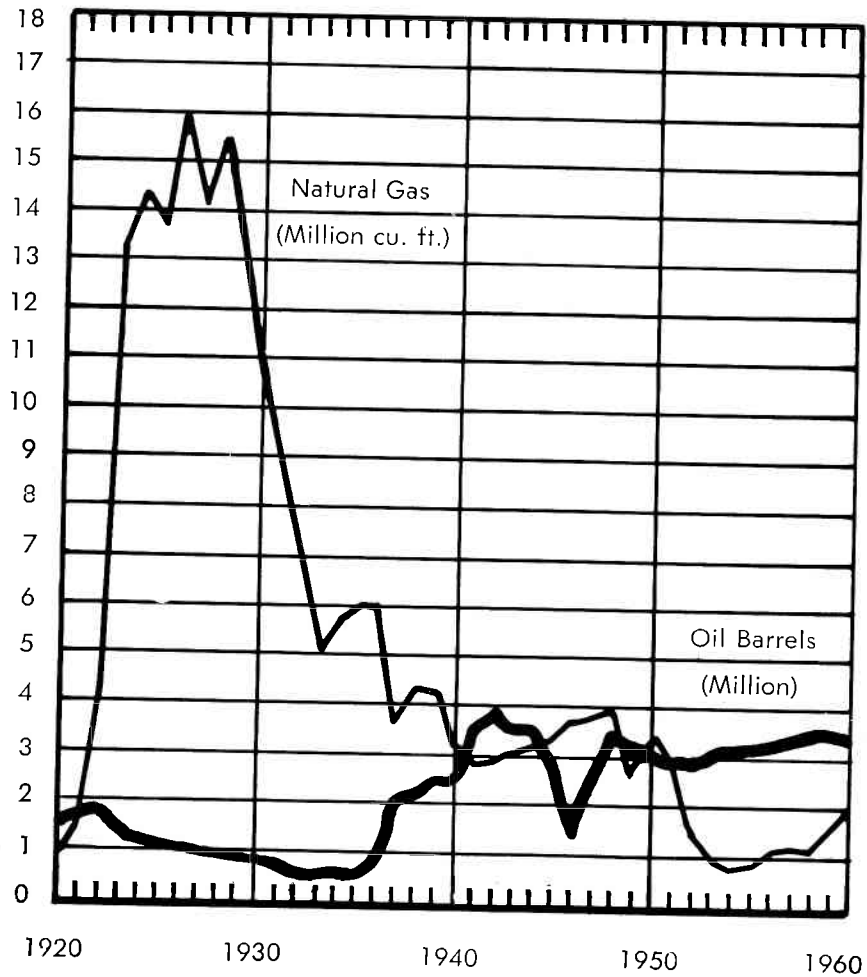
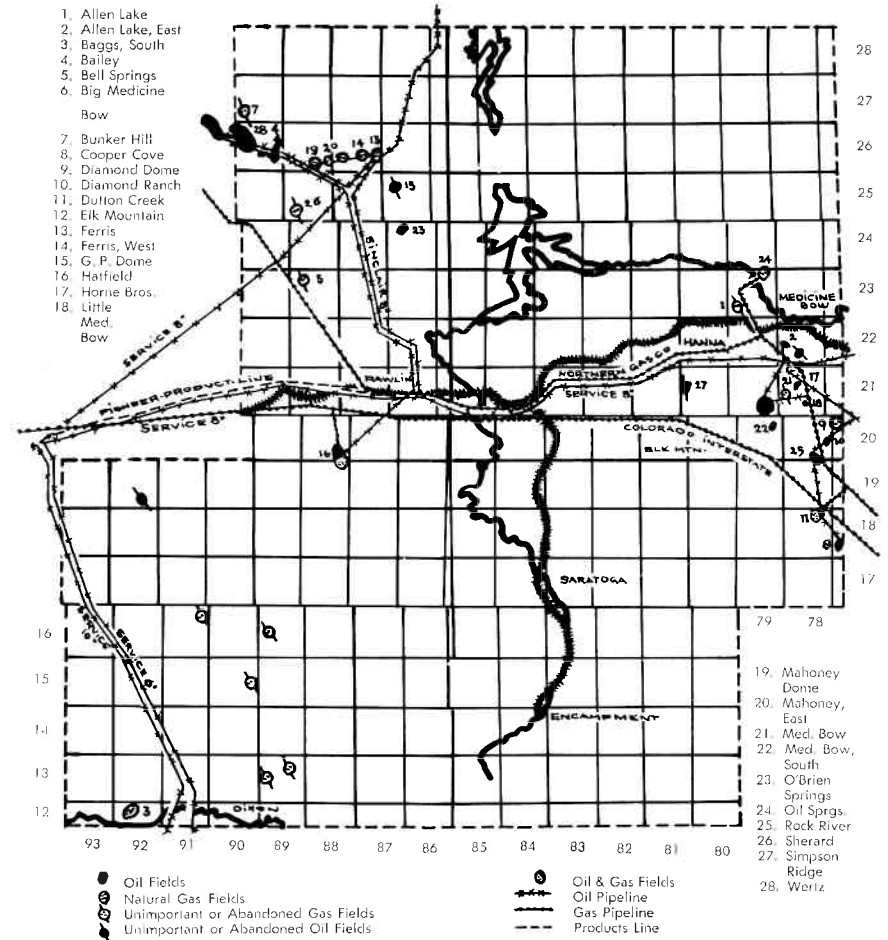


Figure 16

OIL AND GAS FIELDS
CARBON COUNTY, WYOMING

1959



Source: Rocky Mountain Oil Reporter, May 1960.

Big Medicine Bow was discovered as an oil field in 1935. In 1935 production went over one million barrels which it held for 1936 then it quickly declined to about the two hundred thousand barrel level, which it has held since. This field has also produced natural gas at various times.

Bunker Hill is another small gas field which was eventually abandoned. It was discovered in 1937, reached its peak production of nearly a half billion cubic feet in 1947 and was down to 54 million by 1953 when production was stopped.

Cooper Cove was discovered as an oil field in 1944 and has been a consistent small producer since that time.

Diamond Dome is a small gas field which was discovered in 1953. Production is around two hundred million cubic feet annually.

Diamond Ranch field came in as an oil producing field in 1957 and produces about one hundred thousand barrels each year.

Dutton Creek was discovered in 1927 and operated as a small producer of both oil and gas for 25 years. Nothing has been produced there since 1952. However, it has not been abandoned.

Elk Mountain is a small oil field discovered in 1957 which has not yet reached the 100 thousand barrel mark.

Ferris is another abandoned gas field. It was discovered in 1919 and produced between one half and one billion cubic feet of gas annually for eight years. Production declined drastically after that and ceased with very low production in 1937. This field also produced a small amount of oil (usually about 10,000 barrels) each year of its life. The last oil was produced in 1939.

West Ferris field was one of the three largest gas producers in the county for the first fifteen years after its discovery in 1922. During that period, annual production was over three billion cubic feet for four years, over two billion one year and over one billion for five years. Production dropped drastically during 1937 and continued downward until 1954 when production in the field ceased.

G. P. Dome was a very small oil field discovered in 1919 which produced less than ten thousand barrels per year for most years until it was abandoned in 1945.

Hatfield Dome also began as a large gas producer, producing over one billion cubic feet in 1924 and 1925. It soon dropped down to a level where most years, production runs below one hundred million cubic feet. This field began producing oil in 1947 and has been a small but consistent producer since then.

Horne Brothers field is a small producer of oil which was discovered in 1951.

Little Medicine Bow field is also a small oil producer, discovered in 1953.

Mahoney Dome was discovered as a gas field in 1922. Production for that year was nearly two billion cubic feet. For the next eleven years production ranged from a high of seven to a low of one billion cubic feet. This was one of the three fields responsible for the high gas production of the 1920's and early thirties. Gas production has been going down quite consistently since 1934 and in 1959 was down to seventeen million cubic feet. Mahoney Dome is also a fairly consistent oil producing field with production around 100 thousand barrels for most years.

Mahoney Dome East was a small oil producer from 1940 to 1947.

Medicine Bow field was discovered in 1935. It produced no oil. Gas production went from two hundred million in 1936 to nearly a billion in 1937, over three billion in 1938 and 1939, back to one billion in 1940 and rapidly diminished after that. It was abandoned in 1949.

South Medicine Bow is a new field discovered in 1954 which has been a small oil producer and produced 100 million cubic feet of gas in 1959.

O'Brien Springs is a new small producer of gas and oil which was discovered in 1958.

Quite in contrast to its name, the Oil Springs field has never produced any oil. It was discovered as a gas field in 1938 and has been a fairly strong producer of natural gas since that time. In 1959 it was the largest gas producer in the county, although production was less than one billion cubic feet.

Rock River field is the oldest oil and gas field in Carbon County. It was discovered in 1918. From 1920 to 1926 production was over one million barrels annually. Since then production has fluctuated between four hundred thousand and one million barrels each year. Natural gas production also started high at nearly one billion cubic feet. It has fluctuated considerably during the past thirty years but during most years has been over one half billion.

Sherard Dome and Simpson Ridge were both producers over a considerable span of years, but were never very large fields. Both have now been abandoned. Sherard produced gas only and Simpson was an oil field with no gas.

Wertz field began as the county's large producer of gas and ended up as its largest producer of oil. It was discovered in 1920. By 1923 gas production was up to five billion cubic feet annually, which it held for three years. For the next eleven years production ranged from 2.5 to nearly 5.0 billion cubic feet. In 1937 it dipped to one billion and in 1938 to less than four hundred million. After 1941 it stayed below one hundred million and presently Wertz produces very little natural gas.

Oil production began in the Wertz field on a small scale at the time it was discovered. There were, however, twelve years during which no oil was produced at all. Starting with the reduced gas production in 1937, oil began to be important. Production climbed swiftly to the two million barrel mark. It has stayed at or near that since that time, ex-

cept for a drastic curtailment in the immediate post-war year of 1916. Production in 1959 was 2.2 million barrels.

As the above discussion indicates, Carbon County has never been a major crude petroleum producer. However, the production and refining of petroleum is the county's largest industry as we shall see later.

In addition to the oil and gas fields that have been abandoned, there are numerous places where oil or gas "shows" have been encountered, but where no production is yet recorded. Some of these are shut-in and others need more development. These fields are also indicated in Figure 16.

Associated Minerals

This group consists of minerals commonly found associated in this county. There have been activities in the mining of copper, gold, and iron ore in past years. Activity at the present time is limited. For the most part deposits of iron ore large enough to be exploited as well as most of the free gold are to be found in the northern section of the county.

Copper ores and minerals associated with copper are concentrated quite heavily immediately to the west of Encampment. It was this area that was, for a few years, important in copper production. Between 1899 and 1908 production of copper in the state amounted to 23,564,297 pounds,¹ most of which came from this area. In 1957, there were 21 tons produced from these mines. A small amount of lead, gold, silver, and zinc have been produced in past years.

In Table VI the various prospects are identified from location numbers shown in Figure 17.

MISCELLANEOUS MINERALS

Bentonite

Just west of Medicine Bow there is an eight foot bed of bentonite that was once mined. Three foot beds are to be found also in Township 18 N Range 87 W in Sage Basin. Thin seams of bentonite are also found

¹ Wyoming Geological Survey, Circular 50, p. 34.

in various places in the county viz near Elk Mountain, in the Ferris Mountains, and in the Shirley Basin Area.

Table VI
ASSOCIATED MINERALS
CARBON COUNTY, WYOMING
ORES OF COPPER (Cu), GOLD (Au), IRON (Fe), LEAD (Pb), SILVER (Ag), ZINC (Zn)

No.	Prospect Name	Kind of Ore	Location	Description of Ore Body
1.	Albion	Au, Ag, Pb	S27 & 34, T18N, R78W	A body of white quartz and cerussite, 5 to 9 feet wide.
2.	Alma	Cu, Pb	S35, T15N, R86W	A quartz vein 18 inches thick, containing galena, chalcocite, pyrite, and siderite.
3.	Batchelder Mine	Cu	S18, T14N, R86W	Copper sulfides in a quartz vein, varying in width from very narrow to 10 ft.
4.	Beulah	Cu	S20, T14N, R85W	Malachite stained quartzite and "alter-eddiorite" containing iron and copper sulfides.
5.	Big Chief Group	Cu	S18, T14N, R85W	Quartz veins stained by copper carbonates.
6.	Big Creek Mine	Cu, Au	S13 & 24, T14N, R86W T13N, R81W	Apegmatite vein containing chalcocite, bornite, chalcocopyrite and azurite.
7.	Bonita	Cu, Au	S25 & 26, T15N, R85W	Quartz vein, 2 to 8 inches thick, containing limonite, hematite, malachite, and gold.
8.	Bridger Mine	Cu, Au, Pb	T17N, R88W	Quartz veins containing sulfide minerals: galena, chalcocite, tellurium, and selenium.
9.	Broadway	Zn, Pb, Cu	S7, T13N, R83W	Sphalerite associated with galena, chalcocopyrite, chalcocite and covellite, bornite.
10.	Cascade Mine	Cu	S12, T13N, R84W	Copper sulfides in and near a large pegmatite.
11.	Century Group	Cu	S32 & 33f, T13N, R85W	Horn blende schist and diorite containing hematite, bornite, and chalcocopyrite. Also a gossan containing copper carbonates, limonite and hematite.
12.	Charter Oak	Cu	S24, T15N, R85W	Quartz vein containing chalcocopyrite, chalcocite, bornite, azurite, hematite, and limonite.
13.	Cherry Creek	Cu	S26, T27N, R88W	Quartz vein 6 to 18 inches wide containing malachite, scheelite, chalcocopyrite, and allanite.
14.	Colorado Belle	Cu	S26, T14N, R84W	Fault fissure containing copper minerals.
15.	Continental	Cu	S18, T14N, R85W	Quartz veins containing copper carbonate and limonite.

Table VI—Continued

No.	Prospect Name	Kind of Ore	Location	Description of Ore Body
16.	Cooper Hill	Cu, Pb, Au	S 27 & 34, T18N, R78W	Dike of sujar quartz containing gold. Float is rich in gold, lead and silver ores.
17.	Copper Gem	Cu, Au	S31, T14N, R83W	Quartz vein containing chalcocite and chalcopyrite. Schists, slates, and quartzites containing limonite, hematite, and copper sulfides.
18.	Copper Rock	Cu	S27 & 28, T14N, R85W	Graphite schist containing sulfides.
19.	Cox Mine	Cu	Near Encampment	2.3% to 74.5% copper plus a little silver and gold.
20.	Creede	Cu, Fe	S6 & 10, T14N, R87W	Intrusive norite with coarse grained horn blende schist, localized magnetite and pyrrhotite-bearing copper, nickel and cobalt with lesser chalcopyrite.
21.	Cumberland Group	Cu, Au, Ag	S26, T18N, R82W	A 15 foot quartz vein containing chalcocite, gold and silver.
22.	Dand L Group	Cu, Fe	S27 & 28, T14N, R85W	Small pockets of chalcocite and considerable hematite lie beneath a gossan.
23.	Deserted Treasure Mine	Au, Fe	T25N, R85W	Free-milling gold quartz containing gold bearing chalcopyrite and pyrite.
24.	Doane-Rambler Mine	Cu	S24, T14N, R86W S30, T14N, R85W	Fracture planes with bedding in quartzite having localized chalcopyrite, bornite, chalcocite and covellite.
25.	Dreamland King	Cu, Au	S1 & 2, T14N, R86W	Quartz vein containing limonite, malachite, and azurite. There is also some pyrite containing gold.
26.	Elk Mountain Mining and Milling	Cu, Au, Ag	S22, 23 & 28, T19N, R82W	Vein consists of up to 2 feet of limestone breccia, the iron, copper oxides and copper carbonate are disseminated through it, though some copper minerals are found in the adjacent limestone.
27.	Ferris Haggarty Mine	Cu	S16, T14N, R86W	Bunches and streaks of gold and silver bearing chalcocite vary from mere specks to masses weighting several hundred pounds.

Table VI—Continued

No.	Prospect Name	Kind of Ore	Location	Description of Ore Body
28.	Ferris Mountains	Pb, Ag	S2, T26N, R86W S35, T27N, R86W	Vein contains small quantities of silver bearing galena, is 2 to 4 feet wide and dips 80°W.
29.	Fox Group	Cu, Au, Ag	(See Cooper Hill)	Ore contains black sulfides.
30.	Gertrude Mine	Cu, Fe	S30, T14N, R85W	Quartz vein contains much hematite and stains of copper minerals.
31.	Gibraltar Copper Mining Company	Cu	S6, T12N, R81W	Vein showed limonite and hematite with malachite, azurite and native copper.
32.	Gold Coin	Cu, Au, Pb, Fe	S11, T15N, R87W	Quartz and calcite vein containing galena, pyrite, chalcopyrite, silver and gold.
33.	Hamilton Group	Cu	S36, T14N, R80W	A huge ledge of altered diorite 2 miles long contains limonite, malachite, and azurite stained quartz
34.	Hidden Treasure Tunnel	Cu	S28, T14N, R85W	Vein contains mostly chalcopyrite, chalcocite, malachite and some hematite.
35.	Hinton Mine	Cu, Fe	S32, T13N, R85W	Silicate minerals interlocked with chalcopyrite and magnetite.
36.	Independence Group	Cu, Au, Fe, Ag	S11, 12, 13, 14, T12N, R86W	Quartz vein between diorite and schist containing limonite, gold and silver.
37.	Iron King	Cu, Fe	S15, T14N, R85W	Diorite footwall contains pyrite and chalcopyrite.
38.	Island City Group	Cu, Fe	S3 & 10, T14N, R86W	Quartz vein 15 feet wide contains copper and iron oxide minerals at surface and sulfides at depth.
39.	Imray Mine	Cu, Au	S14, T13N, R85W	At 60 foot depth strong showing of pyrrhotite, with limonite and copper carbonate stains and some copper sulfides.
40.	Kearns	Fe	S23, T14N, R85W	Chalcopyrite and sulfides.
41.	King Mine	Au	T25N, R85W	Siliceous hematite.
42.	King of the Camp	Cu, Au	S36, T14N, R83W	A gold quartz vein containing some chalcopyrite and pyrite.
43.	Kurtze-Chatterton Mine	Cu	S1, T14N, R85W	Quartz vein stained with iron oxides and containing pyrite, chalcopyrite, with traces of azurite, malachite, and gold.

Table VI—Continued

No.	Prospect Name	Kind of Ore	Location	Description of Ore Body
44.	Leighton-Gentry	Cu	S5, T14N, R86W	Pyrite, pyrrhotite and chalcopyrite along bedding planes and disseminated through quartzite copper.
45.	Lena Shields	Cu, Fe	S12, T14N, R86W	Quartz vein containing limonite, azurite, malachite and pyrite.
46.	Lorain Group	Fe	S11 & 12, T15N, R80W	Pyrrhotite and limonite.
47.	Meta Mine	Pb, Zn, Au, Ag	S24, T15N, R86W	Six or seven carloads of ore yielded 27 to 54% lead, 8% zinc and \$20.00 to \$30.00 of gold and silver per ton.
48.	Mohawk	Cu	S20 & 35, T14N, R85W	Brown iron-stained, siliceous, and limy material occasionally contains malachite.
49.	Monarch	Fe	S32 & 33, T14N, R85W	Pyrrhotite weathered to hematite and limonite at the surface.
50.	Newton Group	Pb, Ag	S 13 & 14, T14N, R84W S 18 & 19, T14N, R84W	A 140 foot shaft follows a quartz vein containing much limonite, hematite, cuprite, malachite, azurite, and chrysocolla near the surface. A depth chalcopyrite, bornite and chalcocite were found.
51.	"No Name"	Pb, Ag	S5, T12N, R83W	Lead ore containing silver.
52.	North Fork	Cu, Au, Fe, Pb, Ag	S13, T12N, R86W	Near the surface limonite, malachite, and azurite were associated with quartz; the vein contained pyrite and chalcopyrite at depth. Another vein up to 23 feet wide contained mostly pyrite and chalcopyrite with a little galena, containing 600 oz. of silver per ton.
53.	Octavia	Cu	S28, T14N, R86W	Quartz containing isolated bunches of calcite crystals, pyrite, chalcopyrite, limonite, hematite, and malachite.
54.	Pease Placers	Au, Ag	S11, 12, 13, & 14, T12N, R86W	Gold and silver have been washed from the gravels.
55.	Portland and Hercules Mines	Cu	S29, T14N, R85W	Some rich chalcocite was found near the surface and at depth a small amount of scattered chalcopyrite.
56.	Raven Group	Cu	S15, 21 & 22, T14N, R80W	A belt of siliceous material 2 miles long and 30 to 70 feet wide contains specks of copper minerals.
57.	Rawlins	Fe	S31, T21N, R87W S4, 5, 8, & 9, T22N, R87W	Hematite in sandstone, analysis FeO ₂ = 64.94%, SiO ₂ = 3.16%. Inferred reserves 1,000,000 tons. 100,000 tons produced before 1890.

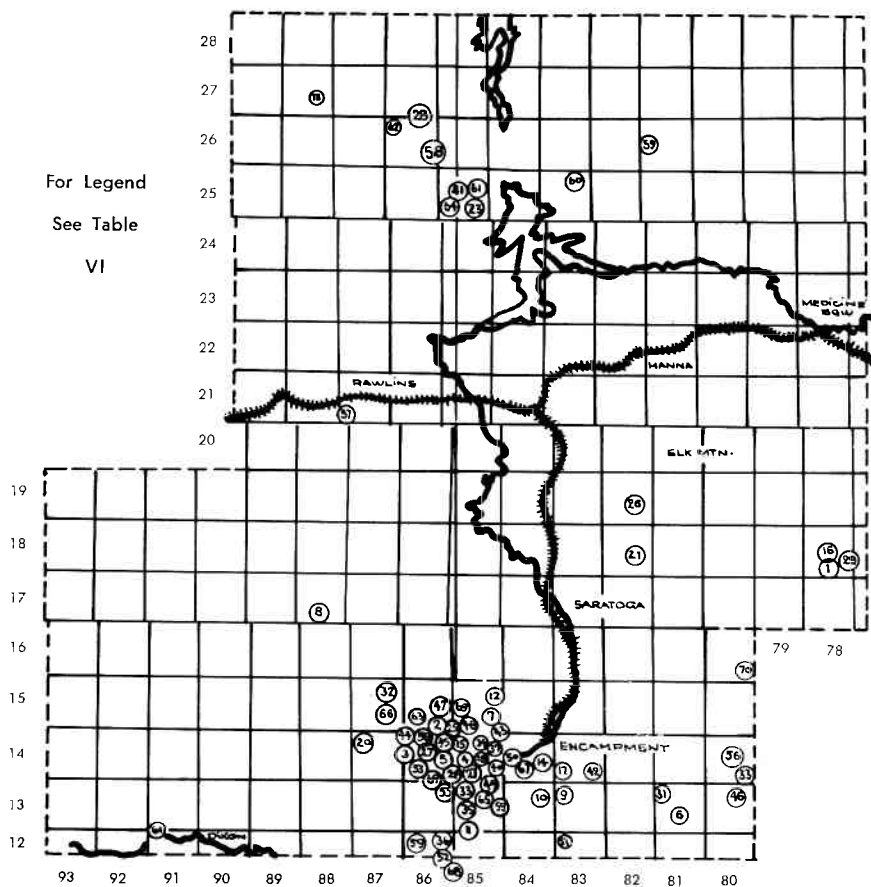
Table VI—Continued

No.	Prospect Name	Kind of Ore	Location	Description of Ore Body
58.	Seminole Mountains	Fe	S1, 12, & 13, T25N, R86W S7 & 18, T25N, R85W	Iron formation 300 feet thick, inferred reserves over 1,000,000 tons of soft hematite varying from "pure blue ore" to more impure types. Iron content varies from 28 to 68 percent, phosphorus .05 to .25 per cent, silica 0.91 to 53.91 per cent.
59.	Shirley District	Fe, Au	S18, T26N, R81W	Central seam 1 to 2 feet wide of pure hard blue hematite.
60.	Shirley Mountains	Au	S3, T25N, R83W	Quartz veins.
61.	Snake River	Au	S5, 6, & 7, T12N, R91W S12 & 13, T12N, R92W	Gravels from 2 to 20 feet thick contain some placer gold.
62.	Spanish Trails Group	Pb, Au, Fe, Ag	S5 & 6, T26N, R86W	Galena associated with pyrite, chalcopyrite, limonite, and traces of azurite and malachite in a gangue of quartz with lesser epidote and actinolite.
63.	Spring Creek	Au	S4, T14N, R86W	Highest values in a gouge streak lying between a quartz vein and a hanging wall.
64.	Star and Hope Mines	Au	T25N, R85W	Vein of free-milling ore 4½ feet thick.
65.	Sun Anchor and Sweet	Cu	S2, T13N, R85W	Zone contains epidote with small bright red garnets, with some magnetite and chalcopyrite.
66.	Syndicate	Cu	S26, T15N, R87W	Calcite vein containing chalcocite.
67.	Tennant	Cu, Au, Pb, Ag	S22, T14N, R84W	Fissure vein 6 feet wide contains copper and a small amount of gold.
68.	Three Forks	Cu, Au, Pb, Ag	S11, 12, 13, & 14, T12N, R86W	Smoky quartz veins contain copper minerals, lead, zinc, gold, and silver.
69.	Umslopagus Group	Cu	S19 & 30, T14N, R85W	Malachite and azurite associated with limonite.
70.	Waterloo	Cu, Au	Southeast, T17N, R80W	Quartz vein in mica schist contains limonite stains, copper carbonate stains and small "bunches" of sulfides plus gold.

Source: Osterwald, Osterwald, Long and Wilson, Mineral Resources of Wyoming.
See particularly the sections relating to the various ore types.

Figure 17

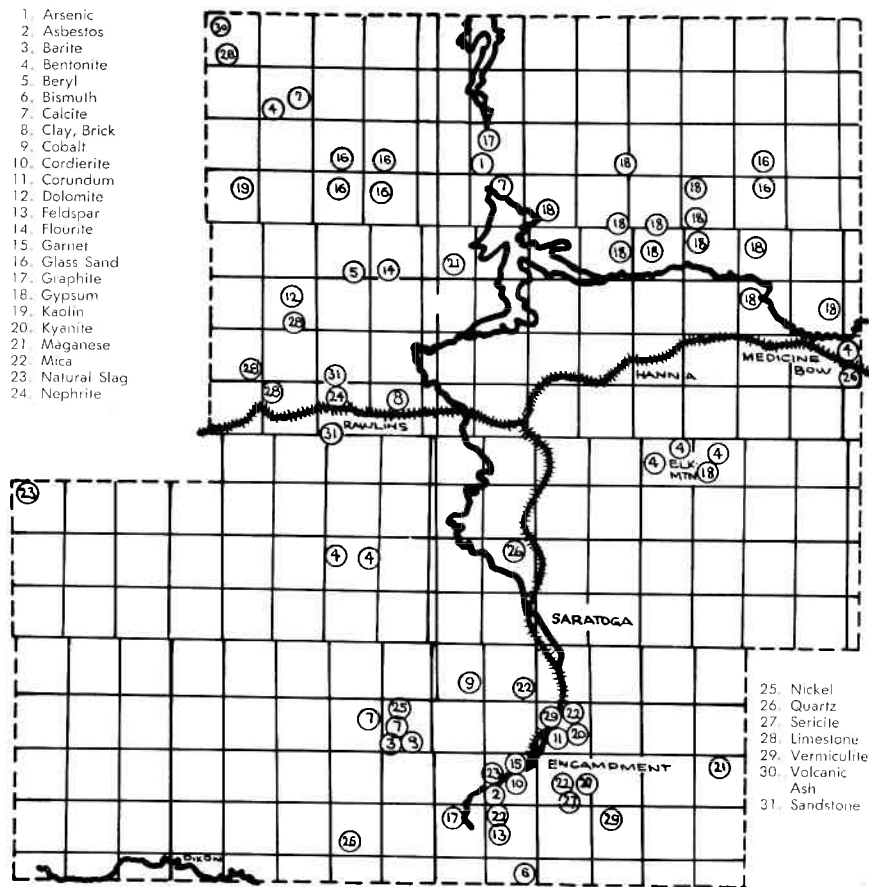
ASSOCIATED MINERALS
CARBON COUNTY, WYOMING
(Ores of Copper, Gold, Iron, Lead, Silver, and Zinc)
1958



Source: Wyoming Geological Survey, Bulletin Number 50.

Figure 18

MISCELLANEOUS MINERALS
CARBON COUNTY, WYOMING
1958



Source: Wyoming Geological Survey, Bulletin 50.

Calcite

An eleven foot bed of almost pure cream-colored finely crystalline, massive, calcite has been found in Section 29, Township 27 N. Range 88 W. This mineral has also been found in several other places in the county.

Cobalt

A prospect near the continental divide at the head of Jack Creek in the Sierra Madre Range, produced ore assaying 0.67 per cent cobalt. Other shows have been found in the same general area.

Feldspar

An outcrop of feldspar, 1600 feet long and 100 feet wide, has been found near Encampment in Section 1, Township 13 N. Range 84 W.

Garnet

Large perfect garnet crystals were found in Section 14, Township 14 N. Range 84 W. near Encampment. Analysis: $\text{SiO}_2=38.94\%$, Fe_2O_3 $\text{Al}_2\text{O}_3=52.43\%$, $\text{CaO}=1.76\%$, $\text{MgO}=5.27\%$, loss on ignition= 1.61% .

Glass Sand

Dune sands occur on the eastern end of the Ferris Mountains in Townships 25 and 26 N. Ranges 86 and 87 W. They contain 99.79% quartz and 0.21% iron minerals. A washing operation would reduce iron content to 0.04%.

Gypsum

There are a number of rather extensive gypsum beds in Carbon County. Probably the best of these occur in the basin between the Freeze-out Hills and the Shirley Mountains at the north end of the county. Other deposits occur just north of Medicine Bow, south of Freeze-out Mountain, near Elk Mountain, and in the Freeze-out Hills.

Kyanite

There are possible reserves of 25,000 tons of Kyanite in Carbon County. Deposits are located near Encampment in Section 20, Township 14 N. Range 83 W. about five miles east of the railroad. In one spot the rock contains from 13 to 68 per cent Kyanite by volume as white to very pale blue, coarse-textured, flat-bladed crystals, associated with a brown mica and vermiculite. A high rate of recovery may be possible by screening, crushing, and tubing.

Natural Slag

In Township 20 N. Range 94 W. are large quantities of clinker beds formed from the burning of coal beds near their outcrops.

Saline Deposits

Saline deposits are found in Carbon County in a number of playa* lakes. The most important has been Bull Lake north of Rawlins from which sodium sulfate has been produced almost continuously since 1928. This lake contains a bed of almost pure mirabilite ranging from 2.5 to 26.0 feet in thickness.

Other lakes in the county contain sodium sulfate, sodium carbonate, magnesium sulfate and sodium chloride.

Limestone

Limestone has been quarried for use as flux and building stone near Rawlins. There are at least ten million tons of rock, containing 98 to 99 per cent CaCO_3 and less than one per cent SiO_2 .

Sandstone

Sandstone quarries are located both to the north and to the south of Rawlins. The deposit to the north contains a pink uniform cambrian quartzite. That to the south contains a stone that is a light gray uniform color, is soft when excavated, but hardens on exposure and can be quarried in blocks of any size. This stone crushes at 10,000 pounds. It is easily worked as it will break as well across the bedding planes as with them.

The state penitentiary at Rawlins and the Federal building at Ogden, Utah are built of Rawlins sandstone. It has been shipped west as far as San Francisco and east to Kearney, Nebraska.

Vermiculite

Vermiculite was produced from 1938 to 1944 along the Encampment River in Townships 13 and 15 N. Ranges 82 and 83 W. Production amounted to 2,076 tons. There are no operations at present.

Other Minerals

There have also been reported occurrences of other minerals in the county. They include arsenic, asbestos, barite, beryl, bismuth, brick clay, cordierite, corundum, dolomite, flourite, graphite, kaolin, manganese, mica, nephrite (jade), nickel, quartz, and volcanic ash.

*Playa lakes have water in them only part of the year.

CHAPTER IV

Population, Labor Force, and Housing

The population of Carbon County was 14,937 in April, 1960, representing a decline of 5.1 percent from the 1950 population.

A number of things contributed to the decline including mechanization of agriculture and industry, decline of the coal mining industry, and the fact that an exceptionally high increase in population had occurred between 1940 and 1950. These fluctuations indicate that there is considerable mobility in the population of the county. Further evidence is to be found in the fact that 25 per cent of the 1960 residents had moved into Carbon County since 1955.

Much of the mobility seems to be in single men. In all age brackets over 19, men outnumbered the women by a considerable margin in 1950 and the proportions have come much closer together in 1960, indicating that the men were the ones who moved. Women over 45 have increased in numbers during the last decade.

Carbon County now has a larger proportion of very young and middle-aged people than the nation as a whole and is lower on proportion of persons 15 to 34 and over 65.

Carbon County people are well educated compared to national standards and are only slightly below average for the state. This is reflected in the occupations they follow and in incomes. The latter reflects very favorably when compared to other counties in Wyoming.

Most houses in the county are sound and have all plumbing facilities.

Rents in the county are moderately low as are values of owner occupied houses.

Trends

The population of Carbon County has only recently decreased. During the period from 1920 to 1930 there was an increase of 19.6 percent compared to the 16 percent increases shown for the state and nation. From 1930 to 1940 an eleven percent increase occurred. This was about the same as the state and considerably above the nation.

The decade from 1940 to 1950 saw a phenomenal increase in this county (24.5%) which was considerably above both state and national growth. (Table VII). This indicates that a boom condition existed in 1950 which could not be held. Viewed in this light the decrease in 1960 of 5.1 percent is not so alarming. In later discussion of the labor force

it is seen that such a boom did exist in certain lines of employment. Furthermore, it apparently attracted a number of unattached males many of whom have since left the area.

Part of the 1950-1960 decrease resulted from increased mechanization in agriculture—a nationwide trend which has resulted in smaller rural-farm population. It is also noticeable that some of the smaller towns that are dependent on agriculture lost population recently.

Largest population losses occurred in the coal towns of Elmo and Hanna, however, as a direct result of the loss of the railroad coal market. The oil refinery town of Sinclair also lost population due to increased mechanization of the refinery.

Table VII also contains some interesting information concerning population concentration.

There are less than two people per square mile in Carbon County compared to over three for the state and 60 for the nation. This would indicate that people live long distances apart in this county. Actually, most of the people live quite close to one another. Wyoming is not a rural state in the sense of large numbers of people living on farms and ranches, since over 70 per cent of the people live in towns. Carbon County is even less rural in that 85 per cent live in towns. The distance is between clusters of people and not between individuals.

**Table VII
POPULATION
CARBON COUNTY, STATE OF WYOMING, AND THE UNITED STATES
CENSUS YEARS 1930-1960**

	1930	1940	1950	1960
CARBON COUNTY	11,391	12,644	15,742	14,937
Per Cent Change	+19.6	+11.0	+24.5	-5.1
Number Per Square Mile	1.4	1.6	2.0	1.9
Per Cent Residing in Towns	72.7	74.1	75.3	85.3
Rawlins	4,868	5,531	7,415	8,968
Baggs	192	221	206	199
Dixon	145	94	124	108
Elk Mountain	54	107	196	190
Elmo	68	134	213	91
Hanna	1,154	1,127	1,326	625
Medicine Bow	264	338	328	392
Encampment	209	331	288	333
Riverside	34	68	50	87
Saratoga	567	810	926	1,133
Sinclair	727	604	775	621
STATE OF WYOMING				
Population	225,565	250,742	290,529	330,066
Per Cent Change	+16.0	+11.2	+15.9	+13.6
Number Per Square Mile	2.3	2.6	3.0	3.4
Per Cent Residing in Towns	51.8	57.0	62.9	70.6
UNITED STATES				
Population	122,785,046	131,669,275	150,697,361	178,463,000
Per Cent Change	16.1	7.2	14.5	18.4
Number Per Square Mile	40.6	43.6	49.9	60.0

Source: U. S. Censuses of Population, 1930, 1940, 1950, 1960.

This doesn't minimize the availability of wide-open spaces where a man can get away from his fellow man for a time.

When discussing trends, it is often the fashion to compare actual population to expected, provided all of the natural increases were retained. If this is done for Carbon County, we have the following:

1950 Population	15,742
Plus births during the decade	3,484
Minus deaths during the decade	1,388
Expected population, 1960	17,838
Actual population, 1960	14,937
Net out-migration	2,901

This, then forms the basis for considerable "weeping" concerning loss of local people. Actually, in this case, the out-migration consisted of people (largely single men) who were in-migrants during the previous decade. While out-migration is sometimes a sign of weakening in the economy, it must be considered also in terms of the base from which it occurs.

Other evidence of mobility is to be found in the U. S. Census report on residence of the 1960 population. This report shows that 75 per cent of the people had changed houses since 1950.

However, 45 percent were living in the same house in 1960 as in 1955. Thirty percent were living in a different house but in the same county. Eight percent had moved to Carbon County from elsewhere in Wyoming since 1955. Seventeen percent had moved into the county from other states or foreign countries during the five year period.

CHARACTERISTICS

Age and Sex

Both Carbon County and the state of Wyoming have a preponderance of young people in the population. In Table VIII the comparison reveals that this county has 32.7 percent of its population less than 15 years of age. This slightly less than the state-wide situation and more than is the case nationally.

Further study of the table reveals that the county is very low in the age group 15 to 24, about average in the group 25-34, considerably above the state and nation in the group 35 to 64, and slightly below in the retired group.

In 1950 there was an even larger proportion in the group of workers between 25 and 64 and less in the younger and retired group. The people living in Rawlins were not greatly different from those in the county as a whole in either year. With over half of the population, the city tends to dominate county statistics anyway. In this case there was not much difference between the urban and rural populations.

Table VIII
PERCENTAGE OF PERSONS IN SELECTED AGE GROUPS
CARBON COUNTY, STATE OF WYOMING, AND THE UNITED STATES
1960

Age Group	Carbon County	Wyoming	United States
14 and Under	32.7	33.7	29.5
15 to 24	12.2	13.4	15.2
25 to 34	13.0	13.2	13.0
35 to 64	34.4	31.8	33.7
65 and Over	7.7	7.9	8.7
	100.0	100.0	100.0

Source: U. S. Census of Population.

Table IX
PERCENTAGES OF POPULATION IN SELECTED AGE GROUPS
RAWLINS AND CARBON COUNTY, WYOMING
1950 AND 1960 CENSUS

Age Groups	Rawlins		Carbon County	
	1950	1960	1950	1960
14 and Under	28.8	34.0	28.7	32.7
15 to 24	12.5	12.8	13.1	12.2
25 to 34	17.7	13.3	16.9	13.0
35 to 64	35.4	32.7	35.5	34.4
65 and Over	5.6	7.2	5.8	7.7
Total	100.0	100.0	100.0	100.0

Source: U. S. Census of Population.

Contrary to the national situation, there is a predominance of men in the population of both Carbon County (52.2 percent) and the state of Wyoming (51.2 percent). For the county this is the lowest proportion of men for many years.

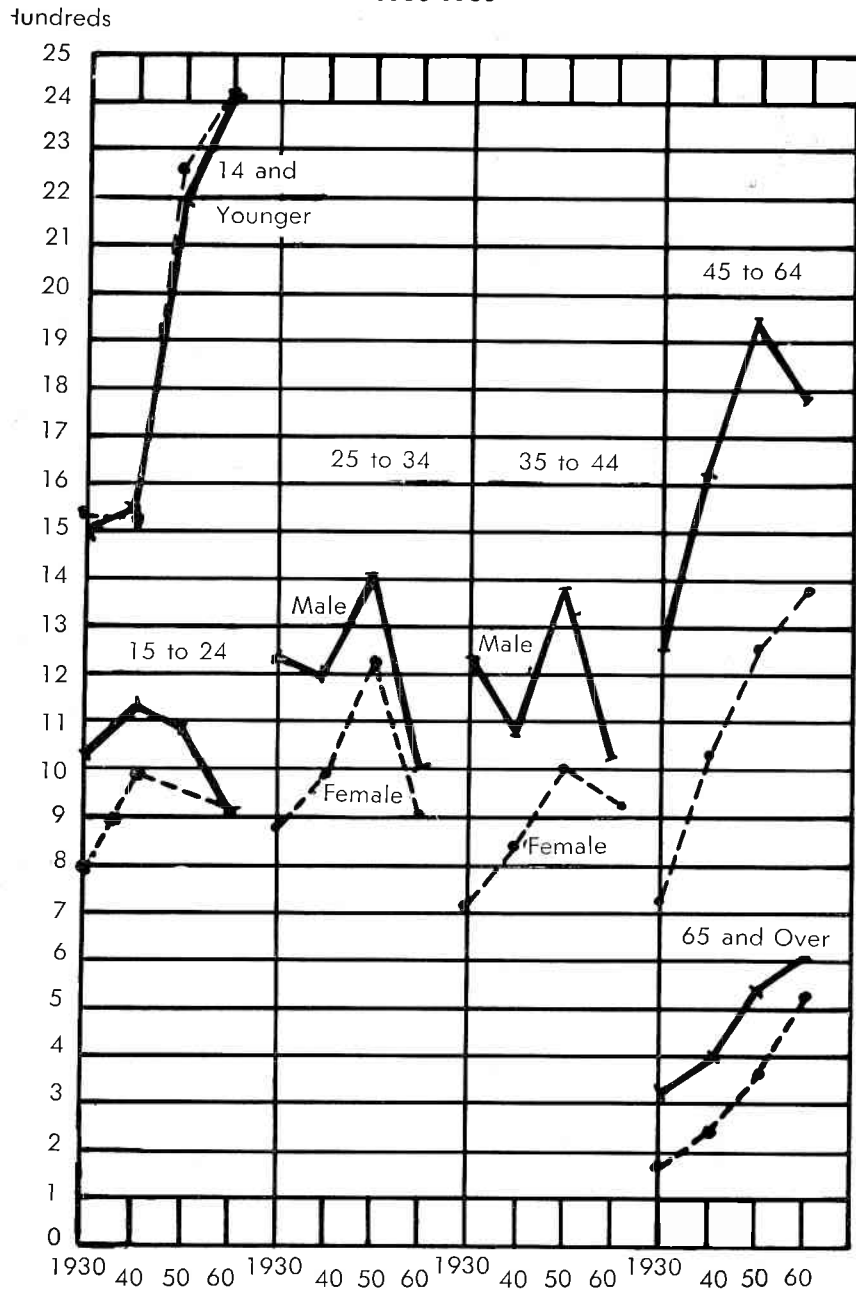
Some interesting comparisons of trend in both age and sex are shown in Figure 19. Under the age of 14 the distribution between the sexes has been fairly equal. This is to be expected both from a biological viewpoint and the fact that this group is less mobil as individuals.

After 15 years, mobility becomes possible and this is where the male population begins to dominate the female in numbers in Carbon County. In the age groups between fifteen and twenty-four (the group where Carbon County is weakest) there has been a much heavier out-migration of males than of females. Thus in 1960, for the first time, they were equally distributed.

The equality is much less pronounced in older groups, yet in 1960 the distribution of the sexes in all age groups is more nearly equal than for any time in the past thirty years.

In the age groups from 25 to 34 the migration of males was only slightly greater than for females.

Figure 19
TREND IN NUMBERS OF MEN AND WOMEN IN VARIOUS AGE GROUPS
CARBON COUNTY, WYOMING
1930-1960



Greatest mobility seems to be attained by men in the age group from 35 to 44. This is the group that moved out between 1930 and 1940, came back strongly between 1940 and 1950 and left in large numbers during the decade 1950 to 1960. The women in this group are considerably less mobil. They gained in numbers consistently for twenty years then dropped off slightly in the last ten.

In the groups from 45 to 64 years of age the women increased in numbers consistently over the thirty year period. The men had similar, but stronger, patterns for the first twenty years, then decreased in numbers during the last ten.

In the groups 65 years old and over, men still predominate in numbers; the trend is upward, but not so consistently as that of women.

What do these trends mean? First of all, they mean that Carbon County's industries tend to draw single men who come in fairly large numbers when things are good and leave as easily when they slow up. This pattern is significant in future growth of the county's economy, since knowing something of the current labor force may not be any more important than knowing the sources of this mobil force and some of its characteristics.

Secondly, there is a tendency for retired persons to stay in the county. Since there are more men than women in the age groups prior to retirement, the men are also more numerous in the retired group.

The proportion of retired persons is not large as yet. We have seen that it is still considerably under the national proportion. It's consistent growth will bear watching, however, since the impact of these older people on the economy is somewhat different from that of the younger age groups.

Education

Compared to the nation, the people of Carbon County are well educated. They do not quite come up to the average for Wyoming. Women tend to be better educated than the men—which indicates that those mobil workers indicated above may not be too highly trained.

Data in Table X indicate that while the county is lower than the state in the proportion of high school and college graduates, it is above the nation in both categories. When comparison is made with the Rocky Mountain States both this county and the state show lower proportions of college trained people.

The Labor Force

Census data and available employment data indicate that there is a considerable variation in the labor force of Carbon County from month to month. The most complete data occur in the 1960 census of population which was taken in April. That month happens to be one of the lower months of the year for hired employment. Therefore, unemployment, as reported by the census, tends to be somewhat high.

Table X
EDUCATIONAL LEVEL OF PERSONS OVER TWENTY-FIVE YEARS OLD
CARBON COUNTY, STATE OF WYOMING, THE MOUNTAIN STATES,
AND THE UNITED STATES
1960
(percentage in each group)

	Carbon County	Wyoming	Mountain States*	United States
8th Grade or less	31.1	28.9	29.3	38.0
High School:				
1-3 years	19.9	19.1	19.1	18.3
4 years	8.2	8.6	9.4	8.1
College:				
1-3 years	11.3	12.3	12.9	8.2
4 years or more	8.2	8.6	9.4	8.1
Total	100.0	100.0	100.0	100.0
Median years	11.6	12.1	12.0	10.5

*Colorado, Idaho, Montana, Utah, Wyoming
 Source: U. S. Census of Population.

The details shown in Table XI are subject to these limitations.

Data in this table indicate that there were 6,463 persons in the labor force in 1950. By 1960 this had decreased to 5,862. A closer look reveals that the number of male workers decreased by about one thousand (as was anticipated previously in this chapter), but the number of female workers increased by over four hundred. Thus, the proportion of women in the labor force went from 18 percent in the former to 27 percent in the latter year. This was a much more drastic proportionate change than was the case state-wide where it went from 21 percent to 29 percent. Again the situation in Carbon County was due to unattached men moving out rather than any unusual hiring of women.

Occupations where women picked up employment included professional (there were more men employed here also); clerical and kindred (men about held steady); sales workers (men were down); private household workers; and other service workers (men showed a moderate increase).

The big decreases in male employment came in farmers and farm managers (women steady); craftsmen, foremen, and kindred (ladies steady); operatives and kindred (women up slightly); farm laborers (women down somewhat); and other laborers (women up). Actually, these categories have few women employed.

These trends can be related to the industries also. The number of men employed in agriculture, for instance, decreased by 42 percent. Mining, which includes large numbers of operatives, decreased its employment by 50 percent. The main industry employing craftsmen would be construction where employment decreased 53 percent between 1950 and 1960. Transportation employment dropped 24 percent largely because of dieselization of railroad locomotives.

Table XI
THE LABOR FORCE
CARBON COUNTY, WYOMING
1950 AND 1960

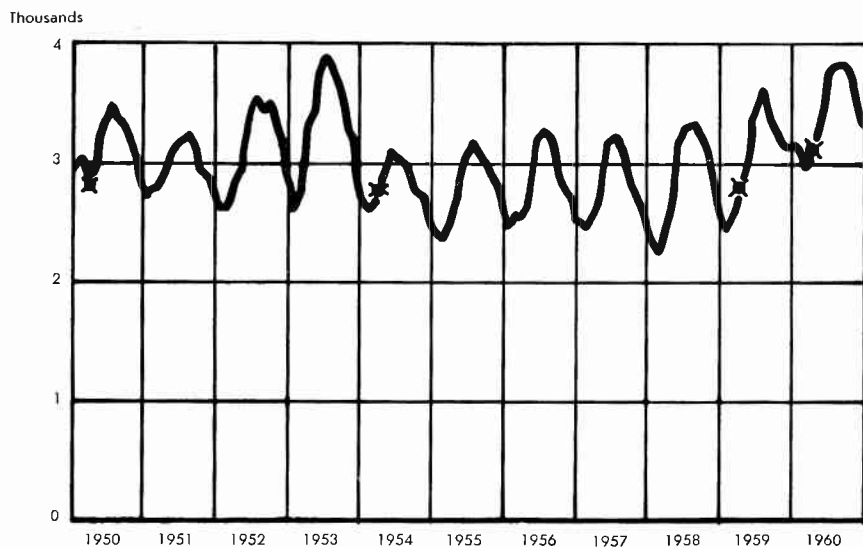
	April 1950		Total	April 1960		Total
	Male	Female		Male	Female	
Persons 14 years old or older	6,518	4,928	11,446	5,468	4,824	10,292
LABOR FORCE	5,298	1,165	6,463	4,266	1,596	5,862
Employed:						
Private wage & salary workers	3,921	712	4,633	2,713	948	3,661
Government workers	307	227	534	412	389	801
Self-employed workers	843	159	1,002	703	159	862
Unpaid family workers	43	15	58	37	17	54
Unemployed:						
Experienced workers	182	50	232	378	71	449
MAJOR OCCUPATION GROUP*						
Professional, technical, & kindred	257	206	463	354	274	628
Farmers and managers	421	19	440	282	20	302
Manager, officials, etc. (ex. farm)	469	100	569	469	89	558
Clerical and kindred	144	253	397	145	398	543
Sales workers	123	127	250	110	154	264
Craftsmen, foremen, & kindred	1,084	10	1,094	897	11	908
Operatives and kindred	1,029	63	1,092	901	76	977
Private household	1	51	52	4	120	124
Service workers, except H.H.	264	246	510	275	386	661
Farm laborers, unemp. fam., etc.	686	11	697	369	7	376
Laborers, except farm & mine	674	3	677	339	11	350
Not reported	144	74	218	98	38	136
INDUSTRY GROUP**						
Agriculture	1,112	46	1,158	649	40	689
Forestry	10	.....	10	12	0	12
Mining	535	11	546	268	8	276
Construction	716	12	728	334	8	342
Manufacturing	609	41	650	548	47	595
Transportation & Comm.	870	74	944	684	37	721
Utilities	49	4	53	91	7	98
Wholesale	70	9	79	62	12	74
Retail	496	316	812	534	430	964
Services	340	308	648	680	542	1,222
Finance Ins. & R. E.	45	29	74	23	41	64
Education	66	160	226	100	160	260
Public Administration	133	56	189	160	97	257
Not reported	63	47	110	71	38	109

*Employed and unemployed **Employed only
 Source: U. S. Census of Population, 1950 and 1960.

Trades, services, and government all increased employment between 1950 and 1960.

There are hazards in using these two periods to draw definite conclusions concerning trends in the labor force. By referring to Figure 20 it can be seen that 1950 and 1960 are not necessarily typical years. In fact there probably are no typical years. Some years tend to be like others i. e. 1955, 1956, and 1957, while others are quite different i. e. 1953 and 1954 or 1959 and 1960. Certain trends are quite definite such as those showing more employment in services, trade, government and the professions. Increases in the number of working women are also easily spotted.

Figure 20
COVERED EMPLOYMENT*
CARBON COUNTY, WYOMING
1950-1960



x April
 *Employment in firms covered by Unemployment Compensation Laws. Does not include railroad.
 Source: Wyoming Employment Security Commission.

Certain industries are undergoing drastic changes in mechanization and automation, which affect the number of people employed. In this area agriculture, manufacturing, and transportation are affected in that way.

Others expand and contract for various and sundry reasons—many of which are completely unpredictable. Construction, particularly heavy construction, and the petroleum and natural gas industries are typical of this class of industry. These are the activities that produce boom bust conditions or years of high activity followed by years of average or low activity.

While no predictions are made in this study until the final chapter, these are the attributes that a forecaster must consider in trying to determine what is likely to occur.

There is very little movement of people across county lines in this section of the state. The population census recorded only 102 persons who were working outside of the county of their residence in 1959. Most of these were probably in construction. The county is not situated so that commuting across the county line is feasible, for very many people.

Income

The 1960 census covers income of family groups and unattached individuals. Once again, these data will bear interpreting in the light of local conditions. In Table XII the distribution of income among families and among individual workmen is shown. It should be emphasized that some of the individual workmen belong to the families and some do not. Census data show that there were 1,052 persons living alone. This leaves 6,402 persons with income who belong to families or an average of 1.7 per family.

Median¹ income per family was \$5,910 and per unattached individual, \$2,417. In both cases the value was above the state average.

When compared to other counties of the state, Carbon's income of unattached individuals was fourth.

In another chapter we shall discuss the subject of hired employment and payrolls by industry. In that discussion we will refer to average employment. That figure will be less than the number of persons receiving income for two reasons. First, the latter figure includes self-employed and retired persons. Secondly, many people do not work steadily, yet they are counted as receiving income.

The census reported the following situation in 1959:²

Number of persons working 50 to 52 weeks	= 3,848
Number of persons working 48 to 49 weeks	= 259
Number of persons working 40 to 47 weeks	= 437
Number of persons working 27 to 39 weeks	= 701
Number of persons working 14 to 26 weeks	= 588
Number of persons working 13 weeks or less	= 884

Thus, nearly fifteen hundred people worked less than half of the year.

Undoubtedly many of these were women, which helps to account for the fact that 47 per cent of the women workers earned less than \$1,000. There is undoubtedly a reserve here of woman power.

Looking further at Table XII, most women earn very little; over 80 per cent receive less than \$3,000 per year. The median wage for female clerical workers was \$2,631. Out of the 2,491 working women, 1,003 had husbands present and 222 had children under 6 years of age.

The men receiving less than \$2,000 per year must include a large number of retired persons. There are approximately seven hundred in the county. The figure also probably includes a number of men who work only part of the time.

¹ Median means that there are as many frequencies above this value as below it. While this is an average, it is not the same as the mean which is most often referred to as the "average." The median is not influenced by extreme values.

² U. S. Census of Population 1960 Social Characteristics of the Population, Final Report PC (1)-52cp.

Table XII
INCOME OF FAMILIES AND INDIVIDUALS
CARBON COUNTY, WYOMING
1959

Income Class	Families		Individuals			
	Number	Per cent	Men		Women	
			Number	Per cent	Number	Per cent
Under \$1,000	149	4.0	607	12.2	1,172	47.1
1,000 to 1,999	214	5.7	578	11.6	487	19.7
2,000 to 2,999	246	6.5	424	8.5	345	13.8
3,000 to 3,999	352	9.4	547	11.0	320	9.2
4,000 to 4,999	429	11.4	651	13.2	153	6.1
5,000 to 5,999	540	14.4	632	12.7	41	1.6
6,000 to 6,999	422	11.2	469	9.4	30	1.2
7,000 to 7,999	392	10.4	734	14.9	15	.6
8,000 to 8,999	228	6.1				
9,000 to 9,999	185	4.9				
10,000 to 14,999	476	12.6	321	6.5	18	.7
15,000 to 24,999	111	2.9				
25,000 and over	19	.5				
Total	3,763	100.0	4,963	100.0	2,491	100.0
Median	\$5,910		\$4,490		\$1,127	

Source: U. S. Census of Population.

Table XIII
MEDIAN INCOMES OF THE MALE WORKERS IN SELECTED OCCUPATION
GROUPS
CARBON COUNTY AND STATE OF WYOMING
1959

Occupation Group	Carbon County	State of Wyoming
Professional, managerial, and kindred	\$6,536	\$6,402
Farmers and farm managers	4,477	3,670
Craftsmen, foremen, and kindred	5,994	5,576
Operatives and kindred	5,003	4,721
Farm laborers (excl. unpaid and foremen)	2,006	1,971
Laborers except farm and mine	3,871	3,209

Source: U. S. Census of Population, 1960.

When the median incomes of various groups of male workers are considered, it is noted that Carbon County workers receive annual pay slightly above that for the state as a whole. (Table XIII)

There aren't very many extremely wealthy people in the county. Only nineteen families reported incomes over \$25,000. On the other hand, there aren't many extremely poor ones either. Only about 16 percent had incomes under \$3,000 in 1959. As was indicated previously, this probably includes a number of retired persons, particularly retired men. The population is quite evenly distributed between the income level of \$3,000 and \$15,000.

Table XIV
HOUSING DATA
RAWLINS AND CARBON COUNTY, WYOMING
1960

	Rawlins	Carbon County
All housing units	2,949	5,684
Owner occupied	1,605	2,585
Renter occupied	1,078	2,042
Available vacant	115	147
Other vacant	151	910*
Year Built:		
1955 to March, 1960	372	612
1950 to 1954	332	584
1940 to 1949	339	685
1939 or earlier	1,906	3,803
Heating Equipment:		
Steam or hot water	299	426
Warm air furnace	1,356	1,632
Other	1,270	3,626
Condition and Plumbing		
All Units:		
Sound		
With all plumbing facilities	2,032	3,688
Lacking some or all	120	683
Deteriorating		
With all plumbing facilities	458	665
Lacking some or all	83	273
Dilapidated	256	415
Renter Occupied Units:		
Sound		
With all plumbing facilities	621	NA
Lacking some or all	75	NA
Deteriorating		
With all plumbing facilities	215	NA
Lacking some or all	49	NA
Dilapidated	118	NA
Water Supply:		
Hot and cold water piped inside	2,751	4,846
Only cold water	147	300
Other	51	538
Sewage Disposal:		
Public sewer	2,783	NA
Other	166	NA
Median Number of Rooms:		
All units	4.3	4.2
Owner occupied	5.0	4.9
Renter occupied	3.5	3.8

*600 Seasonal Units

NA—not available

Source: U. S. Census of Housing, 1960.

Housing

As indicated previously, three-fourths of the people of this county had changed houses since 1950. This was not due to excessive building of new homes, since two-thirds of the houses in the county were built before 1940. The percentage is slightly smaller than this in Rawlins.

Thirty-six percent of the houses of the county were occupied by renters in 1960, compared to 33 percent for the state. The proportion of vacant houses available for rent was 2.6 percent compared to 3.0 percent for the state.

There are a few more houses for rent and a few less trailers than was the case in 1950. Most trailers are mobil, only 41 of the 305 on hand in April 1960 were on a permanent base.

Over half of the houses in Rawlins have furnace heat. This includes most of the houses in the county in this category. Most rural houses are heated by space heaters.

Most houses in the county are sound and have all plumbing facilities. The largest number of those that do not are in rural areas as would be expected. Rented houses tend to have a larger proportion of deteriorating and dilapidated structures than owner occupied houses, but even these are largely supplied with plumbing facilities. Seven percent of the houses in the county were dilapidated at the time the census was taken.

The median value of owner occupied homes in Carbon County was \$11,000 in 1960. There were only seven counties in the state with higher values than this. The state-wide median, however, was \$12,300 (urban \$13,800 and rural-non-farm \$8,100). Thus, Carbon County has relatively low housing values which are probably related to the number of older homes. As indicated previously dilapidation is not high in the county. It may have been partially due to a let-down in the economy in 1960, even though 1959 was a high year. The median for Rawlins (\$12,600) was also below the state-wide median. Slightly over half of the houses in both Rawlins and the county were valued between \$5,000 and \$14,900.

The median rent paid in Carbon County as of April 1960 was \$64 per month compared to \$67 for the state. Rents in Rawlins had a median of \$72 which was somewhat above the \$69 median for urban places in the state. Most rents in the county fell between \$40 and \$99.

Table XV
VALUE OF OWNER OCCUPIED HOMES
RAWLINS AND CARBON COUNTY, WYOMING
1960

Value	Rawlins		Carbon County	
	Number	Per cent	Number	Per cent
Less than \$5,000	132	9.8	319	17.2
\$5,000 to \$9,900	296	22.0	487	26.2
\$10,000 to \$14,900	400	29.8	471	25.3
\$15,000 to \$19,900	305	22.7	340	18.3
\$20,000 to \$24,900	120	8.9	141	7.6
\$25,000 or more	92	6.8	100	5.4
Total owner occupied	1,345	100.0	1,883	100.0
Median	\$12,600		\$11,000	

Source: U. S. Census of Housing, 1960.

Table XVI
GROSS* RENT PAID BY RENTERS
RAWLINS AND CARBON COUNTY, WYOMING
1960

Gross rent paid	Rawlins		Carbon County	
	Number	Per cent	Number	Per cent
Under \$20	0		60	3.2
\$20 to \$39	122	11.3	257	13.6
\$40 to \$59	172	16.0	403	21.4
\$60 to \$79	328	30.4	472	25.2
\$80 to \$99	206	19.1	285	15.1
\$100 to \$119	93	8.6	113	6.0
\$120 or more	60	5.6	72	3.8
No cash rent	97	9.0	221	11.7
Total renter occupied units	1,078	100.0	1,883	100.0
Median	\$72		\$64	

*Gross rent includes cost of utilities and fuel.

Source: U. S. Census of Housing, 1960.

CHAPTER V

The Economy of Carbon County

An Overview

In this chapter an attempt will be made to give a general description of economic activity in Carbon County, with some attention to past trends. All inter-relationship analysis will come in the next chapter.

Economic activities tend to fall into two general categories. First there are the producing industries which generally are conceded to form the base of the economy. Secondly there are the commercial industries that develop primarily to service the local economy.

In the next chapter it will be seen that it is not all so nicely packaged as this, but for the present the economy will be discussed from that point-of-view.

Where trend data covering a number of years are not available, the years 1954 and 1959 will be used for purposes of comparison. This will allow a look at two quite different periods. In 1954 the economy was at a quite low ebb. This was a drouth year, construction activity was at a minimum, and governmental activity was quite low.

In contrast, the year 1959 was one of high activity in most fields. Agricultural income was up, construction activity was high due to road construction and the uranium industry, and governmental activity was high.

By using these two years, therefore, one gains a better insight into the workings of the economy than would be possible with only one.

PRODUCING SEGMENT

The Petroleum Industry

Oil was discovered in the county in 1918. Production rose quickly to over one-million barrels per year and fluctuated around that level until 1936. (Refer to Figure 15, page 28.) From 1937 to 1960 (with the exception of 1946) production has fluctuated around the three million barrel level.

As indicated earlier in this study, the refinery was begun by Producers and Refiners Corporation in 1922 and was purchased by Sinclair in 1930. It utilizes a large proportion of the oil produced in the county.

For a few years it appeared that natural gas production had a great future here. From its beginning in 1920 with less than one billion cubic

feet, production rose rapidly to the 14-16 billion cubic foot level where it stayed for five years. It then subsided to the three to four billion cubic foot level where it stayed from 1937 to 1951. In recent years it has been at about the 1 to 2 billion cubic foot level.

In 1954 value of oil and gas produced plus refinery products, less value of local oil processed, was \$25.9 million dollars. In 1959 this figure was \$28.7 million.

In 1954 there was an average of 555 persons employed in this industry drawing \$2,751,000 of payroll. Contribution to personal income amounted to \$3,949,800. The additional \$1,198,800 included proprietorship income and royalties.

In 1959 there was an average of 442 hired employees drawing \$2,867,200 in payroll. Total contribution to personal income was \$4,292,300.

The industry also contributed \$382,200 in local taxes and \$936,900 in state and federal taxes directly in 1954. In 1959 these figures were \$628,100 local and \$1,094,400 state and federal.

Other Minerals

The U. S. Bureau of Mines gives the value of minerals produced as follows:¹

	1954	1959
Coal	\$ 832,111	\$312,936
Uranium Ore		36,786
Other Minerals	311,929	45,945
Total	\$1,144,040	\$395,667

The loss in coal production was related to the loss of the railroad market. Most of that being produced in 1959 had an industrial market outside of the county.

In the latter year the production of uranium ore was the highlight. About 3 million dollars were spent that year on exploration for this mineral. It may eventually bring mining back to its original place of importance.

Other mineral production is an up and down proposition. For example, vermiculite was being produced fairly heavily in 1954 but not in 1959. Sand and gravel production varies with demand from the construction industry. In 1959 this product was the most important one produced.

Other minerals occur in small deposits and are worked until the operation is no longer economically feasible.

The local markets for products consist of local operations such as railroads which buy coal and gravel, and construction which buys sand and gravel.

¹ Letter from D. H. Mullen, Project Leader, Denver Experiment Station, Region III. U. S. Bureau of Mines, Denver, Colorado, September 22, 1961.

Table XVII
MARKETS FOR MINERAL PRODUCTS
CARBON COUNTY, WYOMING
1954 AND 1959

Local Sales to	1954	1959
Transportation	\$ 120,300	\$ 66,100
Retail	0	500
Construction	6,700	15,600
Total local sales	127,000	82,200
Export Sales	1,017,000	313,500
Total	\$1,144,000	\$395,700

Sources: Survey by Author, and U. S. Bureau of Mines

The loss of the coal market on the railroad and pickup in construction are evident in the comparisons shown in Table XVII.

In 1954, 79 persons were employed in this industry. The 77 hired employees drew \$270,400 in payroll. Total contribution to personal income, including royalties, was \$399,000 for the year.

In 1959 employment had dropped to 30. The 27 hired employees drew \$137,300 in wages and the total contribution to personal income amounted to \$181,000.

Tax contributions by the industry amounted to \$58,300 to local governments and \$249,800 to the state and federal governments in 1954. In 1959 it contributed \$16,500 locally and \$107,500 to the state and nation.

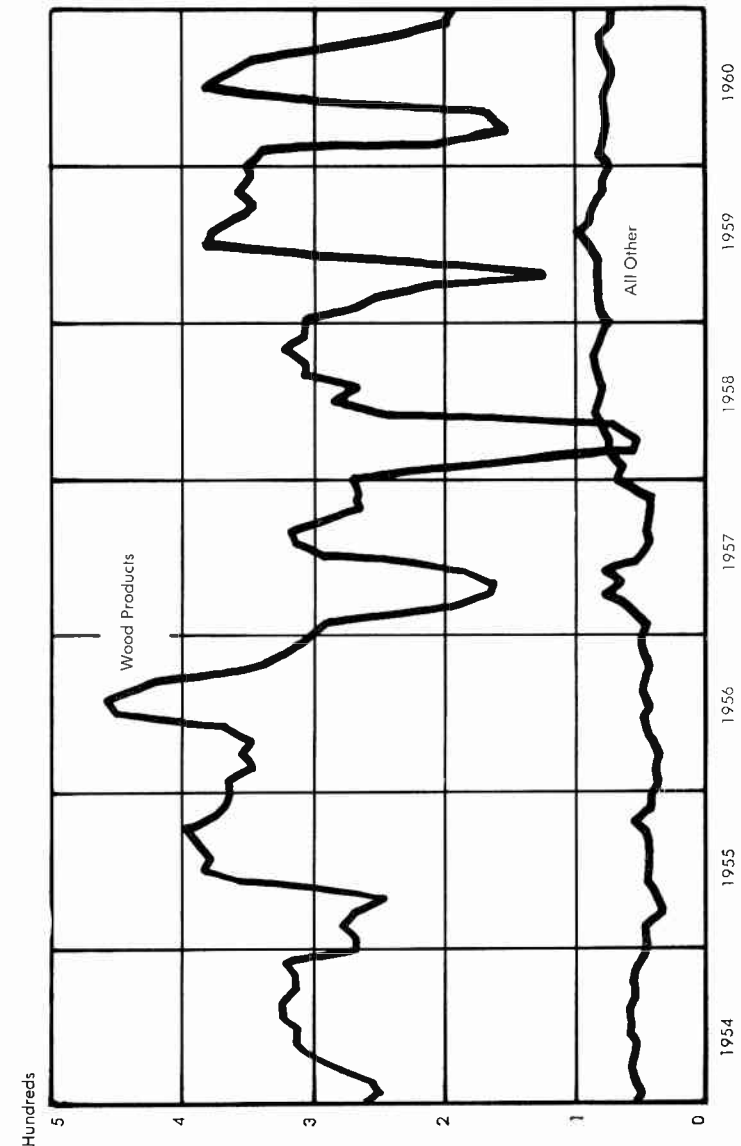
Manufacturing

There were approximately twenty-four manufacturing firms operating in Carbon County in 1959. Four of these were in food manufacturing i.e. bakeries and dairies; ten were manufacturers of lumber and wood products; and the other ten produced a wide variety of products; including two newspapers, one a weekly and the other a daily.

Wood products employed the most people, in fact almost three times as many as the others combined. Railroad ties are still a major item of production, but a considerable volume of lumber is also produced. Employment in this industry is quite erratic from one month to the next as may be seen by reference to Figure 21. The profit margin in this industry is such that it is necessary to make quick cost adjustments when the market situation weakens. This accounts for the sudden layoffs indicated in that figure. In order to take advantage of a rising market, it is equally important that production get under way quickly.

Employment is also quite seasonal. Weather plays an important role here and accounts for the fact that lowest employment comes during the first two or three months of the year and highest is in the summer.

Figure 21
HIRED EMPLOYMENT IN MANUFACTURING
CARBON COUNTY, WYOMING
1954-1960



Source: Wyoming Employment Security Commission.

The payroll for the wood products industry varied between \$0.9 million and \$1.3 million per year during the seven years depicted. For all other manufacturing the payroll variation was between \$158.3 thousand and \$370.7 thousand, with the higher payrolls occurring in most recent years.

For all manufacturing (except the refinery which was treated with petroleum), personal income produced amounted to \$1,436,900 in 1954 and \$2,096,900 in 1959. This includes both payroll and profits to local owners, with payroll about 75 per cent of it.

The industry paid out \$13,100 in local taxes and \$431,900 in state and federal taxes and other payments in 1954. In 1959 the amounts were \$17,600 and \$580,000 respectively.

Total value of production in the two years was \$3,416,600 in 1954 and \$4,588,300 in 1959. The former year was a more stable one and the drouth situation allowed more time in the woods during winter months, hence the even employment in wood products.

Employment in other types of manufacturing is quite stable every year and has been growing at a gradual rate. It is not very large as yet.

Manufacturing in this county is quite heavily oriented to the local market. Still three-fourths of the value of products produced are exported. A large part of this is railroad ties and lumber.

Direct sales to households include dairy products delivered by a creamery and bakery sales over the counter at a bakery. Milk delivered by a distributor would not be in this category but would be a sale by a retailer to a household. The sale by the creamery or dairy to the milkman would be in the sales to retailer category.

The sales to others includes most other categories in the local economy including local government.

Table XVIII
SALES OF MANUFACTURED GOODS
CARBON COUNTY, WYOMING
1954 AND 1959

Local Sales to	Amount	
	1954	1959
Wholesalers and Retailers	\$ 296,100	\$ 820,300
Households	181,000	231,600
Others	285,900	320,600
Total local sales	763,000	1,372,500
Export Sales	2,653,600	3,215,800
Total Value	\$3,416,600	\$4,588,300

Agriculture

In 1954 Carbon County contained 331 ranches averaging 9,416 acres in size. Gross receipts for the year were \$7,498,300, or an average of \$22,653 per unit.

By 1959 the number had fallen to 303, but the average size had increased to 9,994 acres. Gross receipts for the year were \$9,458,100 or an average of \$31,215 per unit.

The range in gross income indicates the type of adjustment Carbon County ranchers must make from year to year.

This county has the most sheep and is fourth in number of beef cattle among the counties of Wyoming. Wyoming ranks second in sheep and thirty-third in cattle numbers among the states of the nation. Thus, Carbon County is one of the nation's leading sheep producers.

Income during the two years compared here came largely from the sale of livestock and wool. Sheep and wool were more important than cattle in 1954, but the situation was reversed in 1959. Much depends upon relative price levels. Crops, poultry, and milk are very minor items in either year.

On January 1, 1960 there were, according to the state-federal agriculture statistician, 280,000 head of stock sheep and 73,000 head cattle on the ranches of Carbon County.

Trends are shown in Figure 22 which is a ratio chart allowing direct comparison with state trends. It is noticeable that the trend in cattle numbers during the immediate postwar period (1946-1950) was strongly upward while that of the state was level or somewhat down. Both the state and county climbed until the beginning of 1954.

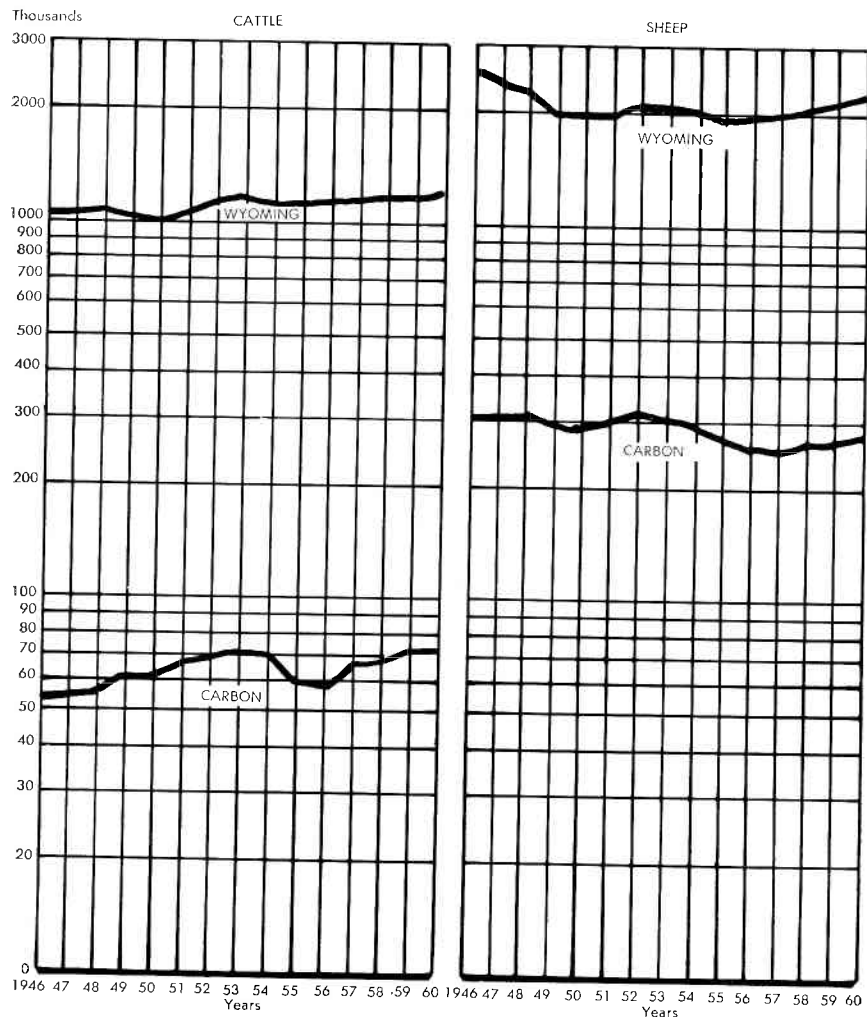
Table XIX
INCOME OF FARMS AND RANCHES
CARBON COUNTY, WYOMING
1954 AND 1959

Source	Amount	
	1954	1959
Sales:		
Cattle and Calves	\$2,647,600	\$5,137,900
Sheep and Lambs	2,480,200	2,344,500
Wool	1,673,100	1,039,300
Field Crops	279,300	225,300
Other Livestock	196,600	67,900
Forest Products	14,200	12,800
Total from sales	7,291,000	8,827,700
Government Payments	207,300	630,400
Grand Total	\$7,498,300	\$9,458,100

Figure 22

TRENDS IN LIVESTOCK NUMBERS
CARBON COUNTY AND STATE OF WYOMING

1946-1960

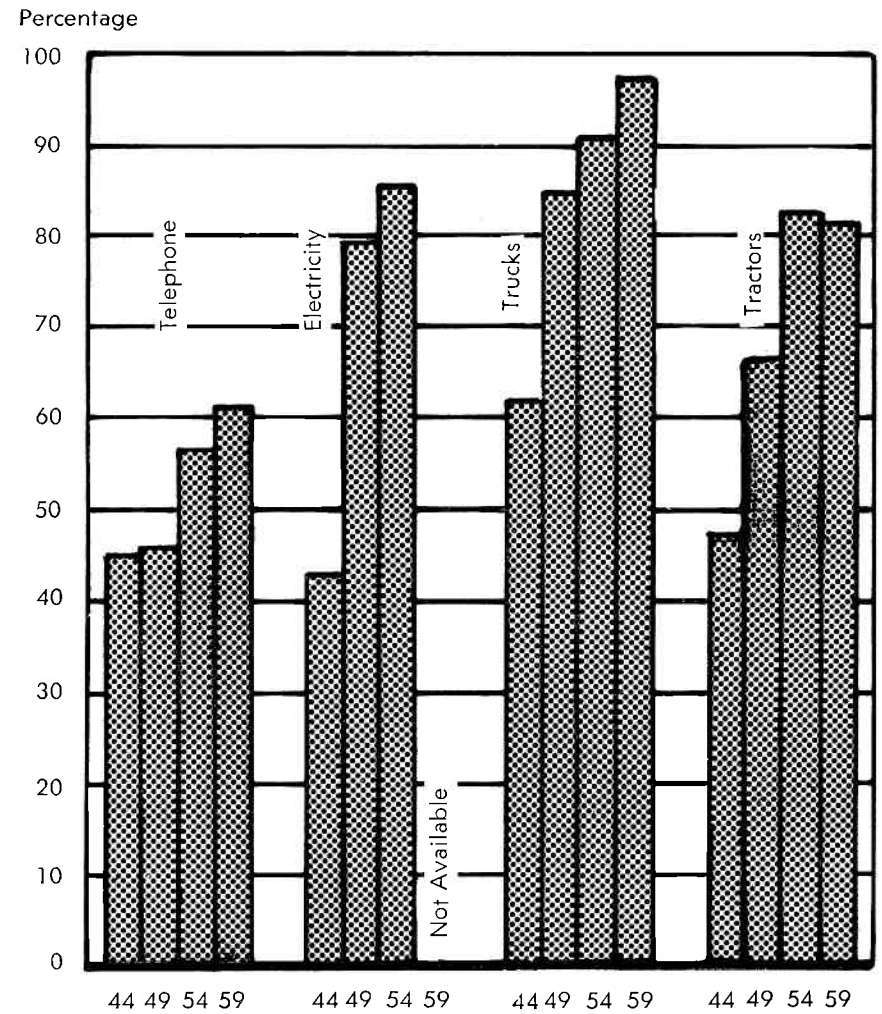


Source: State-Federal Agricultural Statistician.

Figure 23

RANCHES HAVING TELEPHONES, ELECTRICITY, TRUCKS AND TRACTORS
CARBON COUNTY, WYOMING

1944, 1949, 1954, 1959



Source: U. S. Census of Agriculture.

The 1954 drouth situation caused both to fall, with Carbon County taking a much steeper plunge than the state. Following this the county trend was sharply upward. This would suggest that the cattle industry is much more sensitive to weather changes in the county than in the state as a whole.

In contrast sheep numbers tend to hold steadier in the county than in the state. The big post-war dip in sheep numbers was felt only partially here.

Most of the ranches in this county are wholly or partially owned by the operator. In 1959 the census reported that 113 were owned, 140 partially owned, 32 operated by hired managers and 18 rented.

Mechanization is high also. Census reports show that 239 of the 303 ranches had tractors in 1959. In fact, they owned 810 tractors. Two hundred eighty-six ranches owned 655 trucks, and 255 of them owned 401 automobiles. Telephones were in 180 ranch homes and 245 of them owned home freezers.

These items would indicate a fairly prosperous situation on farms and ranches of the county. Generally speaking, this is so. The following table may be referred to learn that the average ranch in the county netted \$4,100 in 1954 and \$7,770 in 1959. Since these years represent low and high, they give a fairly good picture of the agricultural situation.

The amount paid for hired labor was lower in 1959 than in 1954, but other expenses have gone up to offset it, as increased mechanization has taken over the chores of the hired hand.

Of immediate concern in the analysis of the local economy are the markets for agricultural products, particularly local markets. These are shown in Table XXI.

A considerable amount of selling, for instance, is done from one ranch to another. Most of this exchange is hay and livestock. There are also such things as custom machine work, exchange of machinery, etc. In 1954 the drouth situation held inter-ranch exchanges to a fairly low level. It would be expected to be more nearly normal in 1959.

Table XX
AGRICULTURAL INCOME AND EXPENSES
CARBON COUNTY, WYOMING
1954 AND 1959

	1954	1959
Gross Cash Income	\$7,498,300	\$9,458,100
Operating Expenses	4,471,800	5,787,100
Hired Labor	1,670,800	1,317,800
Net Cash Income	1,355,700	2,353,200
Average Net Per Farm or Ranch	\$ 4,100	\$ 7,770

Sources: U. S. Census of Agriculture expense reports, and estimates by this Division based on type of farm cost studies by U. S. D. A.

Table XXI
SALES OF AGRICULTURAL PRODUCTS
CARBON COUNTY, WYOMING
1954 AND 1959

	1954	1959
Local Sales to:		
Manufacturers	\$ 194,100	\$ 272,400
Other Ranchers	475,400	1,183,200
Transportation and Warehousing	138,500	179,700
Others	27,500	35,700
Total local sales	835,500	1,671,000
Government Payments	207,300	630,400
Export of Products	6,455,500	7,156,700
Total Income	\$7,498,300	\$9,458,100

Sources: Survey by Author, U. S. Census and ACP Reports.

Sales to manufacturers include such things as milk and fat livestock. These sales tend to be somewhat stable.

Sales to transportation and warehousing are sales to handlers of farm products which were assigned to this category because they are primarily warehouses. They take only a small part of the total in this county. They operate on a larger scale in more intensive agricultural areas.

Government payments are not quite the same as the other income figures since they do not represent payments for products. However, they can and do make a considerable contribution to the income of ranchers, even though they fluctuate quite drastically from year to year.

The value of exports represents money received from livestock, livestock products, and wheat shipped to buyers outside of the county. This will be treated in the next chapter under the heading of "basic income."

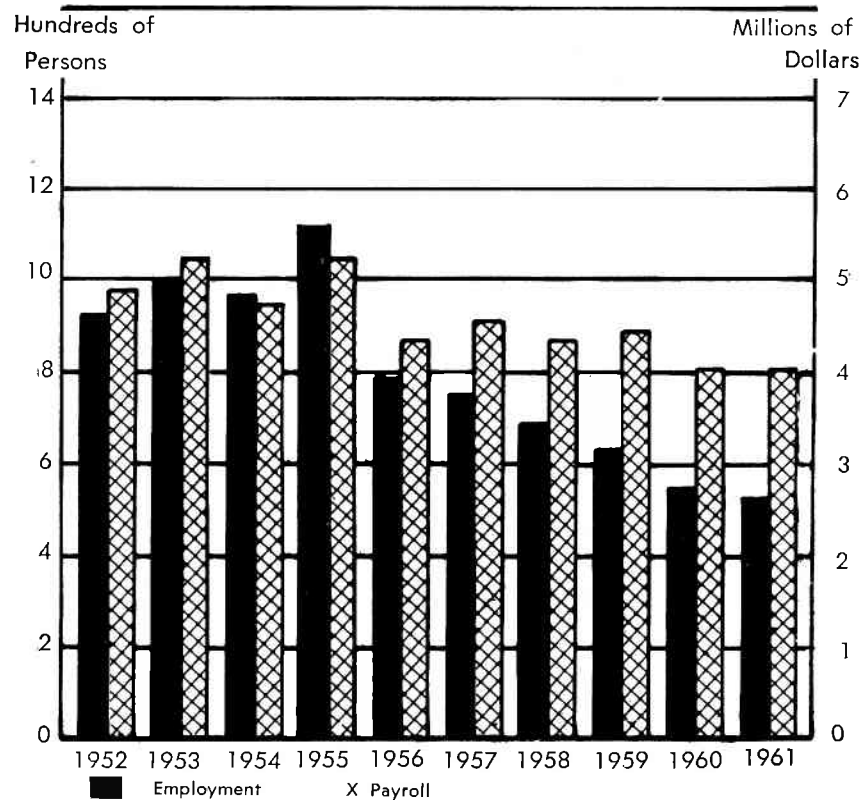
Agriculture contributed \$3,026,500 to personal income of the county in 1954 and \$3,671,000 in 1959. The local tax load for the two years was \$238,500 and \$312,300 respectively. State and federal tax payments amounted to \$604,400 in 1954 and \$721,200 in 1959.

Transportation

In some respects transportation might be considered a part of the commercial rather than the producing segment of the economy. In the case of Carbon County, however, its value as a producer of service for export outweighs its value for serving the local sector.

There are two aspects to this picture that make it so. First is the main line of the Union Pacific Railroad and second is the influence of Highway 30. In this analysis we have included under transportation only those trucking firms headquartered in the county. Out-of-county truckers will be considered along with other travelers in assessing basic income in the next chapter.

Figure 24
RAILROAD EMPLOYMENT AND PAYROLL
CARBON COUNTY, WYOMING
1952-1961



Source: Union Pacific Railroad

In addition to the railroad and trucks, air and pipeline transportation are included. However, these two contribute very little in the way of basic income since they maintain facilities largely to serve the local economy.

The Union Pacific has served as an important source of income to the county since its establishment. In recent years there has been a decline in employment and payrolls, although payrolls have not gone down as fast as employment (Figure 24).

In 1954 Rawlins was serving as the headquarters terminal for at least one major trucking company. This had changed in 1959 and is reflected in lower values in that year also.

In Table XXII the market for transportation services is broken down by major category of customer. Local sales are made to nearly every category of customer. The most important ones are oil production and refining, agriculture, manufacturing, and the various commercial groups.

The export section may be somewhat complicated. It is easy to conceive of the exportation of goods, but not so easy to think in terms of exporting a service. In this case service is exported by the process of being performed. Goods placed in a box car or on a truck in Chicago (for example) and destined for Los Angeles must be taken care of as it passes through Carbon County. Thus, local people perform a service that is paid for by someone in Chicago. This payment is reflected in the payroll and supply purchases of the carrier.

The reasons for including transportation sold to state and federal government travelers, oil well drilling firms, and mineral exploration are more fully discussed in the following chapter. Suffice it that the money spent by these agencies is considered to be new money to the community. Thus, sales to them are considered sales for outside money.

The major expenditure of the transportation sector goes for personal services. In 1954 this amounted to \$5,864,400 and in 1959 to \$5,355,900. Most of it was in the form of payroll.

In addition this activity paid out \$302,600 to local governments and \$243,100 to state and federal governments in the former year. The 1959 payments amounted to \$281,500 and \$204,800 respectively.

Table XXII
SALES OF TRANSPORTATION SERVICES
CARBON COUNTY, WYOMING
1954 AND 1959

	1954	1959
Local Sales to:		
Oil Refinery	\$1,487,500	\$1,584,700
Oil and Gas Production	959,800	1,062,000
Manufacturing	320,200	430,000
Agriculture	85,200	616,800
Retailers	180,500	251,700
Wholesalers	59,400	47,700
Construction Firms	49,700	70,500
Private Households	158,200	202,400
Others	64,300	76,400
Total local sales	3,364,800	4,342,200
Export Sales to:		
State and Federal Government	2,400	3,000
Travelers	194,500	232,200
Oil Well Drilling Firms	34,700	20,400
Mineral Exploration Firms	0	25,200
Others	3,664,000	2,028,300
Total export sales	3,895,600	2,309,100
All Sales	\$7,260,400	\$6,651,300

Sources: Estimates prepared by Author based on survey work.

Since this category includes warehousing which covers handlers of farm products—there were some purchases made from agriculture in these years.

Construction

The construction industry was at quite a low ebb in 1954. Total value of contracts was \$4,767,500 and most of that was for home and local business construction.

In 1959 the picture was quite different; the gross was \$12,313,700 and over half of it was heavy construction. Highway construction, paid for by the state and federal governments, amounted to \$2,240,500 and non-governmental heavy construction amounted to \$4,251,000. Part of the latter was heavy earth moving for uranium companies. The remainder of the construction activity, or \$5,822,200 worth, was similar to the 1954 activity.

There are several heavy construction contractors with headquarters in the county. The only contracts held by them and considered in this analysis are the ones performed in the county or in an immediately adjoining area, where the payroll, purchases, etc., are reflected in the county. Heavy contractors from other areas but operating in the county are counted in this study also.

The proportion of gross reflected in personal income was greater in 1954 when the figure was \$2,123,200 than in 1959 when it was \$3,190,800. This is to be expected on the basis of the type of operation. Heavy construction depends more upon equipment and less upon direct human labor than does building construction.

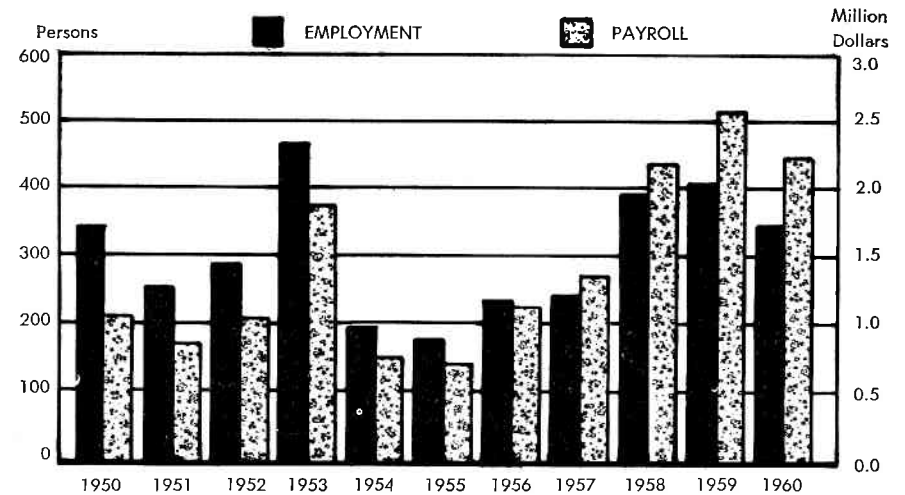
Taxes paid to local government, on the other hand, were 8.7 times as great in 1959 (\$44,300) as in 1954 (\$5,100) reflecting again the influence of heavy machinery. Taxes paid to state and federal government increased in about the same proportion as the gross business increased.

Subcontracting is an important part of the contracting picture. In 1954 there were \$525,300 of subcontracts let or 11 percent of the gross and in 1959 subcontracting amounted to about 10 percent of the total for the industry or \$1,211,100.

As indicated previously, 1954 was one of the low years in construction activity, being only slightly above the lowest in recent years (1955). On the other hand, 1959 was a high year. It was exceeded in employment by 1953 but the total payroll for 1959 was much higher. These comparisons may be seen by referring to Figure 25. The construction industry is a fairly irregular one from year to year. In 1958, 1959, and 1960 highway construction helped to stabilize the industry. Average pay per worker has been much higher since 1956 than it was before that time. The increase has been most significant in very recent years.

Not only is construction a variable employer from year to year, it also varies considerably from month to month with employment in high months of the summer over twice that of the low winter months (Figure 26).

Figure 25
AVERAGE YEARLY EMPLOYMENT AND TOTAL PAYROLL FOR THE CONSTRUCTION INDUSTRY
CARBON COUNTY, WYOMING
1950-1960



This tendency to increase and decrease employment from month to month and from year to year, puts considerable strain on an economy. This is particularly so when construction becomes a major source of basic income. In that case the economy must be adept at pulling in and letting out its belt or it must look for more diversification in its economy to take off some of the stresses that occur.

Carbon County is fairly vulnerable on this point. Whenever construction is going heavily, employment and payroll are high and the businessman prospers. When construction falls off, as it can easily do from one year to the next, the impact of this loss is felt also. Both highway construction and the use of construction contractors for exploration and development of uranium properties are becoming important to this industry and both activities are "boom-bust" types.

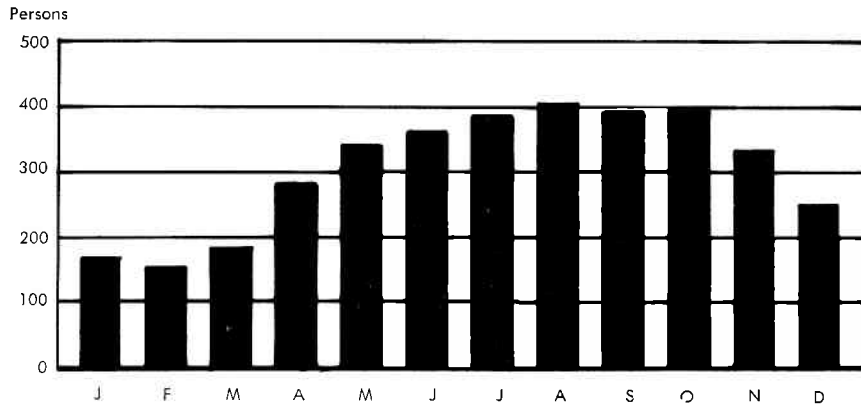
Construction money is good money and certainly wouldn't be passed up, even if it were possible. However, it is not the type of activity, from which a good economic base can be expected.

Commercial Sector

Carbon County has one major trading center and several small ones scattered about the county. Rawlins receives about three-fourths of the trade in the county.¹

¹ Based on 1958 Census of Business.

Figure 26
AVERAGE MONTHLY EMPLOYMENT IN CONSTRUCTION
CARBON COUNTY, WYOMING
1951-1960



Commercial activity has a definite seasonal pattern, although it is more definite some years than in others. The trends in sales and use tax collections in Figure 27 bring this out. Also obvious from this illustration is the upward trend during the post-war period.

This trend has not been as strong as that in evidence in either the state or nation. The ratio chart (Figure 28), which allows comparison of the county with the state and nation, indicates that Carbon County follows the general trend of the other two, but deviates quite drastically at times i.e., 1958 and 1960.

Retail Trade

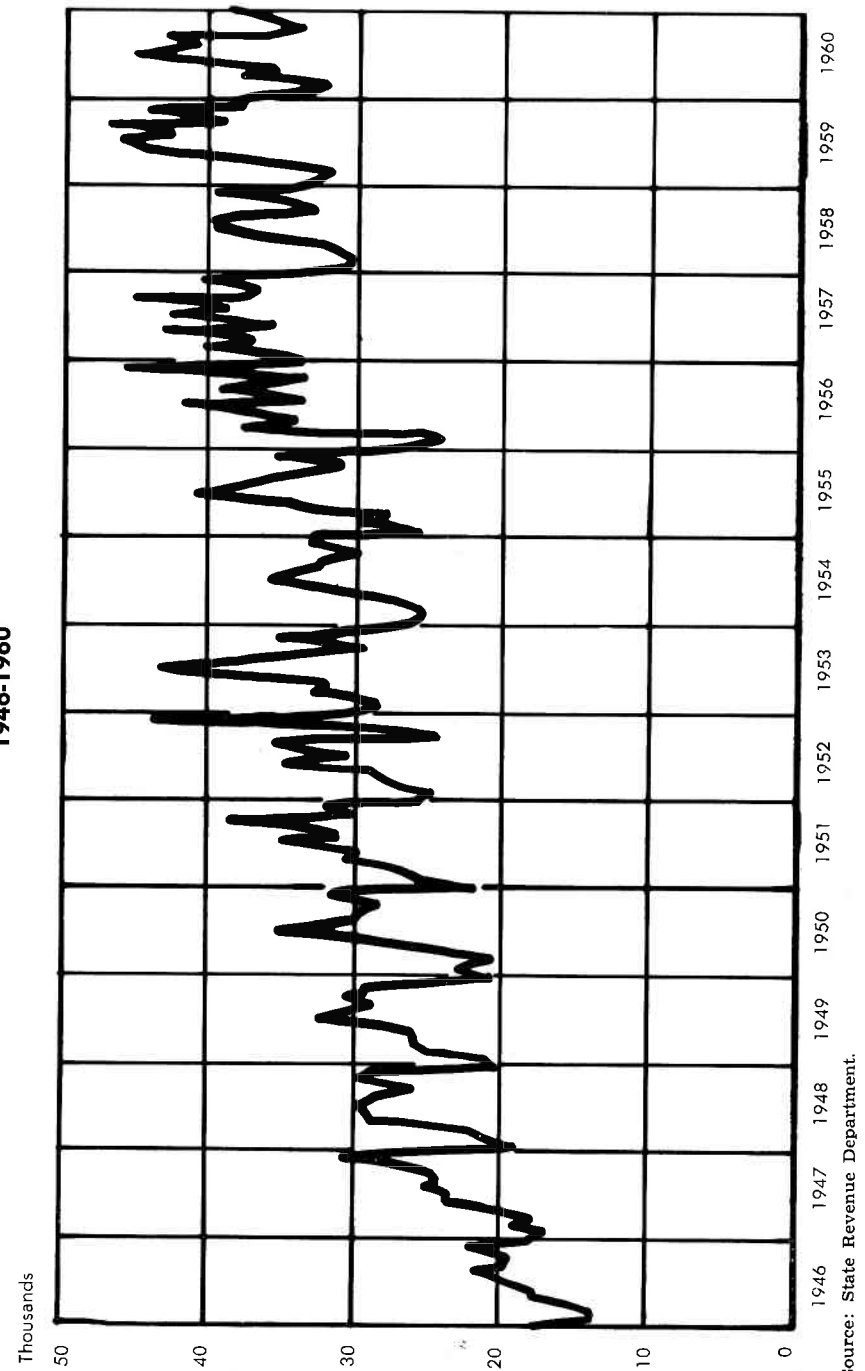
The figure referred to previously shows that retail trade has had an upward trend since 1948. It is interesting to observe how much of the increase has been due to inflationary factors and how much to actual increased volume. By adjusting with the U. S. Department of Commerce index of consumer prices (1947-49=100) we arrive at sales in constant dollars. Both types of sales are shown in Figure 29. While the actual sales activity has not grown as fast as current dollar sales would indicate, it has, nevertheless, had a definite upward trend.

A survey made in 1955 covering 1954 transactions showed 218 firms operating in the county with \$18,720,000 in gross sales, and a payroll of \$1,992,000.²

Automobiles, automotive supplies, and gasoline made up the largest line. Groceries and meats were a close second. These two lines made up 54 percent of the business of retail stores in the county.

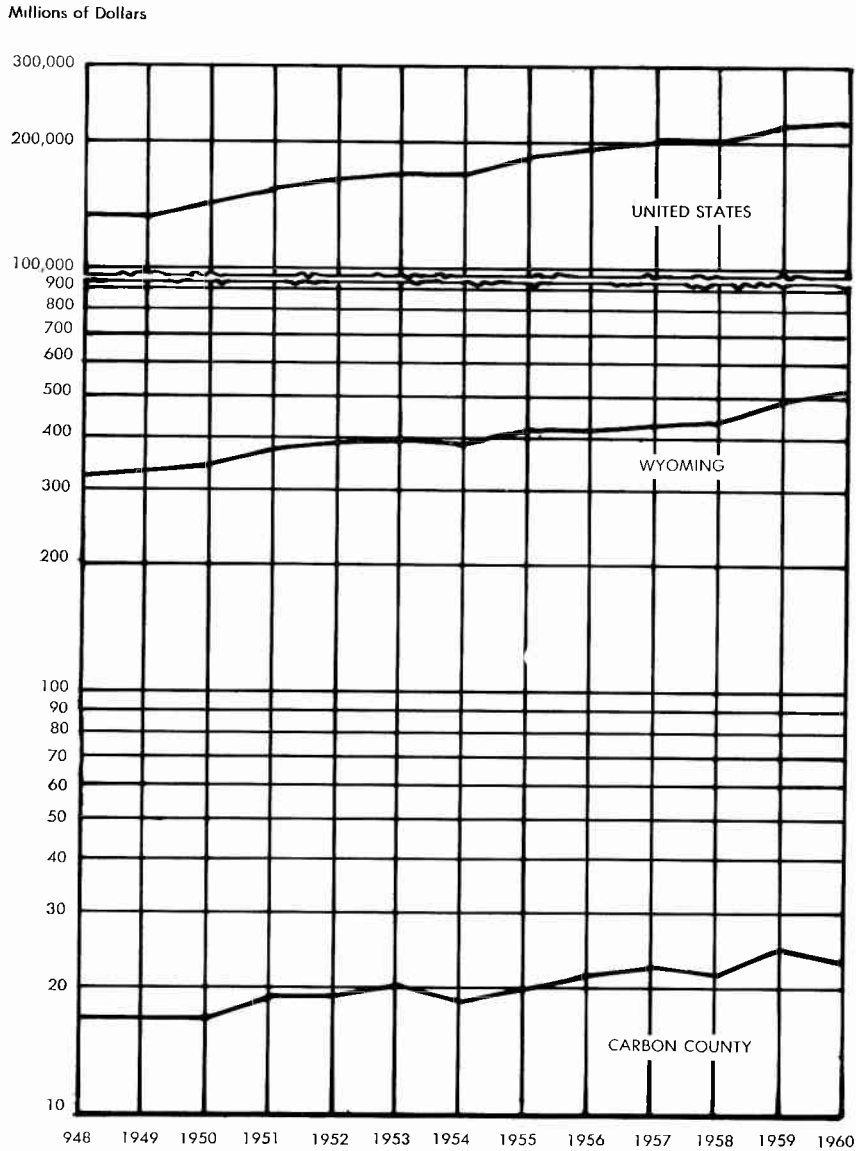
² U. S. Census of Business, 1954 also confirms this.

Figure 27
TRENDS IN TWO PERCENT SALES AND USE TAX COLLECTED MONTHLY
CARBON COUNTY, WYOMING
1946-1960



Source: State Revenue Department.

Figure 28
TRENDS IN RETAIL SALES
CARBON COUNTY, STATE OF WYOMING, AND THE UNITED STATES
1948-1960



Sources: U. S. Department of Commerce, Annual Retail Sales Report and Information Bulletin No. 1, Division of Business and Economic Research, University of Wyoming.

Figure 29
COMPARISON OF RETAIL SALES IN CURRENT AND CONSTANT DOLLARS
CARBON COUNTY, WYOMING
1948-1960

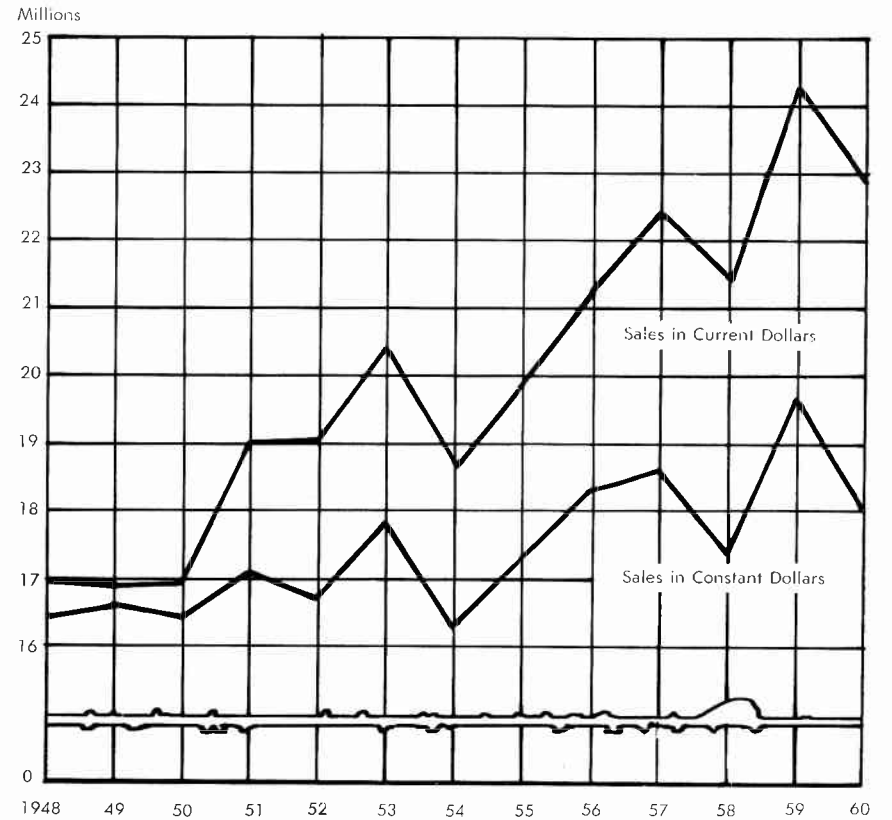


Table XXIII
SALES OF RETAIL STORES BY LINE
CARBON COUNTY, WYOMING
1954

Line of Merchandise	Amount	Per Cent
Automobiles, gasoline, and auto supplies	\$ 5,161,100	27.57
Groceries, meats, and related items	4,968,300	26.54
Alcohol beverages	1,800,900	9.62
Clothing and dry goods	1,619,300	8.65
Prepared meals	834,900	4.46
Drugs and related items	687,000	3.67
Furniture and appliances	629,000	3.36
Hardware	550,400	2.94
Building materials	522,300	2.79
Ranch supplies	256,500	1.37
Coal, oil, bottled gas, and other fuel	194,700	1.04
Sporting goods	146,000	.78
Toys and novelties	110,400	.59
Household goods	103,000	.55
Tobacco and smoking supplies	93,600	.50
Jewelry	86,100	.46
Flowers and related items	48,700	.26
Books and miscellaenous other	20,600	.11
Total sales at retail	17,832,700	
Sales at wholesale	512,900	2.74
Sales of services	374,400	2.00
Total gross sales of retailers	\$18,720,000	100.00

Source: Survey by Author.

Other lines of importance included alcoholic beverages, clothing and dry goods, prepared food, drugs and sundries, furniture and appliances, hardware, and building materials.

In view of the above line distribution it is not surprising that automotive dealers and stores and service stations had the largest volume of any types of retailers, followed by food stores.

The place occupied by general merchandise stores is interesting also. These stores sell heavily in the grocery line as well as clothing, hardware, auto supplies, etc.

Eating and drinking places were next in importance followed by building, hardware and farm implement stores, clothing and dry goods stores, and furniture and appliance stores.

In 1954 retail stores furnished employment for 1,104 people, 358 of whom were proprietors and their family workers and 746 were hired workers. In 1959 the number of stores was about the same as well as the number of proprietors and family workers. The number of hired workers had increased, however, to an average of 808.

Table XXIV
NUMBER OF RETAIL STORES, EMPLOYMENT, AND GROSS SALES
CARBON COUNTY, WYOMING
1954

SI Code	No. of Firms	Owners & Family Workers	Hired Workers Number	Payroll	Total Gross Sales
Automotive	14	23	77	287,650	2,635,300
Service stations	44	58	101	267,170	2,621,800
55 Subtotal automotive	58	81	178	554,820	5,257,100
54 Food stores	23	41	72	186,100	3,436,900
53 General merchandise	24	30	112	292,410	2,993,700
Bars	28	34	50	181,980	1,574,100
Cafes	31	39	169	314,820	829,700
58 Eat and drink subtotal	59	73	219	496,800	2,403,800
52 Building Material, hardware and farm implement	20	18	40	158,770	1,363,700
56 Clothing and dry goods	15	26	46	111,830	1,188,600
57 Furniture and appliances	4	5	10	30,840	437,000
59 All other	53	84	69	160,430	1,639,200
Total	256	358	746	1,992,000	18,720,000

Source: Survey by Author.

Retailers paid to the individual household sector of the economy \$3,287,000 in 1954 and \$4,183,900 in 1959. These contributions were made up as follows:

	1954	1959
Payrolls	\$1,992,000	\$2,582,000
Net income to local proprietors	593,600	710,900
Uncollectable accounts receivable	61,400	73,500
Trade-in values	640,000	817,500
Total	\$3,287,000	\$4,183,900

Taxes paid locally amounted to \$329,900 in 1954 and \$432,200 in 1959. State and federal taxes amounted to \$462,800 in the former year and \$552,600 in the latter.

Referring again to Table XXIII, it is seen that 4.74 percent of the business of retailers was not retailing at all but wholesaling and sales of service. Actually these amounts are small compared to the situation in other sections of the state.

Just as retailers do not stick strictly to retailing we find service firms who retail and manufacturers who do so also.

Wholesale Trade

Rawlins wholesalers have a fairly limited market. The bulk of their business is with retailers in the county, although they have a fairly

large volume of sales outside of the county boundary. This was particularly true in 1954.

In 1959 there was a decrease in wholesaling by wholesale firms, except for bulk dealers, from the 1954 level. Bulk dealers increased their sales, due partially to the increase in construction, but also to the general improvement in the economy. Reasons for the decline in other categories may be related to more aggressive activity on the part of non-local wholesalers in this area.

In 1954 there were additional sales at wholesale of \$512,900 by retailers and \$661,600 of wholesale sales by manufacturers. Total wholesale sales for the area, therefore, amounted to \$6,697,500.

In 1959 retailers wholesaled \$665,900 worth of goods and manufacturers wholesaled \$888,500 worth. Total wholesale sales were thus \$6,987,600 for the year.

In 1954 wholesaling contributed \$628,800 to personal income of the area, \$335,000 of which was in payrolls. The 1959 contribution was \$774,900, with payrolls making up \$499,000 of it.

Since the federal state gasoline tax is remitted by wholesalers, the contribution by this group to taxes is very high in relation to gross business. Gasoline taxes are shown separately in Table XXV. Wholesalers also pay about \$104,000 annually to local governments.

Services

There were approximately 200 service firms operating in Carbon County in 1959 compared to 205 in 1954. Gross business in 1959 amounted to \$6,017,500 and in 1954 to \$4,975,600.

The distribution of firms is shown in Table XXVI. In the five year period a few more lodging places came into existence and few of the personal and repair services went out of business. Otherwise the distribution remained about the same. In 1954 there were 749 people working in the service industry. The 477 hired persons drew \$1,093,200 in payroll.

Table XXV
SALES BY WHOLESALE FIRMS*
CARBON COUNTY, WYOMING
1954 and 1959

	1954			1959		
	Bulk Dealers	All Others	Total	Bulk Dealers	All Others	Total
Number firms	10	11	21	14	11	25
Payroll	165.2	169.8	335.0	340.4	158.6	499.0
Gross business	2,805.1	2,717.9	5,523.0	3,327.8	2,105.4	5,433.2
Federal and state tax	827.0	.....	.....	1,109.3	.....	.....

Source: Estimates by author based on survey.
*(000) on dollar values.

Table XXVI
NUMBER OF SERVICE FIRMS, EMPLOYMENT AND GROSS SALES
CARBON COUNTY, WYOMING
1954

Standard Industrial Code	Type of Firm	Number	Average Employment			Business*
			Owners & Family	Hired Employees		
				Number	Payroll*	
70	Lodging places	53	96	118	283.6	921.2
72	Personal services	33	45	82	172.8	541.6
73	Business services	2	1	6	18.0	31.5
75	Auto repair	19	20	20	58.8	519.2
76	Miscellaneous repair	33	39	16	51.5	332.5
78	Motion pictures	7	9	31	38.4	238.7
79	Recreation services	9	9	18	3.9	41.3
80	Medical and other health**	23	24	106	206.9	714.9
81	Legal services	14	17	10	14.6	210.6
89	Miscellaneous services	12	12	70	244.7	1,424.1
Total		205	272	477	1,093.2	4,975.6
		Less sales of commodities				754.2
		Total service sales by service firms				4,221.4

* (000).
** Includes the county hospital.
Source: Survey by author.

The total number of persons was not greatly different in 1959. There were a few less owners and a few more hired workers. The 520 hired workers drew \$1,293,200 in payroll.

Total contribution of the industry to personal income in 1954 was \$2,684,100, an average of \$2,300 for hired workers and \$5,800 for owner operators.

In 1959 the total was \$3,109,800, for an average of about \$2,500 for the hired workers and about \$7,100 for the owner operators.

Service firms paid \$137,500 in local taxes in 1959 compared to \$208,500 in 1954. The decrease was due to a shift in the types of service. For instance the county hospital increased its business and employment, yet pays no taxes; whereas, some of the types that went out of business were tax payers.

Finance

Bank deposits are generally regarded as good indicators of economic growth. The trends shown in Figure 30 indicate that Carbon County stayed fairly well in line with state trends until the end of World War II. Since that time there has been somewhat of a leveling off in the county deposits, when compared to the state-wide trend.

This has been due to fluctuations in both time and demand deposits. Savings accounts make up only a small part of the total deposits in county banks (Figure 31). The most influence is wielded, therefore, by demand deposits.

Figure 30

**BANK DEPOSITS
CARBON COUNTY AND STATE OF WYOMING
1935-1960**

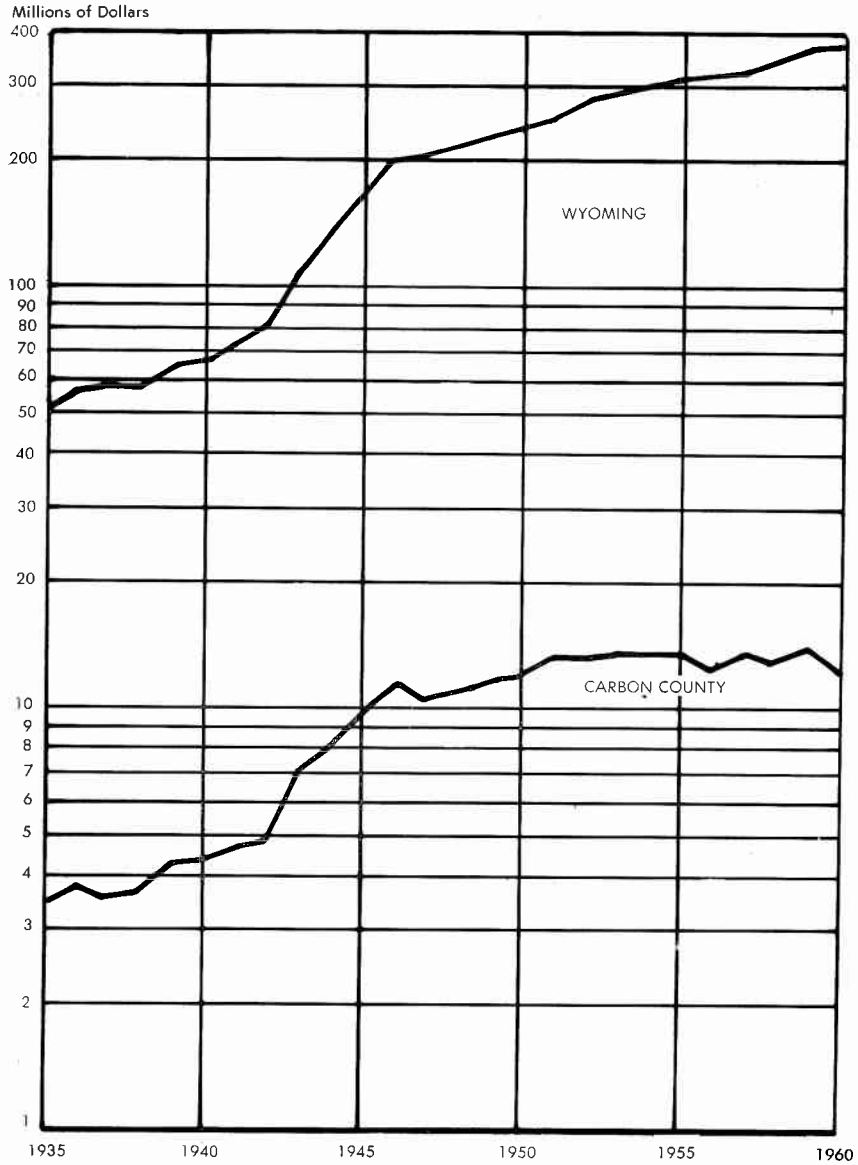


Figure 31

**BANK ASSETS AND LIABILITIES
CARBON COUNTY, WYOMING
As of December 31, 1951-1960**

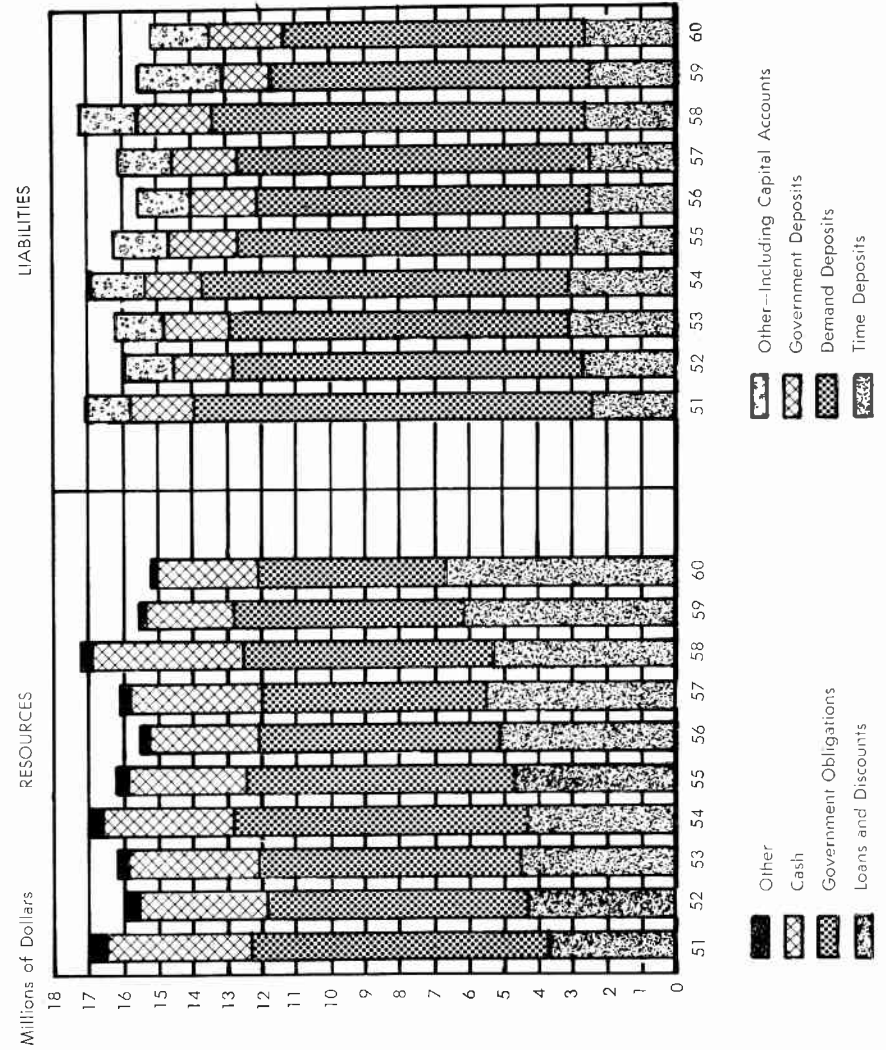
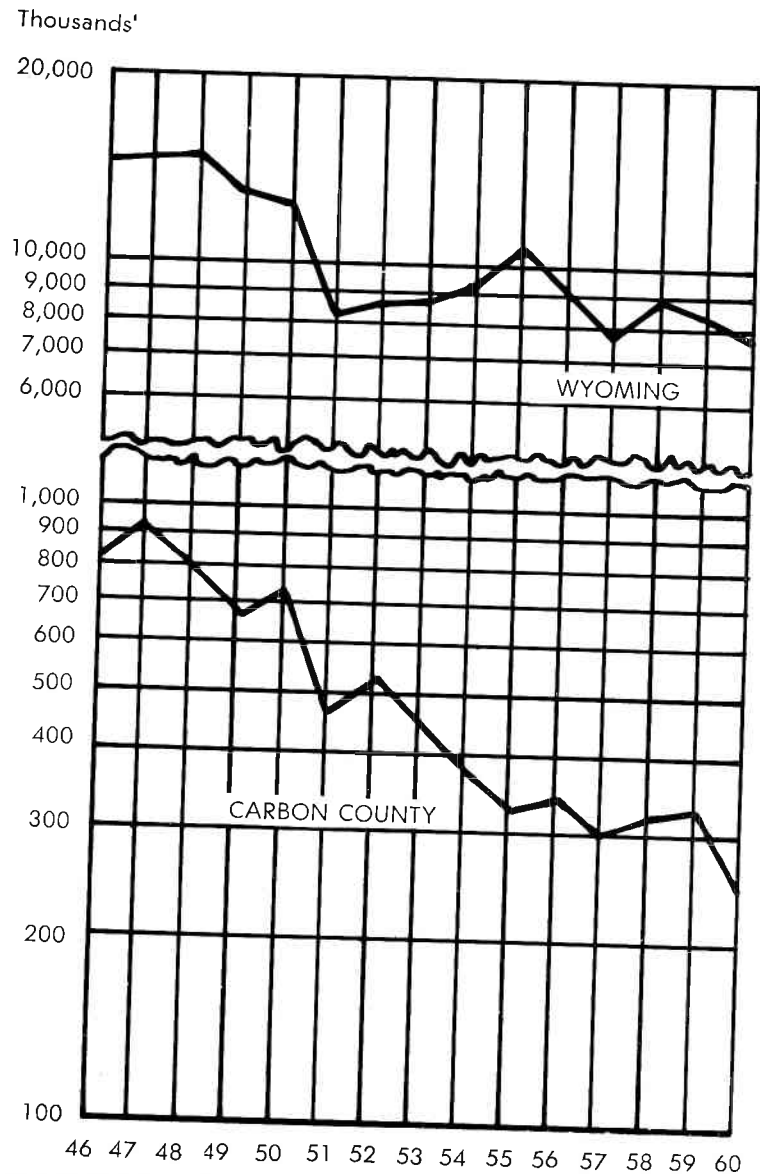


Figure 32
SALES OF U. S. SAVINGS BONDS
CARBON COUNTY AND STATE OF WYOMING
1946-1960



Source: U. S. Savings Bond Director, Treasury Department.

Another good indicator of business conditions is to be found in data on loans and discounts. Apparently the demand for money has been increasing fairly consistently during the post-war period. Since savings have been decreasing or at best holding steady, other deposits are obviously carrying a large share of the loan load.

Another indication of the tendency for the people of the county to save less than would be expected is the comparative purchases of U. S. Savings Bonds. The state-wide trend on this item has been down for most of the post-war period. In Carbon County the downward trend is much more pronounced. (Figure 32).

The significance of these trends lies in their influence on available local capital and dependence of the county upon outside funds for growth and development. Unfortunately we do not have, at this time, data on holdings of stocks and bonds. The recent uranium developments may also be using local capital. Available information indicates that Carbon County will be heavily dependent upon outside capital for any extensive development.

In 1954 there were 91 people working in finance, insurance, and real estate in this county. Sixty-four of them were hired and drew \$229,500 in payroll. The total contribution to personal income amounted to \$801,400. In addition, these companies paid out \$35,200 in local taxes and \$45,900 in state and federal taxes.

In 1959, hired employment reached 72 with a payroll of \$304,100. Total contribution to personal income rose to \$920,500. Local taxes were \$40,800 and state and federal taxes \$48,500.

Utilities (Electric, gas, water, and sanitary services)

Over half of the income of utilities companies comes from sales to the refinery, oil, other minerals, and manufacturing industries and one-third from sales to households.

Sales are made, of course, to every segment of the economy.

Most of the people working in this area are hired employees. There were only two owners reported in 1954. That year 64 persons made a living from the industry. They received \$265,800 in payroll. The total income of persons was \$312,200.

Taxes paid to local government amounted to \$44,400 and to state and federal government \$46,600.

In 1959 personal income from the industry was \$371,000, local taxes were \$52,800, and state-federal taxes \$55,400.

Gross income for the two years was \$3,175,300 (1954) and \$3,791,900 (1959). In addition, local government sold \$214,000 of water, sewer, and garbage services in 1954 and \$250,000 worth in 1959.

Communication

Communications is another industry where most people working in it are hired employees. In 1954 there were 83 people employed. The payroll was \$273,000 and total return to personal income was \$273,800.

Taxes paid locally amounted to \$47,000 and to state and federal governments \$26,600. Gross for the year was \$514,100.

In 1959 communications grossed \$642,200, paid out \$340,700 to individuals, \$58,700 in local taxes and \$33,100 in state and federal taxes.

The trend in number of telephones in use is an interesting indication of economic growth, although it bears little relationship to population trends. The number of telephones had increased much more rapidly than population in most places. From the trends shown in Figure 33 we may see a fairly close correlation between this county and the state as a whole. This is borne out in some of the previous comparisons also.

Rentals

Rent is collected from every segment of the economy. In 1954 a total of \$672,800 was so collected and in 1959 the amount was \$829,300. Personal income amounted to \$246,500 in the former and \$301,500 in the latter year. Local taxes are quite high for this segment, being \$64,500 in 1954 and \$78,900 in 1959. On the other hand state and federal taxes are fairly low (\$19,400 and \$23,800).

THE GOVERNMENT SECTOR

Local Government

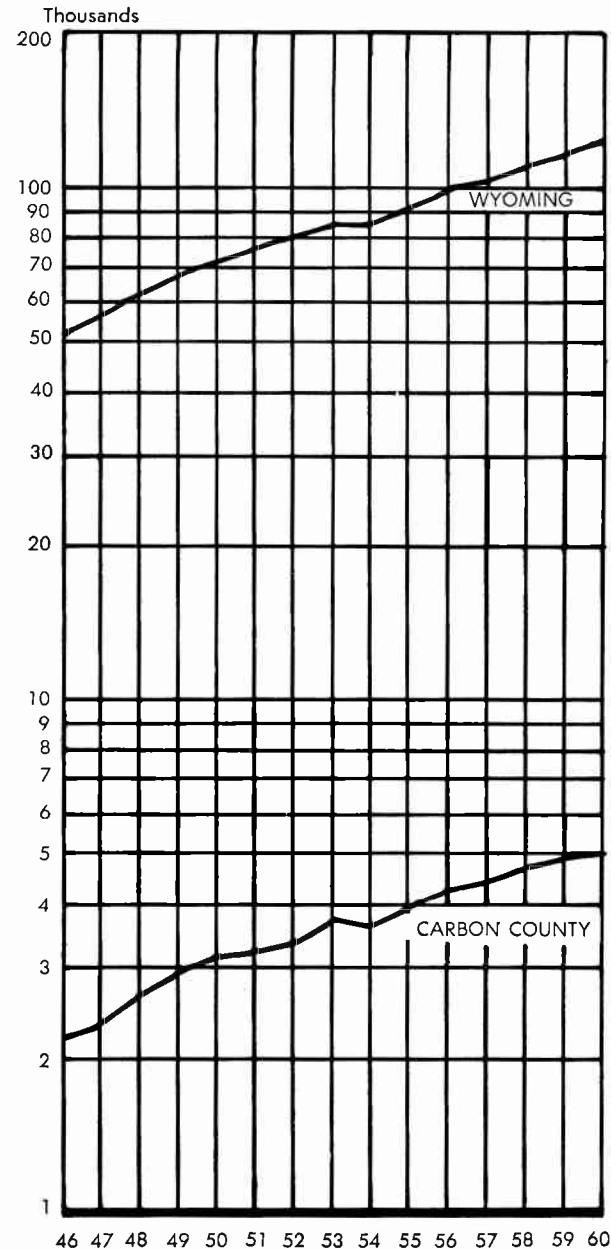
Governmental units in this segment include one city, several towns, school districts, county, and special districts. Local governments are tied closely to the local economy, since both the people it serves and its revenue are also closely related to it.

The various sources of revenue are shown in Table XXVII. About one-third of it comes from the state and federal governments. Other important sources include the oil and refining industry, agriculture, transportation, trade, and personal households.

Most of these sources increased the revenue contribution between 1954 and 1959. Transportation was not one of them. This is partially due to certain economies practiced by the railroads and trucking companies, which resulted in less taxable property in the county.

A large part of the money collected by local governments is spent on salaries and wages. This amount in 1954 was \$1,342,200 and in 1959 \$1,656,700.

Figure 33
NUMBER OF TELEPHONES IN USE
CARBON COUNTY AND STATE OF WYOMING
1946-1960



Source: Mountain States Telephone and Telegraph Company. Does not include telephones in independent companies.

Table XXVII

**DIRECT SOURCES OF TAXES AND OTHER REVENUES, LOCAL
GOVERNMENT
CARBON COUNTY, WYOMING
1954 and 1959**

Industry Source	1954	1959
Oil and refining	\$ 375,900	\$ 628,100
Other minerals	58,300	16,500
Manufacturing	13,100	17,600
Agriculture	238,500	312,300
Transportation	302,600	281,500
Communications	47,000	58,700
Utilities	44,400	52,800
Retail Trade	329,900	432,200
Service Trades	208,500	137,500
Finance, insurance, and real estate	35,200	40,800
Wholesale	104,000	104,000
Rentals	64,500	78,900
Construction	5,100	44,300
Households	267,800	432,600
State and federal government*	971,500	1,226,300
Mineral exploration and well drilling	2,300	93,500
Total	\$3,068,600	\$3,867,600

*Includes welfare payments, various allotments made for school purposes, road construction money, etc.
Sources: Survey plus records of various agencies, census reports on expenditures, and the state examiner.

State and Federal

State and federal money is so intermingled that it is impossible to separate so far as the local economy is concerned.

There is very little correlation between the amount of money spent by state and federal government in a particular area and the amount of taxes collected in that area. For this reason we treat taxes collected as a leakage from the economy and money spent as basic income. These factors will be explained in the following chapter.

In Table XXVIII the various sources of revenue are shown. Because of the heavy dependence of the federal government upon income tax the private household sector is naturally the heaviest contributor. Wholesale trade includes the collection of gasoline and other petroleum products taxes for both state and federal government to make it next heaviest. The refining and oil production sector pays taxes and royalties to government. Other minerals do the same, but the royalty figure is much less important.

Manufacturing pays largely taxes. Agriculture pays taxes, grazing fees and lease payments to the governments.

For the rest of the group taxes make up the bulk of payments, with payroll and other taxes connected with employment accounting for a large portion and sales and use taxes most of the rest.

Table XXVIII

**DIRECT SOURCES OF STATE AND FEDERAL GOVERNMENT REVENUE
CARBON COUNTY, WYOMING
1954 and 1959**

Industry Source	1954	1959
Refining and oil production	\$ 936,900	\$1,094,400
Other minerals	249,800	107,500
Manufacturing	431,900	580,000
Agriculture	604,400	721,200
Transportation and Storage	243,100	204,800
Services and finance	137,200	164,300
Retail trade	462,800	552,600
Wholesale trade	1,060,400	1,329,400
Households	3,217,800	4,116,700
Mineral exploration	*	699,100
All others	208,400	291,100
Total	\$7,552,700	\$9,735,100

*Small amount included with other minerals.
Source: Survey by author plus records of various agencies.

State and federal government make their contributions to the local economy through payments to agriculture, construction contracts, and payrolls.

In this chapter an attempt has been made to give a description of the present day economy. The next chapter will approach the economy from a different angle in order to analyze it and find out what makes it tick.

CHAPTER VI

An Analysis of the Carbon County Economy

In the chapter immediately preceding this one certain industries that are generally considered to be basic and others that are considered secondary have been discussed. In this chapter this concept will be built upon, but the talk will be in terms of income and its flow rather than industries.

There was a time in American history when small economies were quite self-sufficient, but that situation changed long ago. Today the small American economy must export in order to live. These exports can be goods or services. It doesn't matter whether they are shipped or people come and get them. What does matter is that a continual flow of new money into the economy must be maintained.

This new money can be designated as "basic" income. For the most part basic industries produce basic income. However, as indicated previously, even these industries have local markets. On the other hand, much basic income comes from visitors to the economy who leave money with the local merchants.

Basic Income of Carbon County

Carbon County gets about half of its basic income from the export of petroleum products. Other major sources include agriculture, travelers and truckers, activities of state and federal government, manufacturing, transportation, mining, construction, out-of-county trade, exploration for minerals, and transfer payments of various kinds.

These sources are shown in Table XXIX, in which 1954 and 1959 are compared. In 1954 total basic income for the county was \$50,651,400 and in 1959 it was \$63,909,000.

From this table may be seen many of the changes that occurred in the economy during the comparatively short period of five years. Certain industries such as oil production and refining, agriculture, travelers and truckers, manufacturing, and trade area sales had a healthy growth and provided a firm basis for the economy.

Governmental activity, which is always difficult to forecast, changed quite drastically between these years. Most of the change was due directly to construction of the interstate highway.

Another major change was connected with happenings in the minerals industry. Loss of the railroad market for coal cut the value of minerals produced. Rise of the uranium industry resulted in a large expenditure for mineral exploration and contributed to the increase in

heavy construction. These things were discussed in detail in the previous chapter.

The reason for the drop in transportation basic income was also discussed previously. Summarized, it had to do with the dieselization of the railroads and loss of some of the trucking industry.

Out-of-county wholesaling also dropped. Some reasons for this were discussed previously also.

Oil well drilling activity varies from year to year. This type of activity can be said to be "good" while it lasts, but it cannot be counted upon in a county like Carbon where there is no major supply center.

The other income category includes income from investments, insurance payments, retirement funds, and other sources of personal income. To an extent these funds tend to increase as employment in the area increases.

Overall, there was a change of \$13.3 millions between the low year of 1954 and the high one of 1959. This represents a change of one-fifth to one-fourth in the basic income of the area. Records indicate that this is a maximum for recent years.

Leakage

Some people seem to think that money continues to flow about in the economy for months after it is introduced. This is true nationally and may be true even in a fairly well integrated smaller economy. It definitely is not true in Carbon County, nor any other Wyoming economy.

A moments reflection will show why this is so. First of all, very few small economies have enough volume to support a sizeable wholesale

Table XXIX
SOURCES OF BASIC INCOME
CARBON COUNTY, WYOMING
1954 and 1959

Source	1954	1959
Oil and gas production and refining	\$25,215,800	\$27,796,400
Agriculture (stock raising)	6,455,500	7,156,700
Travelers and truckers	4,567,700	5,452,300
Expenditures of state and federal government	2,577,300	7,630,900
Manufacturing	2,653,600	3,215,800
Transportation	3,664,000	2,028,300
Out-of-county trade area shoppers	1,897,300	3,020,500
Heavy construction (non-government)	545,000	4,251,000
Mining	1,017,000	313,500
Wholesaling	1,078,900	439,300
Oil well drilling expenditures	371,400	219,100
Mineral exploration expenditures	-0-	1,392,600
Other income of residents	607,900	992,600
	\$50,651,400	\$63,909,000

Heavy construction can be analyzed by the construction column and other personal income by the household column. Mineral exploration and oil well drilling and exploration outfits spend money with many of the businesses in the county and each of these dollars has an effect depending upon where it is spent. The largest contribution, of course, is in the form of payrolls.

The data from Tables XXX and XXXI become business and income multipliers when needed to determine the overall benefits of the various sources of basic income such as is done in the Tables XXXII and XXXIII and subsequent analysis.

These tables show the actual workings of the economy during these two quite dissimilar years. One factor that is strikingly apparent immediately is that there was a difference of \$28,640,200 in total income of the county between 1954 and 1959.

A comparison of the two tables shows where the changes occurred. The petroleum industry increased by \$2.5 million in value of export and its multiplier effect for each of these dollars was about the same resulting in an increase of about \$2.0 million in induced business and \$3.0 million of total induced income.

Loss of the coal market hit the mining economy hard, with a loss of \$700 thousand in export value. However, the expenditure pattern of employees changed somewhat and the multiplier effect in 1959 was higher than in 1954, so that the loss of induced income was not proportionately as great.

Value of manufactured goods exported from the county was up by about \$0.5 million and induced income increased proportionately, since the multipliers remained about the same.

Agricultural income increased and value exported was up by about \$700 thousand. As was indicated in the analysis in the previous chapter, the increase in net income per ranch was substantial. This threw more money to the farm household and is reflected in larger multipliers per dollar of export. Instead of an expected increase (assuming 1954 multiplier) of \$848 thousand in induced business the increase amounted to \$1,909 thousand. Instead of an increase of \$1,447 thousand in overall induced income, the increase amounted to \$2,850 thousand.

This brings up an important point. In an industry with high fixed costs such as agriculture, major changes in gross income must necessarily be reflected in net income to a much larger extent than would be true with an industry where costs can be adjusted to income. This is why, in an area where a large proportion of income comes from farming and ranching, the local merchant feels the impact of changes in agricultural income quite drastically.

To return to the changes in Carbon County, transportation dropped its contribution to basic income by \$1,635,700 or a decrease of 44.6 percent. This was analyzed in the previous chapter and was due to changes in both the railroad and trucking industries. It is important to

Table XXXII
SOURCES OF BASIC INCOME AND INDUCED INCOME
RESULTING FROM ITS INTRODUCTION INTO THE ECONOMY
Carbon County, Wyoming
1954
(\$1,000)

INDUSTRIES	OIL AND GAS PRODUCTION AND REFINING		OTHER MINERALS		MANUFACTURING		AGRICULTURE		TRANSPORTATION		OUT-OF-COUNTY SHOPPERS		OUT-OF-COUNTY WHOLESALING		CONSTRUCTION		OF STATE EXPENDITURES AND FEDERAL GOVERNMENT		TRAVELERS AND TRUCKERS		OIL WELL DRILLING		OTHER INCOME		TOTAL		GRAND TOTAL							
	Value of Export	Extra Income Produced	Value of Export	Extra Income Produced	Value of Export	Extra Income Produced	Value of Export	Extra Income Produced	Value of Export	Extra Income Produced	Value of Export	Extra Income Produced	Value of Sales	Extra Income Produced	Value	Extra Income Produced	GOVERNMENT PAYROLL		CONTRIBUTIONS TO LOCAL GOVERNMENT		OTHER EXPENDITURES		Amount Expended	Extra Income Produced	Amount Expended	Extra Income Produced		Amount Expended	Extra Income Produced	Value	Extra Income Produced	Value of Export	Extra Income Produced	
																	Amount of Payroll	Extra Income Produced	Amount Contributed	Extra Income Produced	Amount Expended	Extra Income Produced												
OIL AND GAS PRODUCTION AND REFINING	25,215.8	7,978.0		9.6	49.4	131.1		72.2		62.0			168.9		7.7		23.3		18.0		13.0						135.1		8.8		10.9	25,215.8	8,688.0	33,903.8
OTHER MINERALS		44.6	1,017.0	.4		5.3		3.9		52.3		.8		.5		1.1		.7		.7		.2				5.4		.8		.3	1,017.0	127.0	1,144.0	
MANUFACTURING		197.2		12.4	2,653.6	53.6		138.8		82.4		43.3		20.2		12.3		29.6		24.5		7.0				118.9		9.0		13.8	2,653.6	763.0	3,416.6	
AGRICULTURE		70.5		1.5		171.7	6,455.3	453.8		83.9		6.8		2.0		1.3		3.4		2.4		* 207.3	14.9			20.0		1.7		1.6	6,662.8	835.5	7,498.3	
TRANSPORTATION		2,544.8		17.5		291.6		187.2	3,664.0	69.6		39.7		29.9		13.6		25.9		17.2		2.4	8.6		194.5	99.6	34.7	7.5		12.1	3,895.6	3,364.8	7,260.4	
COMMUNICATIONS		141.5		13.7		38.2		86.5		66.0		15.2		5.8		7.6		21.2		13.2		13.0	3.7		5.1	59.2	8.7	5.6		9.9	26.8	487.3	514.1	
UTILITIES		1,979.5		30.3		132.9		306.6		233.4		51.4		24.7		20.9		77.4		32.6		5.4	13.3			179.0	12.0	19.8		36.1	17.4	3,157.9	3,175.3	
RETAIL		3,898.2		242.0		987.1		3,125.8		1,796.5	1,897.3	296.0		128.7		182.7		720.0		393.3		4.8	121.1		3,342.4	1,035.2	45.1	167.7		336.1	5,289.6	13,430.4	18,720.0	
SERVICE		999.8		78.7		294.5		1,260.8		414.8		83.1		39.9		50.3		155.3		100.1		.9	46.5		1,016.7	308.6	14.4	38.4		72.6	1,032.0	3,943.6	4,975.6	
FINANCE		547.5		33.0		190.8		368.0		252.1		56.0		25.5		26.8		94.8		59.7		.1	16.5		9.0	196.6	12.9	24.7		44.3	22.0	1,936.3	1,958.3	
WHOLESALE		1,010.3		59.2		300.9		825.0		443.7		402.0	1,078.9	29.5		47.9		143.4		111.2		50.6	32.5			867.2	10.0	43.8		66.9	1,139.5	4,383.5	5,523.0	
RENTALS		145.7		7.5		43.0		190.4		71.4		31.1		7.3		11.3		18.8		13.3		5.2	7.			103.0	2.8	5.9		8.8	8.0	664.8	672.8	
CONSTRUCTION		1,338.3		65.8		420.3		727.5		428.3		93.5		68.0	545.0	105.9		153.8		305.0		13.9	33.3			355.7		41.4		71.8	558.9	4,208.6	4,767.5	
TOTAL BUSINESS AND INDUSTRY INCOME	25,215.8	20,895.9	1,017.0	571.6	2,653.6	2,979.3	6,455.5	7,805.4	3,664.0	4,076.6	1,897.3	1,180.9	1,078.9	550.9	545.0	489.4		1,467.8		1,111.2		303.6	317.9		4,567.7	3,483.5	140.6	375.1		685.2	47,539.0	45,990.7	93,529.7	
BUSINESS AND INDUSTRY MULTIPLIER		.8287		.5621		1.1228		1.2091		1.1126		6224		.5107		.8982		1.1270		1.1438		1.0471			.7626		1.0100		1.1270		.9080			
REALIZED PERSONAL INCOME		9,074.1		552.4		2,164.0		5,092.0		4,188.7		643.8		284.6		396.6		1,302.2		414.6		773.9		209.4		2,286.2	228.5	166.3		607.9	193.6	2,138.6	26,440.2	28,578.8
LOCAL GOVERNMENT REVENUE		804.3		69.1		94.2		422.2		274.4		62.0		32.2		13.0		44.7		971.5		25.1		18.1		199.1	2.3	15.5		20.9	973.8	2,094.8	3,068.6	
SUM OF TOTAL EXPORT	25,215.8		1,017.0		2,653.6		6,455.5		3,664.0		1,897.3		1,078.9		545.0		1,302.2		971.5		303.6				4,567.7		371.4		607.9		50,651.4			
SUM OF TOTAL INDUCED INCOME		30,774.3		1,193.1		5,237.5		13,319.6		8,539.7		1,886.7		867.7		899.0		1,927.1		1,910.2		545.4			5,968.8		556.9		899.7		74,525.7			
TOTAL INCOME MULTIPLIER		1.2204		1.1732		1.9737		2.0633		2.3307		.9944		.8042		1.6495		1.4799		1.9662		1.7964			1.3067		1.4995		1.4800		1.4713			
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Table XXXIII
Sources OF BASIC INCOME AND INDUCED INCOME
RESULTING FROM ITS INTRODUCTION INTO THE ECONOMY
Carbon County, Wyoming
1959
(\$1,000)

INDUSTRIES	OIL AND GAS PRODUCTION AND REFINING		OTHER MINERALS		MANUFACTURING		AGRICULTURE		TRANSPORTATION		OUT-OF-COUNTY SHOPPERS		OUT-OF-COUNTY WHOLESALE		CONSTRUCTION		EXPENDITURES OF STATE AND FEDERAL GOVERNMENT										TOTAL		GRAND TOTAL									
	Value of Export	Extra Income Produced	Value of Export	Extra Income Produced	Value of Export	Extra Income Produced	Value of Export	Extra Income Produced	Value of Export	Extra Income Produced	Value of Purchases	Extra Income Produced	Value of Sales	Extra Income Produced	Value of Expenditures	Extra Income Produced	Amount of Payroll	Extra Income Produced	Amount Contributed	Extra Income Produced	Amount Expended	Extra Income Produced	Amount Expended	Extra Income Produced	Amount Expended	Extra Income Produced	Amount Expended	Extra Income Produced	Amount Expended	Extra Income Produced	Value of Export	Extra Income Produced						
OIL AND GAS PRODUCTION AND REFINING	27,796.4	8,494.6		4.3		70.1		178.9		47.3		24.8		88.2		53.2		30.7		67.6		24.5		29.2		69.5		32.2		5.2		19.6	27,796.4	9,244.9	37,041.3			
OTHER MINERALS		29.3	313.5	.1		4.2		7.9		29.9		.9		.1		6.8		3.6		1.4		.6		.7		4.2		.8		.3		.4	313.5	82.2	395.7			
MANUFACTURING		287.2		6.5	3,215.8	82.6		221.9		61.5	134.1		3.5		53.1		28.0		111.5		33.7		22.0		237.7	4.5	45.0		7.4		32.3	3,220.3	1,368.0	4,588.3				
AGRICULTURE		113.8		.8		237.0	7,156.7	1,064.9		69.8		16.6		.6		6.8		3.6		12.7		3.6		*630.4	96.1	35.3		6.2		1.5		3.7	7,787.1	1,671.0	9,458.1			
TRANSPORTATION		2,804.4		6.9		363.4		657.7	2,028.3	41.6		58.9		8.0		59.5		31.4		67.6		17.8		3.0	60.0	232.2	113.2	25.2	27.9	20.4	4.3	19.6	2,309.1	4,342.2	6,651.3			
COMMUNICATION		156.7		12.3		43.1		92.3		35.1		22.6		2.2		33.6		17.7		52.1		12.7		16.3	9.0	6.1	65.1	19.8	21.1	5.2	3.1	15.1	47.4	594.8	642.2			
UTILITIES		2,152.9		12.6		168.2		372.9		135.3		79.1		11.1		101.6		53.5		215.1		62.3		6.8	36.8	207.5	9.8	85.1		7.1	12.2	62.2	23.7	3,768.2	3,791.9			
RETAIL		4,252.2		95.3		1,213.0		3,717.9		993.1	3,020.5	435.6		53.6		847.2		446.5		1,884.3		443.7		6.0	347.4	3,989.7	1,183.5	17.6	706.2	26.6	97.7	545.2	7,060.4	17,242.6	24,303.0			
SERVICES		1,246.4		31.2		290.1		1,085.0		230.8		122.0		15.9		279.3		147.2		414.7		99.6		1.1	101.4	1,213.6	346.5	80.9	160.5	8.6	22.7	120.0	1,304.2	4,713.3	6,017.5			
FINANCE		555.1		12.0		215.1		392.2		125.8		77.0		9.1		115.2		60.7		222.3		62.4		.1	39.0	10.7	210.2	.8	87.9	7.6	13.1	64.3	19.2	2,261.4	2,280.6			
WHOLESALE		1,139.9		19.8		320.3		850.9		212.0		522.5	439.3	9.9		147.5		77.7		311.8		108.4		63.6	79.9	860.4	23.8	127.9	5.9	21.5	90.2	532.6	4,900.6	5,433.2				
RENTALS		180.3		2.9		48.6		216.1		39.1		50.1		2.6		40.8		21.5		48.4		12.8		6.5	20.0	118.9	.3	21.4	1.6	3.4	14.0	8.4	820.9	829.3				
CONSTRUCTION		1,467.2		24.7		507.5		855.9		238.7		132.6		25.3	4,251.0	646.6	2,240.5	340.8		405.1		363.7		84.1		405.2	1.1	182.3		24.2	117.2	6,492.6	5,821.1	12,313.7				
TOTAL BUSINESS AND INDUSTRY INCOME	27,796.4	22,860.0	313.5	229.7	3,215.8	3,563.2	7,156.7	9,714.5	2,028.3	2,251.0	3,020.5	1,676.8	439.3	230.1	4,251.0	2,396.2	2,240.5	1,262.9		3,814.6		1,246.8		733.8	923.4	5,452.3	3,837.2	183.5	1,904.5	83.0	216.6	1,103.8	56,914.9	56,831.2	113,746.1			
BUSINESS AND INDUSTRY MULTIPLIER		.8225		.7328		1.1080		1.3574		1.1097		.5552		.5240		.5637		.5637		1.1120		1.0167		1.2584		.7038		1.0804		.9386		1.1120		.8892				
REALIZED PERSONAL INCOME		9,769.2		217.4		2,636.3		5,944.4		2,286.5		936.4		119.3		1,789.7		943.2		3,430.3		1,021.9		854.1		556.0		2,536.9		1,116.7	529.2	134.7	93.1	992.6	295.7	5,674.3	30,529.3	36,203.6
LOCAL GOVERNMENT REVENUE		1,051.5		20.2		113.2		511.0		152.3		89.1		13.6		73.5		38.8		113.9		1,226.3		27.5		50.2		231.6		92.1	49.7	1.4	8.7	33.0	1,319.8	2,547.8	3,867.6	
SUM OF TOTAL EXPORT	27,796.4		313.5		3,215.8		7,156.7		2,028.3		3,020.5		439.3		4,251.0		2,240.5		3,430.3		1,226.3		733.8		5,452.3		1,392.6		219.1		992.6		63,909.0					
SUM OF TOTAL INDUCED INCOME		33,680.7		467.2		6,312.7		16,169.9		4,689.3		2,702.3		363.0		4,259.4		2,244.9		4,950.4		2,128.4		1,529.6		6,575.7		2,083.4		318.4		1,432.5		89,908.3				
TOTAL INCOME MULTIPLIER		1.2117		1.4933		1.9630		2.2394		2.3122		.8947		.8263		1.0020		1.0020		1.4432		1.7356		2.0845		1.2060		1.4961		1.4532		1.4432		1.4068	153,817.3			

*Government Payments

note that through truckers who have no bases in the county are not included in this category.

The multiplier effect per dollar did not change much since the expenditure pattern of the industry remained about the same, and induced business and other income decreased in about the expected amounts. This industry has a high multiplier; hence, its effect on the overall economy is much greater than for some industries. The amount of overall induced income lost from this change was \$3,849,900, with lost business making up \$1,825,600 of it.

As an offset, shoppers from outside of Carbon County, (probably due to the establishment of Jeffery City nearby in Fremont County) increased their purchases by \$1,123,200 or by 59.2 per cent. At the same time there was a shift in buying patterns of retailers. This was discussed in the previous chapter also. Except for wholesaling of gasoline, which increased in line with increased heavy construction, wholesaling in the county took a nose dive. This meant that retailers were going outside of the economy for supplies to a greater extent than had been the case; the result was a lower multiplier effect.

If the multiplier had not changed, the increase in induced business would have been \$699,080 instead of the actual increase of \$495,900. Total induced income would have increased by \$1,116,900 instead of \$815,600.

The decrease noted previously in non-gasoline wholesaling was reflected in sales outside of the county also. A decrease of \$639,600 or 59.3 percent occurred in out-of-county sales. Since gasoline bulk plants have been included with wholesalers and have a tendency to buy supplies from the local refinery, and since this part of wholesaling actually increased, the multiplier effect per dollar of basic income introduced by this industry increased slightly. As a result, the loss in induced income was not quite so large as it might have been.

One of the most important changes taking place in the Carbon County economy was the tremendous increase in construction which was paid for by financial sources outside of the county. The increase in money left in the economy and paid for from non-governmental sources amounted to \$3,706,000. In addition, there was highway construction paid for by government which left \$2,240,500. These are treated separately in Table XXXIII, but they have the same relative impact on induced income. Privately financed construction produced an increase of \$1,906,800 in induced business and publicly financed construction increased it by \$1,262,900 for a total of \$3,169,700 worth of induced business enjoyed by the economy due to the construction industry.

This much of a change in an industry brings certain changes in the multiplier effect. This is especially true if, as in this case, the character of the industry changes. Whereas in 1954 construction was concentrated on building, in 1959 the concentration was on heavy construction.

If the 1954 multiplier had applied in 1959, non-governmental construction would have created \$3,328,700 of additional business and

\$6,113,000 of total income. Since the multiplier decreased these figures were only \$1,906,800 and \$3,360,400 respectively. Governmental construction would have added \$1,980,000 to induced business and \$3,636,300 to total induced income instead of the actual of \$1,262,900 and \$2,244,900.

Highway construction was also responsible for the increased government payrolls. The additional \$2,228,100, which represents an increase of 1.6 times, increased business by \$2,346,800 and overall induced income by \$3,023,300. The multiplier effect per dollar of basic income did not change very much for this item.

State and federal payments to local government increased also during this period, as did the induced income produced. A small change in the multiplier effect per dollar is noticed here also.

Other contributions by state and federal government include payments made to farmers and ranchers and local purchases of goods and services. The change between 1954 and 1959 was due almost entirely to larger farm payments. The effect of this can be determined by running the value of the payment through the agricultural column in Table XXXI.

Travelers and truckers made major contributions to the economy in both years. The distribution of travelers sales is shown in Figure 34. Truckers spend all of their money in the retail category. It is obvious that this is primarily a bridge county and that most money is being spent with retailers. When travelers slow down they spend a larger proportion on services.

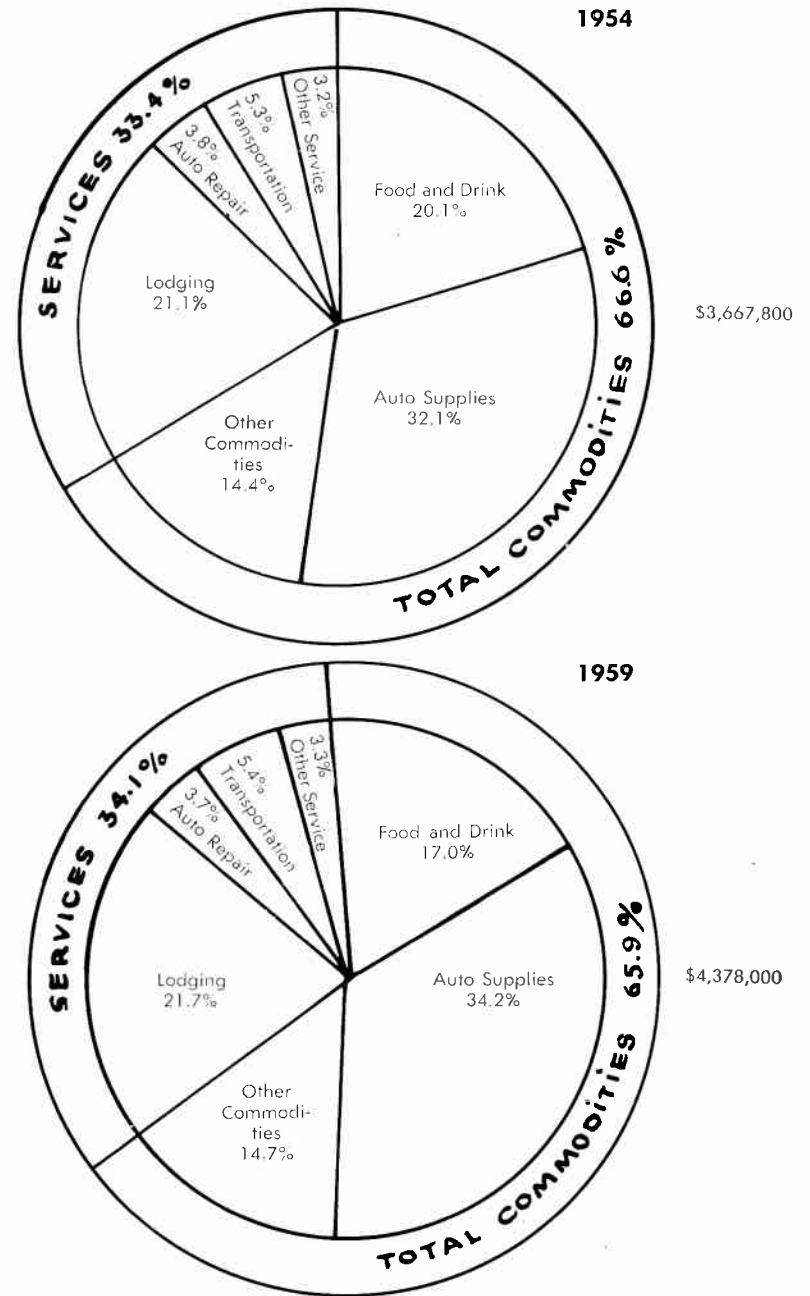
The importance of this factor lies in the fact the retailers naturally have to have supplies and that in an economy such as Carbon County's they usually buy them outside of the area. The "leakage" thus, is necessarily high. It has been noted in discussing out-of-county shoppers that the decrease in wholesaling was reflected in the turnover of dollars spent in retail stores. This same effect can be seen in the multipliers for the traveler and trucker dollar.

If the 1954 multiplier had applied in 1959 the \$884,600 increase would have resulted in an additional \$674,600 worth of induced business and \$1,155,900 of total induced income due to travelers and truckers. Instead, there was an increase of \$353,700 in induced business and \$606,900 in total induced income.

Mineral exploration was a new field of economic endeavor in 1959. This was due almost exclusively to the uranium prospecting and development. It might have been treated as a part of the mining picture, but it would have distorted it badly. There is no necessary connection between the amount spent on exploration and any value produced for this industry. The money being spent in the county is definitely new and definitely basic.

It is one of those endeavors that is good while it lasts, but there is no assurance of permanency. In an economy such as that of Carbon County where a good permanent base exists for the economy, this ac-

Figure 34
DISTRIBUTION OF TRAVELER EXPENDITURES
CARBON COUNTY, WYOMING



tivity adds a little frosting to the cake and probably creates few problems. Its multiplier effect is high because a major portion of the expenditures come as payrolls.

In smaller economies operations such as this often produce boom and bust conditions. It can be easily seen that with a high multiplier the gain and loss of this income can be felt quite keenly at times.

Drilling of oil wells is an industry quite similar to other explorations in both the tendency toward sudden spurts of activity and the high multiplier effect of each dollar spent. It so happens that this activity was minor in Carbon County in both 1954 and 1955.

This discussion of exploration activity should not be interpreted as a condemnation of the industry. This is a very important facet of the Wyoming economy. The important thing is that local people should be realistic in looking at its benefits and be prepared to face the upheavals it causes. Perhaps an understanding of the whys will help to do that.

Carbon County is fortunate in having a stable base to absorb this type of activity.

What has been learned by comparing these tables? First of all, even when two years as unlike as these are compared, the overall impact of a dollar of basic income does not change drastically. In 1954 the business multiplier was .9080 and in 1959, it was .8892. For all income the multipliers were 1.4713 and 1.4068 respectively.

Secondly, there can be quite drastic changes in the secondary effects of particular industries. This is generally due to either changes in the expenditure pattern or make up of the industry itself or to changes taking place within industries with which it is associated in the economy, or to both. It is also possible for the complexion of an entire economy to change, in which case it would reflect in the individual industries. This is highly unlikely in any short-run situation at least.

Thirdly, it has been possible to witness some of the workings of the Carbon County economy. This should help in assessing change for the future.

Summary

In this chapter the concepts of basic and secondary industry discussed in the last chapter were utilized to develop the concepts of basic and induced income, with some emphasis on the importance of leakage.

An important consideration is the discovery of the definite sources of basic income. In Carbon County these were oil production and refining, mining, manufacturing, agriculture, transportation, shoppers from out-of-county, out-of-county wholesaling, expenditures of state and federal governments, expenditures by travelers and truckers, and miscellaneous other sources in 1954.

The big year of 1959 was caused by expansion in income of some of the basic industries, and introduction of new industries. As usual, not everything tended the same way. Loss of the coal market through dieselization of the railroad caused a drop in the mining industry. The same factor contributed, along with certain developments in the trucking industry, to a major decrease in the contribution of transportation to the economy. There was also a shift away from wholesaling, except for gasoline bulk sales, resulting in a loss of revenue from out-of-county sales. Drilling of oil wells fell off slightly also.

All other sources of basic income showed increases between the two years. Further significant contributions came from non-governmental and governmental sponsored construction, and mineral (uranium) exploration.

The value of an export or dollar of basic income does not determine by itself the magnitude of economic activity resulting from its introduction into the economy. As an extreme example, if a rancher sold \$1,000 worth of cattle and immediately went to Chicago and spent the money, the amount of business developed in his home town would be nil. The money must be spent in the economy to produce income. Once it enters the economy it will produce income by virtue of its turnover, the amount depending upon how fast it leaks out.

Each industry has its own peculiarities and its own impact upon the local economy. Sometimes the impact changes from one year to another, if the makeup or expenditure pattern of the industry changes, or these changes take place in another industry associated with the first, or there is a drastic change in the make-up of the whole economy.

In Carbon County the business and income generating power of most sources of basic income remained fairly comparable between 1954 and 1959. There were exceptions, but they tended to cancel one another out.

Overall there was \$50,651,400 in basic income introduced into Carbon County in 1954. These dollars induced \$74,525,700 worth of additional income.

The basic income included sales of \$39,444,800 by basic industries, \$8,094,200 by secondary industries, \$2,138,600 of payrolls, and \$973,800 of local government revenue. The income induced by expenditure of these funds included sales of \$13,778,300 by basic industries, \$32,212,400 by secondary industries, \$26,440,200 of personal income, and \$2,094,800 of local revenue.

From this it can be seen that there is a tendency for basic industries to produce basic income and for secondary industries to derive their income as a result of workings of the economy. This cannot be made a generalization, however, because of the importance of secondary industries in producing basic income and the local market that exists for products of basic industries.

Dependence of individuals upon workings of the economy for generation of their income is evident in that only about one-tenth as much personal income enters the economy as basic payments as is induced in the economy. Local government is also heavily dependent upon workings of the economy for its revenue.

Comparing 1954 with 1959:

Basic Income	Business Multiplier	Business Generated	Personal Income Generated	Local Revenue Generated
\$50,651,400	.9080	\$45,990,700	\$26,440,200	\$2,094,800
\$63,909,000	.8892	\$56,831,200	\$30,529,300	\$2,547,800

CHAPTER VII

Future Growth and Development

Most of the future growth of Carbon County can be expected to take place along the same lines as in the past. There are always possibilities that something unusual will happen. Perhaps the best chance for this would be in the establishment of a steam electric plant using Carbon County strip-mined coal. At present there is nothing to indicate that such a plant will be built in the very near future.

Aside from this possibility, the best chance for long range growth and development lies in servicing the traveling public along U. S. Highway 80.

Construction of this highway will be important for the next few years, but the construction industry should become less important following its completion. Of course, it is impossible at this stage to say what will be done once the inter-state system is completed.

In order to discuss some of the possibilities for growth and probabilities for decline, the author has gazed into the crystal ball and conjured up some basic income figures for 1964 and 1969.

Then, using information gleaned from the 1954 and 1959 analysis in the prior chapter, he estimates the amount of induced business and

Table XXXIV
**EXPECTED BASIC INCOME AND BUSINESS RESULTING
 CARBON COUNTY, WYOMING
 1964 and 1969**

Sources of Basic Income	Amount	
	1964	1969
Oil and Gas Production and Refining	\$29,000,000	\$31,000,000
Other Minerals	500,000	750,000
Manufacturing	4,500,000	5,000,000
Agriculture	7,500,000	6,500,000
Transportation	2,000,000	1,750,000
Trade Area Shoppers	3,500,000	3,500,000
Out-of-County Wholesaling	500,000	500,000
State and Federal Government	6,500,000	11,500,000
Travelers and Truckers	6,500,000	7,500,000
Non-Governmental Construction	4,500,000	4,500,000
Oil Well Drilling	250,000	250,000
Other Mineral Exploration	1,750,000	
Other Income	1,000,000	1,250,000
Total Basic	\$68,000,000	\$74,000,000
Extra Business Induced	\$61,000,000	\$67,000,000

industry that would result. It was seen for example that, in spite of extreme differences in years, the amount of extra business and industry induced was about \$.90 for each dollar of basic income. Thus, it is to be expected that this situation will hold in the future.

If basic income is \$68 million in 1964 as estimated, there will be an additional \$61 million of business produced; and, if it reaches \$74 million by 1969 there will be an additional \$67 million produced.

Oil Production and Refining

It is anticipated that oil production will be in the vicinity of four million barrels in 1964 and somewhat over that in 1969.

Gas production is also expected to increase over its 1959 level, but will probably not reach the high production experienced in the 1940's. Production should be around three billion cubic feet by 1964.

The refinery at Sinclair is expected to continue upgrading its facilities and enlarging its capacity as demand increases for its production.

Other Minerals

It is expected that coal will maintain its 1959 level of production and that the value of uranium production will increase.

Manufacturing

Since most of the export values of manufacturing are tied to forest products, a look at the future of that industry is in order.

According to the U. S. Forest Service there is a possibility of cutting 46.8 million board feet annually. In some years the cut has come close to this, but it has not been an annual occurrence by any means.

The two major products involved here are railroad ties and rough lumber. The U. S. Forest Service expects about a six per cent increase over 1952 in cross-tie consumption by American railroads by 1975.¹ This is not a large change, but indicates that the market for ties should hold up quite well.

There are several possible markets for lumber. One would be the lumber used in shipping, including wooden boxes, cases, crates, pallets, and dunnage. Forest Service estimates for 1975 over 1952 consumption run between an increase of 21 and 42 percent.² This would indicate that a good market should develop for the type of lumber produced in this county.

Other uses for lumber would be in construction. Forest Service projections to 1975 show increases over 1952 of between nine and thirty

¹ U. S. Forest Service, *Timber Resources for America's Future*, U. S. Government Printing Office, 1958, P. 403. (Includes hand hewn and sawed ties).

² *Ibid.*, P. 415.

percent for new non-residential construction.³ New residential construction should consume between eighteen and thirty-eight percent more lumber for the same period.⁴ The future looks bright here also.

It is expected that by 1975 the amount of western timber removal to meet demand will amount to between 27.4 and 31.7 billion board feet.⁵ The growth needed to meet this demand would be between 66 and 92 percent higher than was the case in 1952.⁶

On this basis, in spite of some reversals in particular years, the future of the forest products industry seems very bright.

The above discussion overlooks the possibility of up-grading locally produced lumber and selling it on the Wyoming market. Wyoming consumers use very little locally produced lumber. This is partially the result of poor marketing in the past and a consequent bad name for the "native" lumber. Such a situation, of course, can be overcome by producing a quality product.

As Wyoming and surrounding states increase in population, the possibility of developing this market becomes more certain.

Agriculture

In recent years there has been a tendency to build up inventory numbers of both cattle and sheep in Carbon County. The increase in sheep numbers has been somewhat slower than the state trend. The increase in cattle has been faster than the trend for the state.

It is expected that there will be somewhat of a leveling off in these trends to keep herds within the carrying capacity of the range. A drouth such as was experienced in 1954 could upset this and cause an actual decrease. Barring this possibility, however, production of meat animals should be slightly above the 1959 level during most years.

The price of lamb has been dropping for four years and the price of wool has been tending downward somewhat for three years. Over a long period (20 years) the general trend of lamb and wool prices has been slightly upward. In view of trends in demand and the competition from foreign sources, the income from the sheep industry may go down somewhat during the next few years. The change in total income from this source should not be greatly changed by 1964 but may be quite definitely down by 1969.

During the past twenty years cattle prices have fluctuated quite violently. The general trend has been upward, but deviations from the trend line are so great that it is not very useful. It is expected, in light of present trends cattle prices will still be fairly high in 1964 but will have dropped considerably by 1969. These trends are pure guesses at this point.

³ *Ibid.*, P. 391.

⁴ *Ibid.*, P. 383.

⁵ *Ibid.*, P. 479.

⁶ *Ibid.*, P. 480.

The agricultural income estimates for these years are based on the above analysis.

Transportation

Eventually, the railroad should reach a lower limit on its retraction. We do not expect this to happen by 1964 but it should be close by 1969. In view of recent developments in trucking, we do not expect this area to regain the place held in 1954. The overall contribution by transportation will, therefore, be down somewhat.

Construction

Highway construction is expected to be worth about \$1,800,000 in 1964 and \$3,800,000 in 1969 in Carbon County.⁷ Other construction will depend upon the needs of the mining industry and building needs of the remainder of the economy. It is estimated that these will remain strong.

Travelers and Truckers

The interstate highway will bring many more travelers through Carbon County. It is expected by many people that after the highway is finished—this increase may be as large as four times the present. However, the highway will not be completed until after 1969, so the increase would not be expected to be quite that large.

The situation with truckers is somewhat different. The impact of "piggyback" operations on the railroad should be showing up by 1964. It is not expected that this operation will affect truckers hauling short distances very much, but long distance trucking, particularly across state lines, is bound to be affected. A decline in basic income from this source can be expected.

Oil Well Drilling

Unless there is a major discovery, this activity should not grow very much. So long as there are areas to be explored, some activity can be expected.

Other Mineral Exploration

This is a difficult area to make prognostications. Obviously, the activity in 1959 was due to uranium. If there remain possibilities for discoveries there will be activity. It is expected that there will be considerable activity in this field in 1964, but that it will have passed out of the picture by 1969. This could prove wrong, but it seems most logical at this time.

⁷ Conversation with Alvin Bastron, Planning and Research Engineer, Wyoming Highway Department.

Expenditures of State and Federal Government

These activities will remain high until the interstate highway system is finished. After that there will be a lesser need for these workers, unless some new project is started. The latter is entirely possible. At least for the two years projected here, the contribution should be high.

Shoppers

There should continue to be developments in the area surrounding Carbon County. This will lead to some increase in the amount of shopping done in the county. Such an increase will not compare with that which occurred between 1954 and 1959, unless a development similar to that at Jeffery City should come about.

A much more practical way to use the analysis presented in this study with respect to economic development would be to utilize the information contained in Tables XXX and XXXI. For example, if it were visualized that a new industry might be induced to settle in the county it should be possible to get some idea of the amount of payroll, taxes, rent, utilities, etc., that this industry would pay out. Then by going to these tables it would be possible to determine the secondary effect of these purchases.

First, look at the effect of payroll. Columns 14 in these tables indicate that each dollar of new payroll will produce between \$1.11 and \$1.13 of new business and industry income. Also, there will be created additional personal income of between 30 and 32 cents for each dollar of payroll. Furthermore, each dollar of new payroll will create about three cents of local government revenue. Thus, if a \$1 million payroll is obtained, the businessmen can expect \$1,110,000 to \$1,113,000 of new income; there will be \$300,000 to \$320,000 of income to support additional people in the community, and there will be over \$30,000 of new taxes paid.

While payroll is usually the most important contribution of new industry, there are a number of other ways in which a contribution is made. Supposing it were determined that a new industry was going to pay \$100,000 directly in taxes to local government. Column 15 in the tables tells that, depending upon the type of activity in other sectors of the economy, there would be \$102,000 to \$114,000 of new business created, \$70,000 to \$80,000 of income to support new people in the community, and from two to three thousand dollars of additional tax revenue.

Supposing the industry is going to pay out \$100,000 annually in rent. In addition to that amount, there would be 14 to 15 thousand dollars of additional rent collected by the turnover of this money. All types of business would gain \$139,000 to \$144,000; there would be an additional \$83,000 to \$89,000 to support new people in the community; and there would be about \$13,000 of additional tax revenue.

There are many other items that could be analyzed in a similar manner, thus making it possible to pin down the total effect of a new

industry. The same procedure could be followed in determining the total effect of losing an industry.

These tables are also very useful in assessing the impact of the travel industry to the county. It is known from previous studies that travelers who are moving tend to spend heavily with retailers and very lightly with service firms. A glance at columns 8 and 9 of these tables will explain why the secondary benefits of these people are fairly small compared to those received from people vacationing in the area, who are spending heavily for services.

Using the 1959 table, a traveler who spent \$1 in a retail establishment actually created \$1.56 worth of business. (The original dollar plus an additional 56 cents.) Retailers themselves got the original dollar and 14 cents additional.

Supposing the dollar is spent in a service establishment. Service firms would gain the dollar plus thirteen cents; retailers would gain 39 cents; wholesale 12 cents; construction 17 cents, etc. The overall increase in business would be about \$2.11.

The reader will have noticed by now that the 1954 table has higher values for these two columns. This is due to the smaller amount of wholesaling in 1959. These tables are very good for pointing out changes which cause the secondary effect to change. The more integration the economy has, the larger will be the multiplier. By integration is meant such a series as from manufacturer, to wholesaler, to retailer.

It must be realized that it is often economically impossible for a local economy to support very much of a wholesale industry and that a manufacturing industry geared to the local market is often infeasible also. But this doesn't alter the fact that there is a definite secondary benefit to the whole economy from integration. This fact is very frequently overlooked when a community sets out on an industrial promotion drive.

Tables XXX and XXXI are, thus, extremely useful to the local community in assessing the impact of actual changes in the economy. They are much more useful than the crystal ball figures developed for 1964 and 1969, although it is hoped that these figures may prove useful also.

Table XXXV
 INTER-INDUSTRY TABLE
 Carbon County, Wyoming
 1959
 (\$1,000's)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		
	OIL AND GAS PRODUCTION AND REFINING	OTHER MINERALS	MANUFACTURING	AGRICULTURE	TRANSPORTATION	COMMUNICATION	UTILITIES	RETAIL	SERVICES	FINANCE	WHOLESALE	RENTALS	CONSTRUCTION	HOUSEHOLD	LOCAL GOVERNMENT	STATE AND FEDERAL GOVERNMENT	TRAILERS AND TRUCKS	OIL WELL DRILLING	MINERAL EXPLORATION	OTHER EXPENSE	TOTAL		
F 1	OIL AND GAS PRODUCTION AND REFINING	8,304.3	-	1.5	-	4.6	-	73.8	-	-	-	-	807.8	-	52.9	-	-	-	-	-	-	27,796.4	37,041.3
2	OTHER MINERALS	-	-	-	-	66.1	-	-	-	.5	-	-	-	-	15.6	-	-	-	-	-	-	313.5	395.7
U 3	MANUFACTURING	1.0	.7	11.7	-	.5	1.6	44.5	820.3	94.8	31.8	-	103.5	-	231.6	26.0	-	-	-	-	4.5	3,215.8	4,588.3
4	AGRICULTURE	-	-	272.4	1,183.2	179.7	-	-	35.6	.1	-	-	-	-	-	-	630.4	-	-	-	-	7,156.7	9,458.1
R 5	TRANSPORTATION	2,646.7	3.9	430.0	616.8	1.5	11.1	13.7	251.7	44.6	1.5	47.7	.1	70.5	202.4	-	-	3.0	232.2	20.4	25.2	2,028.3	6,651.3
6	COMMUNICATION	21.2	12.0	12.4	7.4	22.2	1.2	3.4	80.9	85.2	8.4	6.5	.1	26.4	300.1	7.4	16.3	6.1	5.2	19.8	-	642.2	-
C 7	UTILITIES	1,664.7	1.5	43.2	44.2	68.5	18.7	3.7	225.4	156.2	4.9	9.5	19.7	21.2	1,429.7	57.1	6.8	-	-	7.1	9.8	-	3,791.9
8	RETAIL	10.6	2.7	74.2	1,312.3	26.7	-	31.4	216.2	126.8	6.1	22.7	43.7	216.3	14,917.4	235.5	6.0	3,989.7	26.6	17.6	3,020.5	24,303.0	-
H 9	SERVICES	185.6	12.4	115.5	565.5	30.6	17.1	49.4	201.7	259.0	19.0	44.7	22.2	272.1	2,095.1	33.4	1.1	1,213.6	8.6	80.9	-	6,017.5	-
10	FINANCE	.1	.2	99.0	38.5	19.1	16.2	31.1	133.7	143.0	113.4	29.4	139.0	43.2	1,407.0	48.5	.1	10.7	7.6	.8	-	2,280.6	-
A 11	WHOLESALE	118.4	3.7	147.3	236.0	136.3	-	128.3	3,543.1	902.6	1.6	-	4.3	171.3	-	107.7	63.6	-	-	5.9	23.8	439.3	5,433.2
12	RENTALS	17.1	.1	14.5	132.7	39.4	5.8	9.9	297.2	165.5	16.8	11.6	-	42.9	65.8	1.6	6.5	-	-	1.6	.3	-	829.3
S 13	CONSTRUCTION	114.7	.3	304.8	154.7	1.8	-	414.7	84.3	365.5	19.4	118.5	84.4	1,211.1	2,157.0	789.9	2,240.5	-	-	-	1.1	4,251.0	12,313.7
14	HOUSEHOLD	4,292.3	181.0	2,096.9	3,671.0	5,355.9	340.7	371.0	4,183.9	3,109.8	920.5	774.9	301.5	774.9	82.4	1,656.7	3,430.3	-	-	134.7	1,116.7	992.6	36,203.6
E 15	LOCAL GOVERNMENT	628.1	16.5	17.6	312.3	281.5	58.7	52.8	432.2	137.5	40.8	104.0	78.9	46.3	342.6	-	1,226.3	-	-	1.4	92.1	-	3,867.6
16	STATE AND FEDERAL GOVERNMENT	1,094.4	107.5	580.0	721.2	204.8	23.1	55.4	552.6	115.8	48.5	1,329.4	23.8	90.6	4,116.7	59.6	23.1	-	5.5	699.1	-	9,861.1	-
S 17	IMPORTS	17,942.1	53.2	367.0	482.3	212.1	138.0	2,508.8	13,243.7	911.1	1,047.9	2,126.5	8.1	6,844.5	8,045.8	844.2	2,207.1	-	-	199.5	1,263.1	-	58,445.0
	TOTAL	37,041.3	395.7	4,588.3	9,458.1	6,651.3	642.2	3,791.9	24,303.0	6,017.5	2,280.6	5,433.2	829.3	12,313.7	36,203.6	3,867.6	9,861.1	5,452.3	424.1	3,354.8	49,214.1	222,123.4	-

Appendix A

In previous chapters, use was made of multipliers developed through input-output techniques. The actual development of these multipliers will now be explained.

In an input-output analysis, first the relationships that exist among the various parts of the economy must be determined.

As was said earlier, every modern economy must export in order to live. The word export used in this connotation covers many things. For example: The sale of oil produced by the economy to refineries located in Salt Lake City is regarded as an export of that commodity and its value is credited to the economy even though the money may be paid to the firm's headquarters in New York City. It is assumed that a portion of the money will be spent locally and that the rest can be called a leakage from the economy.

Money imported to pay for a heavy construction project is also considered to be a payment for export of service of local contractors. The same would apply to loans made for building where the money comes from an outside source. Thus, the flow of monetary capital into the economy is taken care of under exports and the outflow of money is accounted for under imports.

In addition to these relationships to the outside, the various sectors of an economy have certain relationships to one another. In other words, they do business with one another.

For the model used in this study, the sales (X_i) of any particular industry (i) consist of the local market ($\sum x_{ij}$) plus the value of export (Y_i). Thus, the total output of the industry can be expressed as:

$$(1) X_i = \sum x_{ij} + Y_i \quad (i, j = 1, 2, 3, \dots, n) \quad i = \text{rows} \quad j = \text{columns.}$$

In Table XXXV equation (1) is expressed as a transaction matrix or table. As an example, examine the first row of the table which is labeled Oil and Gas Production and Refining. Moving across it is seen that this industry sells some of its product to itself. Since it was necessary to combine both production and refining in order to avoid disclosure, a major part of this is sale of oil to the refinery. It also sells to manufacturing, transportation, utilities (natural gas), wholesale (gasoline and oil), and construction (gasoline and oil). All other sales are made outside of the county and are labeled export.

It was pointed out previously that the first fifteen sectors are the ones considered to be endogenous to the model. In other words, they make up the local economy. Therefore, anything sold to state and federal government, travelers and truckers, oil well drilling, and mineral exploration is considered to be an export. The reason for making

these exogenous to the model is their lack of response to local economic stimuli. In other words, their activity is directed from outside of Carbon County and has no relationship to what local entrepreneurs do.

Moving down the table it is seen that agriculture has an item labeled sales to state and federal government. This is actually government support payments which are handled in this manner for convenience. Retailing has heavy sales to travelers and truckers. These are direct purchases made by these people. It also has a heavy other export value. This was explained in Chapter VI as sales to out-of-county shoppers.

Construction has a heavy sale item to state and federal government. This is highway construction money. It also has a heavy export value. This is construction paid for by either loans from outside the economy or by outside investors. A part of this heavy work was done for uranium companies.

The values of the household sector within the economy represent payrolls, profits, royalties, rents, and any other money that comes from the various industries and that accrues to the local household. Outside of the economy are payrolls of state and federal government, oil well drilling firms, and mineral exploration firms. The other export item represents such things as O.A.S.I. benefits, insurance payments, stock dividends, etc.

Thus, looking at the rows of the table, it is seen that it does fit equation (1) with each sector having a total output represented by sales within the economy and exports from it.

Conversely, by examining the columns it is seen that the j th column consists of a total input made up of local purchases, plus state and federal taxes and imports. The latter two are labeled "leakage" from the economy in our discussion in previous chapters.

The data in the transaction matrix can be used to compute production or input-output coefficients (a_{ij}) such that: (2) $X_{ij} = \sum a_{ij}x_j$ ($i, j = 1, 2, \dots, n$)

These computations are shown in Table XXXVI. Now the total input or input-output coefficients (a_{ij}) such that: (2) $x_{ij} = a_{ij}x_j$ ($i, j = 1, 2, \dots, n$)

$$(4) X_i - \sum_j a_{ij}x_j = Y_i$$

Equation (4) can now be rewritten in matrix notation as:
(5) $X - AX = Y$

$$(6) (I - A) X = Y$$

Where A is the matrix of production coefficients, X is the vector of output for the various sectors, and Y is the vector of exports.

Thus, exports (Y) become a function of total outputs (X_i) and the relationships among the various sectors of the economy as expressed by the production coefficients.

But it is known that the real economic relationship is that the output is actually a function of the exports. In other words, the introduction of new money is the thing that makes the economy go.

This relationship is obtained by inverting the matrix $(I - A)$, which can then be expressed as $(I - A)^{-1}Y = X$.

The matrix $(I - A)$ is shown as Table XXXVII. It is developed by subtracting Table XXXVI from the identity matrix

1000.....	0
0100.....	0
0010.....	0
0001.....	0
.....
.....
.....
0000.....	1

The inversion is shown in Chapter VI and is the source of the various multipliers used in that chapter. (Tables XXX and XXXI)

This illustration is developed only for 1959. The process is identical for 1954.

Appendix B

Table XXXVIII
AVERAGE TEMPERATURE AND PRECIPITATION
RAWLINS AND DIXON, WYOMING

	Rawlins		Dixon	
	Temperature	Precipitation	Temperature	Precipitation
January	21.4	.29	17.3	.93
February	22.1	1.87	22.1	.69
March	27.1	.85	30.3	1.20
April	39.8	.22	41.8	1.36
May	47.9	1.41	50.4	1.34
June	63.1	1.89	58.2	.98
July	67.0	.13	65.4	1.23
August	65.9	.74	63.2	1.19
September	52.9	1.25	54.9	.82
October	41.1	.89	44.5	1.34
November	30.4	.19	30.8	.82
December	27.2	.17	22.5	1.05
Year	42.2	9.90	41.8	12.95
Record	21 years	20 years		

Source: Volume LXVIII No. 13 Climatological Data, Wyoming, Annual Summary, 1959.

Table XXXIX
ANNUAL RUN-OFF OF THE NORTH PLATTE RIVER
ABOVE SEMINOE RESERVOIR NEAR SINCLAIR, WYOMING
1948-1960

Year	Run-off*
1948	702.5
1949	1154.0
1950	851.5
1951	829.6
1952	1249.0
1953	557.8
1954	338.3
1955	414.4
1956	703.3
1957	1313.0
1958	804.0
1959	571.6
1960	639.6

*Thousand Acre Feet.

Source: Wyoming State Engineer.

Table XL

ORIGINAL RESERVES OF COAL
CARBON COUNTY, WYOMING
As Estimated in 1950

	Sub-Bituminous	Bituminous
0 to 1,000 feet overburden	*	*
In beds 2½ to 5 feet thick	710.12	In beds 14 to 28 inches thick 7.84
In beds 5 to 10 feet thick	1,571.68	In beds 28 to 42 inches thick 12.43
In beds over 10 feet thick	868.25	In beds more than 42 inches thick 45.38
Total	3,150.05	Total 65.65
1,000 to 2,000 feet overburden		
In beds 2½ to 5 feet thick	327.81	In beds 14 to 28 inches thick 6.04
In beds 5 to 10 feet thick	558.45	In beds 28 to 42 inches thick 7.60
In beds over 10 feet thick	174.23	In beds more than 42 inches thick 3.62
Total	1,060.49	Total 17.26
2,000 to 3,000 feet overburden		
In beds 2½ to 5 feet thick	238.20	In beds 14 to 28 inches thick 9.70
In beds 5 to 10 feet thick	304.51	In beds 28 to 42 inches thick 7.63
In beds over 10 feet thick	90.03	In beds more than 42 inches thick -----
Total	632.74	Total 17.33
All overburden categories		
In beds 2½ to 5 feet thick	1,276.13	In beds 14 to 28 inches thick 23.58
In beds 5 to 10 feet thick	2,434.64	In beds 28 to 42 inches thick 27.66
In beds over 10 feet thick	1,132.51	In beds more than 42 inches thick 49.00
Total	4,843.28	Total 100.24
GRAND TOTAL		4,943.52

*Millions of Short Tons.

Table XLI
PRODUCTION OF COAL
CARBON COUNTY, WYOMING
1912-1961

Year	Production	Year	Production
	Tons		Tons
1912	634,980	1937	654,957
1913	605,553	1938	591,216
1914	641,682	1939	584,956
1915	586,410	1940	635,901
1916	726,722	1941	756,753
1917	844,331	1942	892,377
1918	812,899	1943	1,216,732
1919	586,410	1944	1,308,880
1920	704,035	1945	1,485,512
1921	556,650	1946	1,079,409
1922	405,059	1947	1,237,133
1923	597,140	1948	921,199
1924	518,000	1949	894,199
1925	465,160	1950	1,148,532
1926	496,109	1951	1,107,855
1927	486,544	1952	1,021,673
1928	515,920	1953	736,478
1929	532,997	1954	233,200
1930	491,568	1955	192,494
1931	452,134	1956	164,004
1932	422,164	1957	119,745
1933	386,875	1958	97,215
1934	415,579	1959	98,306
1935	470,735	1960	129,882
1936	604,375	1961	378,592

Source: Annual Report of the State Inspector of Mines of Wyoming.

Table XLII
PRODUCTION OF CRUDE OIL AND GAS
CARBON COUNTY, WYOMING
1918-1961

Year	1920-1961 Oil Production (Thousands of barrels)	1918-1961 Gas Production (Thousand cubic feet)
1918		7.2
1919		295.5
1920	856.8	1443.3
1921	1575.6	1720.6
1922	4502.5	1769.4
1923	13282.6	1506.4
1924	14398.1	1212.8
1925	13726.2	1139.3
1926	15886.4	1102.4
1927	14151.5	1026.1
1928	15550.4	980.9
1929	13322.9	881.0
1930	10698.6	823.6
1931	8807.1	721.0
1932	7033.9	500.1
1933	5200.2	498.5
1934	5678.3	573.4
1935	6077.3	573.7
1936	6071.5	801.9
1937	3654.8	2035.8
1938	4387.6	2083.3
1939	4276.5	2541.8
1940	3243.9	2445.6
1941	2811.8	3657.2
1942	2922.0	3884.2
1943	3130.8	3531.7
1944	3190.6	3519.9
1945	3398.6	2871.6
1946	3746.5	1414.1
1947	3842.4	2509.5
1948	4014.8	3524.1
1949	2679.6	3269.0
1950	3468.6	2945.4
1951	2987.0	2926.0
1952	1508.9	2799.3
1953	1050.4	3088.2
1954	822.7	3200.2
1955	894.9	3276.2
1956	1124.5	3368.9
1957	1220.4	3398.6
1958	1213.1	3403.3
1959	1619.9	3551.1
1960	2071.3	3598.3
1961	2735.3	3437.9

Table XLIII

**GALLONS OF GASOLINE SOLD
CARBON COUNTY AND STATE OF WYOMING
1946-1961**

Year	Carbon County	Wyoming
1946	7,333,816	91,930,645
1947	8,507,512	106,661,551
1948	9,193,121	120,537,697
1949	9,163,390	125,904,688
1950	10,021,757	133,005,771
1951	10,791,948	138,506,858
1952	11,344,450	144,028,030
1953	11,885,393	151,301,279
1954	11,813,604	153,667,967
1955	12,352,178	157,205,083
1956	12,452,316	159,658,325
1957	12,941,763	162,029,667
1958	12,284,857	165,214,512
1959	13,050,237	173,312,516
1960	12,782,236	176,927,250
1961	13,110,709	177,741,478

Source: Wyoming Department of Revenue and Wyoming Tax Compliance Committee.

Table XLIV

**AUTOMOBILE AND TRUCK REGISTRATION
CARBON COUNTY AND STATE OF WYOMING
1939-1961**

	Carbon County		Wyoming	
	Autos	Trucks	Autos	Trucks
1939	3,658	992	64,807	18,634
1940	3,708	1,035	66,981	19,053
1941	3,933	1,152	71,501	20,474
1942	3,769	1,155	66,722	20,192
1943	3,849	1,186	62,645	20,014
1944	3,521	1,198	62,068	20,472
1945	3,476	1,345	62,640	21,436
1946	3,664	1,387	68,602	24,105
1947	3,918	1,460	74,169	27,626
1948	4,451	1,714	83,784	31,709
1949	4,923	1,876	95,206	35,360
1950	5,423	2,131	103,177	38,641
1951	5,275	2,323	104,505	41,319
1952	5,315	2,580	107,863	44,685
1953	5,600	2,653	112,255	47,132
1954	5,248	2,622	109,128	46,613
1955	5,654	3,020	118,596	51,171
1956	5,773	3,032	121,594	52,484
1957	5,862	3,147	123,308	53,623
1958	5,945	3,091	124,902	55,286
1959	6,280	3,401	133,086	59,153
1960	6,147	3,415	139,904	62,216
1961	6,223	3,390	141,567	63,555

Source: State Department of Revenue.

Table XLV

**VEHICLE REGISTRATION
CARBON COUNTY, WYOMING
1939-1961**

Year	Passenger Cars	Trucks	Trailers
1939	3,758	992	604
1940	3,708	1,035	594
1941	3,933	1,152	601
1942	3,769	1,155	586
1943	3,849	1,186	509
1944	3,521	1,198	542
1945	3,476	1,345	540
1946	3,664	1,387	587
1947	3,918	1,460	613
1948	4,451	1,714	788
1949	4,923	1,876	822
1950	5,423	2,131	848
1951	5,275	2,323	897
1952	5,315	2,580	916
1953	5,600	2,653	964
1954	5,248	2,622	885
1955	5,654	3,020	675
1956	5,773	3,032	673
1957	5,862	3,147	687
1958	5,945	3,091	750
1959	6,280	3,401	767
1960	6,147	3,415	843
1961	6,223	3,390	885

Table XLVI

**TWO PERCENT SALES AND USE TAX COLLECTED MONTHLY
CARBON COUNTY, WYOMING
1940-1961**

Year	January	February	March	April	May	June
1940	\$ 9,810.22	\$ 6,697.60	\$ 6,681.64	\$ 7,971.19	\$ 8,074.07	\$ 9,504.65
1941	10,000.51	7,589.80	7,228.59	9,861.64	8,959.53	10,990.47
1942	14,111.18	8,535.18	9,573.04	9,699.38	13,132.42	9,431.78
1943	12,661.19	13,106.74	9,772.98	25,658.38	11,079.47	10,542.01
1944	15,106.42	11,657.45	10,688.89	14,331.76	11,708.87	10,955.55
1945	23,324.96	11,266.85	11,353.69	14,585.87	12,456.50	13,856.89
1946	17,840.59	13,560.09	13,548.39	15,147.35	17,568.38	17,551.15
1947	18,014.84	16,670.60	19,113.57	17,816.16	21,161.46	23,791.84
1948	26,357.23	19,084.18	21,413.49	22,528.35	28,772.43	29,405.03
1949	19,818.99	21,204.59	24,980.82	26,090.89	26,333.02	29,190.89
1950	20,413.07	22,614.73	20,476.67	23,641.48	25,306.74	28,410.98
1951	21,820.05	25,420.90	25,872.64	27,106.84	30,796.33	30,291.10
1952	25,220.26	24,611.63	26,269.88	28,172.41	29,016.74	34,862.07
1953	29,881.23	28,285.47	29,697.40	32,881.46	31,957.49	38,668.98
1954	26,724.05	25,562.66	25,284.41	26,986.06	29,371.66	32,278.94
1955	32,779.51	25,487.23	29,728.42	27,976.34	32,792.37	34,449.05
1956	27,525.01	24,057.73	25,451.04	37,976.33	34,140.78	37,390.48
1957	32,284.73	35,266.00	40,343.41	37,241.97	43,143.91	35,881.06
1958	34,573.09	30,359.91	30,164.19	31,361.35	32,087.63	36,828.57
1959	34,424.35	32,352.03	31,573.05	35,379.55	38,179.95	44,694.19
1960	38,122.90	33,237.55	31,968.19	37,807.11	35,734.01	39,847.73
1961	38,121.62	33,359.10	32,865.95	33,854.91	33,286.31	41,163.24

Year	July	August	September	October	November	December
1940	\$10,267.15	\$10,585.35	\$10,511.08	\$ 9,574.13	\$ 8,674.06	\$ 8,491.56
1941	11,571.04	12,715.80	11,513.28	13,125.58	10,294.51	11,383.59
1942	10,652.31	9,328.65	10,499.21	11,974.69	10,075.32	11,698.55
1943	12,828.91	12,541.76	12,871.19	13,823.86	13,432.12	12,808.54
1944	13,133.21	12,689.84	10,843.58	15,872.46	13,752.33	12,478.10
1945	14,912.24	15,691.26				
1946	18,717.45	20,317.93	21,680.59	19,615.36	19,111.52	22,162.03
1947	23,802.02	25,309.07	24,645.12	24,698.43	26,889.03	30,687.92
1948	29,630.91	29,083.00	28,322.06	26,351.44	26,953.16	28,703.79
1949	32,643.55	31,458.49	28,762.84	30,371.37	29,296.14	28,706.89
1950	35,409.44	31,806.29	29,813.40	29,371.24	28,304.43	31,685.95
1951	35,140.56	31,452.77	34,229.45	38,976.07	30,111.43	31,985.77
1952	30,604.17	33,451.08	35,674.49	24,438.08	30,826.19	43,768.78
1953	43,278.48	39,153.61	33,752.68	29,595.55	35,213.71	31,937.72
1954	35,962.46	34,813.18	32,463.77	32,364.22	29,830.49	33,079.94
1955	41,046.74	38,639.91	35,470.21	33,743.68	30,909.78	35,488.79
1956	41,862.33	33,542.01	39,070.27	37,222.85	33,167.29	46,120.75
1957	42,717.78	38,987.92	45,219.95	37,220.82	36,646.54	40,374.55
1958	39,630.54	39,807.53	38,043.75	32,829.01	35,111.95	39,708.40
1959	46,256.53	42,734.62	46,872.94	44,241.15	39,031.06	37,924.19
1960	45,110.21	40,958.82	42,886.27	35,891.32	33,689.26	38,893.85
1961	43,604.04	40,960.39	40,429.89	40,272.82	33,444.23	40,546.94

Table XLVII

**MONTHLY RETAIL SALES
CARBON COUNTY, WYOMING
1956-1961
—Thousands—**

Year	January	February	March	April	May	June
1956	1,308.0	1,159.0	1,264.0	1,844.0	1,740.0	1,986.0
1957	1,431.0	1,501.0	1,656.0	1,636.0	1,808.0	1,865.0
1958	1,563.8	1,454.1	1,430.4	1,602.5	1,716.5	1,695.0
1959	1,708.5	1,538.4	1,555.4	1,749.8	2,009.9	2,355.0
1960	1,818.0	1,630.3	1,577.6	1,822.6	1,877.6	2,150.0
1961	1,848.0	1,546.0	1,519.0	1,455.0	1,753.0	2,144.0

Year	July	August	September	October	November	December
1956	2,342.0	1,991.0	2,068.0	2,060.0	1,461.0	2,127.0
1957	2,323.0	2,105.0	2,364.0	1,820.0	1,872.0	2,059.0
1958	2,168.2	2,286.5	2,024.1	1,809.0	1,806.8	1,953.1
1959	2,588.3	2,430.3	2,491.1	2,058.5	2,063.1	1,754.1
1960	2,374.4	2,381.3	2,053.9	1,911.9	1,595.9	1,703.5
1961	2,349.0	2,337.0	2,096.0	2,087.0	1,678.0	1,923.0

Table XLVIII

**RETAIL SALES
CARBON COUNTY, STATE OF WYOMING, AND THE UNITED STATES
1948-1961**

Year	Carbon County	State of Wyoming	Continental United States (Millions of Dollars)
1948	\$16,950,000	\$321,050,000	\$130,800
1949	16,930,000	332,360,000	130,800
1950	16,950,000	345,760,000	144,000
1951	19,010,000	375,620,000	156,548
1952	19,050,000	386,120,000	162,353
1953	20,420,000	394,600,000	169,094
1954	18,720,000	385,160,000	169,135
1955	19,900,000	409,960,000	183,851
1956	21,350,000	414,920,000	189,729
1957	22,440,000	427,010,000	200,002
1958	21,510,000	440,370,000	200,353
1959	24,303,000	493,479,000	215,413
1960	22,897,000	504,582,000	219,627
1961	22,735,000	483,821,000	218,916

Source: U. S. Department of Commerce, Annual Retail Sales Report, and Information Bulletin No. 1, Division of Business and Economic Records, University of Wyoming.

Table XLIX
RETAIL SALES BY TYPE OF VENDOR
CARBON COUNTY, WYOMING
1954 and 1958

	1954	1958
Food Stores	3,783,000	3,802,000
Eating and Drinking places	2,646,000	2,853,000*
Apparel and Accessories	738,000	691,000
Furniture and Appliances	481,000	665,000
Automotive	2,997,000	3,546,000
Service Stations	2,886,000	3,724,000
Lumber, Bldg., Hdw., Farm Impl.	1,501,000	1,511,000
Drug and Proprietary	754,000	933,000
General Merchandise	1,883,000	2,036,000*
All Other	1,051,000	1,749,000*
Total	18,720,000	21,510,000

Source: U. S. Census of Business and Information developed by this division.
 *Adjusted because of Census under-enumeration.

Table L
TRAVELER EXPENDITURES
CARBON COUNTY, WYOMING
1954 and 1959

Item	1954		1959	
	Amount	Percent	Amount	Percent
COMMODITIES				
Food and Drink	736,800	20.1	742,200	17.0
Auto Supplies	1,178,800	32.1	1,500,300	34.2
Other Commodities	526,800	14.4	640,900	14.7
Sub-total	2,442,400	66.6	2,883,400	65.9
SERVICES				
Lodging	775,700	21.1	951,100	21.7
Auto Repair	137,400	3.8	162,600	3.7
Transportation	194,500	5.3	237,200	5.4
Other Services	117,800	3.2	143,700	3.3
Sub-total	1,225,400	33.4	1,494,600	34.1
GRAND TOTAL	3,667,800	100.0	4,378,000	100.0

Table LI
BANK ASSETS AND LIABILITIES
CARBON COUNTY, WYOMING
1951-1961*

Year	ASSETS			
	Loans and Discounts	Government Obligations	Cash	Other Resources
1951	3,694,723	8,824,487	4,213,289	331,053
1952	4,305,209	7,515,093	3,725,689	343,782
1953	4,485,664	5,261,686	3,926,893	293,986
1954	4,367,553	8,424,002	3,809,004	276,207
1955	4,749,533	7,649,996	3,411,224	342,828
1956	5,112,059	6,887,782	3,235,151	240,227
1957	5,443,085	6,509,001	3,863,428	226,823
1958	5,265,401	6,643,592	4,418,151	154,403
1959	6,133,772	6,604,548	2,638,946	141,311
1960	6,627,297	5,434,174	2,954,212	129,334
1961	6,821,323	5,913,494	3,437,794	116,688

Year	LIABILITIES			
	Time Deposits	Demand Deposits	Government Deposits	(Including Capital Accounts Other Liabilities)
1951	2,473,347	11,505,224	1,779,394	1,575,591
1952	2,681,774	10,119,399	1,668,290	1,420,624
1953	3,097,374	9,788,244	1,880,745	1,440,118
1954	3,133,714	10,507,739	1,666,042	1,569,271
1955	2,907,290	9,723,640	1,976,824	1,626,831
1956	2,525,900	9,584,450	1,881,815	1,483,054
1957	2,488,058	10,122,423	1,902,819	1,529,036
1958	2,610,119	10,764,604	2,169,512	1,567,282
1959	2,509,323	9,200,281	1,639,154	2,169,818
1960	2,625,543	8,685,793	2,127,541	1,706,139
1961	2,880,800	9,534,565	1,970,469	1,903,466

*As of December 31.

Table LII
SALES OF U. S. SAVINGS BONDS
CARBON COUNTY AND STATE OF WYOMING
1946-1961

Year	Carbon County	State of Wyoming
1946*	\$806,046	\$14,481,762
1947	927,805	14,843,568
1948	798,322	14,905,252
1949	667,688	13,019,868
1950	735,612	12,479,598
1951	465,309	8,348,539
1952**	536,940	8,622,909
1953***	442,761	8,762,823
1954	375,809	9,279,532
1955	328,433	10,692,598
1956	344,445	8,994,905
1957	303,633	7,747,147
1958	320,380	8,927,175
1959	333,394	8,402,165
1960	246,211	7,737,716
1961	232,579	7,821,187

*EFG
 **EFGHJK
 ***EH
 Source: U. S. Savings Bond Director.

Table LIII
NUMBER OF TELEPHONES IN USE (MOUNTAIN STATES SYSTEM)
CARBON COUNTY AND STATE OF WYOMING
1946-1961

1946	2,187	51,508
1947	2,352	56,429
1948	2,652	61,946
1949	2,953	67,523
1950	3,123	71,671
1951	3,221	76,019
1952	3,383	81,207
1953	3,757	84,442
1954	3,646	84,841
1955	3,973	92,531
1956	4,252	98,461
1957	4,423	102,529
1958	4,708	110,861
1959	4,922	117,480
1960	4,987	124,335
1961	4,978	126,668

Source: Mtn States Tel. & Tel. Co.

NUMBER OF TELEPHONES IN USE (INDEPENDENT PHONE COMPANIES)
1959-1961

1959	639
1960	647
1961	639

Table LIV
SELECTED SERVICES
CARBON COUNTY, WYOMING
1954 and 1958

Census	1954	1958
Total Establishments Number	108	127
Number with Payroll	60	69
Receipts all Establishments	\$2,298,000	\$2,831,000
Receipts Establishments with Payroll	\$2,012,000	\$2,399,000
Total Payroll	\$ 615,000	\$ 732,000
Active Proprietors	111	153

Employment Security	1954 Employees Payroll	1958 Employees Payroll
70 Hotels and Motels	105	\$249,271
72 Personal Services	81	172,838
73 Business Services	6	15,008
75 Automobile Repair Shops	19	58,786
76 Miscellaneous Repair Services	16	51,541
78 Motion Pictures	31	38,422
79 Amusement and Recreation Services	18	3,864
	276	\$589,730
		295
		\$578,548

Selected References

A. BOOKS

- Dale, Harrison C., *The Ashley-Smith Exploration and the Discovery of a Central Route to the Pacific*. Glendale, California: The Arthur H. Clark Company, 1820-1829.
- Dodge, Grenville M., *How We Built the Union Pacific*. Council Bluffs, Iowa: The Monarch Printing Company, 1870.
- Pence, Mary Lou and Homsher, Lola M., *The Ghost Towns of Wyoming*. New York: Hastings House, 1956.

B. OTHER PUBLICATIONS

- U. S. Forest Service, *Timber Resources for America's Future*. Washington, D. C.: U. S. Government Printing Office, 1958.
- U. S. Bureau of the Census, *U. S. Censuses of Agriculture: 1950, 1954, 1959*. Washington, D. C.: U. S. Government Printing Office.
- U. S. Bureau of the Census, *U. S. Censuses of Population: 1930, 1940, 1950, 1960*. Washington, D. C.: U. S. Government Printing Office.
- U. S. Bureau of the Census, *U. S. Census of Housing: 1960*. Washington, D. C.: U. S. Government Printing Office.
- U. S. Bureau of the Census, *U. S. Census of Business: 1958*. Washington, D. C.: U. S. Government Printing Office.
- U. S. Weather Bureau, *Climatological Data, Wyoming, Annual Summary*. Washington, D. C.: United States Government Printing Office, For Years 1951-60.
- Fearn, Lyman, *Annual Report of the State Inspector of Mines of Wyoming*. Rock Springs, Wyoming, For Year Ending December 31, 1961.
- U. S. Department of Agriculture, *Wyoming Agriculture Statistics and Information 1959-60*. Cheyenne, Wyoming.
- Annual Report of the State Examiner, Division of Banks*. Cheyenne, Wyoming, For Years 1951-60.
- Report and Analysis Section, Employment Security Commission of Wyoming, *1950-60 Wyoming County Labor Information*. Casper, Wyoming.
- State Board of Equalization, Ad Valorem Tax Department, *Twenty-first Biennial Report of the State Board of Equalization of the State of Wyoming, 1959-60*. Cheyenne, Wyoming.
- Rawlins Republican Bulletin*, Union Pacific Old Timer's Edition, May 2, 1939.
- Rocky Mountain Oil Reporter*. Denver, Colorado: Petroleum Publishers, Inc., May, 1960.
- U. S. Department of Commerce, *Annual Retail Sales Report*. Washington, D. C.: U. S. Government Printing Office, For Years 1948-61.
- U. S. Savings Bond Division, *Sale of Series E & H Savings Bonds*. Cheyenne, Wyoming, For Years 1946-61.
- Sales Tax Division, Wyoming Department of Revenue, *Monthly Statement of Sales Tax Collected by County and Type of Firm*. Cheyenne, Wyoming: Wyoming State Board of Equalization, 1950-60.
- Berryhill, Jr., (et. al.), *Coal Resources of Wyoming*, Geological Survey Circular 81, U. S. Department of the Interior, September, 1950.

State Engineer, *Biennial Report of the State Engineer to the Governor of Wyoming*, Cheyenne, Wyoming, For Years 1948-60.

Osterward, Frank F., (et. al.), *Mineral Resources of Wyoming*, Geological Survey Bulletin Number 50. Laramie, Wyoming: University of Wyoming Press, June, 1959.

C. OTHER SOURCES

- Data were compiled at the headquarters of the Union Pacific Railroad, Omaha, Nebraska, concerning railroad employment and payroll.
- Data on reserves of commercial timber came for information compiled by the U. S. Department of the Interior, Bureau of Land Management, District Office, Rawlins, Wyoming.
- Information concerning ownership and utilization of land were compiled by the Division from the records of various land holding government agencies.
- Information concerning telephones was obtained through the Mountain States Telephone and Telegraph Company, Cheyenne, Wyoming.
- Data concerning vehicle registration are compiled by the State Department of Revenue.
- Data on employment and payrolls were obtained by duplicating International Business Machine Cards used by the Wyoming State Employment Service, Casper, Wyoming, to record quarterly reports of employment and payroll by firm and by county and having proper tabulations made by the University of Wyoming's I.B.M. Bureau.
- Gasoline sales by county in Wyoming were compiled by the Accounting Section, Gasoline Tax Division, State Department of Revenue, Cheyenne, Wyoming.
- The State Bank Examiner has issued mimeographed reports concerning deposits of state and national banks on December 31 and June 30 of each year, 1951-61.
- Information on ground water came from unpublished material of the Ground Water Division, U. S. Geological Survey.
- Information was obtained from unpublished historical records of the Medicine Bow National Forest.
- Oil and gas production as shown by tax returns are filed with the State Board of Equalization and show government royalty oils as well as taxable production. The data were furnished at the author's request by the State Board of Equalization.
- Information from records of the Wyoming Timber Company, University Archives, was used.
- Opinions of S. H. Van, Commercial Timber Manager for Medicine Bow National Forest were included.
- Information obtained from a conversation with Albin Bastron, Planning and Research Engineer, Wyoming Highway Department, was included.
- Information from a letter from D. H. Mullen, Project Leader, Denver Experiment Station, Region III, U. S. Bureau of Mines, Denver, Colorado, September 22, 1961, was included.