

A STUDY OF FACTORS AFFECTING POPULATION TRENDS  
IN  
NORTHWESTERN KANSAS

by

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## CHAPTER I

### INTRODUCTION

#### Part 1. Preface

Northwestern Kansas is a remarkably homogeneous region. The counties within it greatly resemble each other in both their physical and their human geography. One of the similarities of human geography among these counties is their population trends. Since 1930, their total population has experienced a steady decline, while their larger cities have generally increased in population.

#### Part 2. The Problem

Statement of the problem. It is the purpose of this thesis to discover some of the reasons why northwestern Kansas has been losing population since 1930, while the larger cities within the region have been gaining population. The major inquiries are directed toward agriculture and mineral production and their influences on the population trends. Other pertinent factors such as transportation, manufacturing, and governmental functions, which may have had some effects on the population trends in the region, will also be examined. Agriculture is emphasized because it is the main source of income of northwestern Kansas. Mineral

production is emphasized because petroleum production has recently experienced important increases, and because previous studies in other regions have indicated a correlation between mineral production and population trends. This study is searching for any correlation between the population trends and the changes in agricultural practices and production or in the production of minerals in northwestern Kansas.

The exact region studied comprises six homogeneous counties in the northwestern corner of Kansas plus three contiguous, but slightly dissimilar, counties for the purpose of contrast. The homogeneous counties are: Cheyenne, Decatur, Rawlins, Sheridan, Sherman, and Thomas. These six counties comprise the northwestern part of State Economic Area 2a as defined by the United States Census of 1950, part of the "Northwest District" as delimited by the Kansas State Board of Agriculture for the purpose of crop reporting, and part of "Type-of-Farming Area 11" as defined by the Kansas Agricultural Experiment Station.

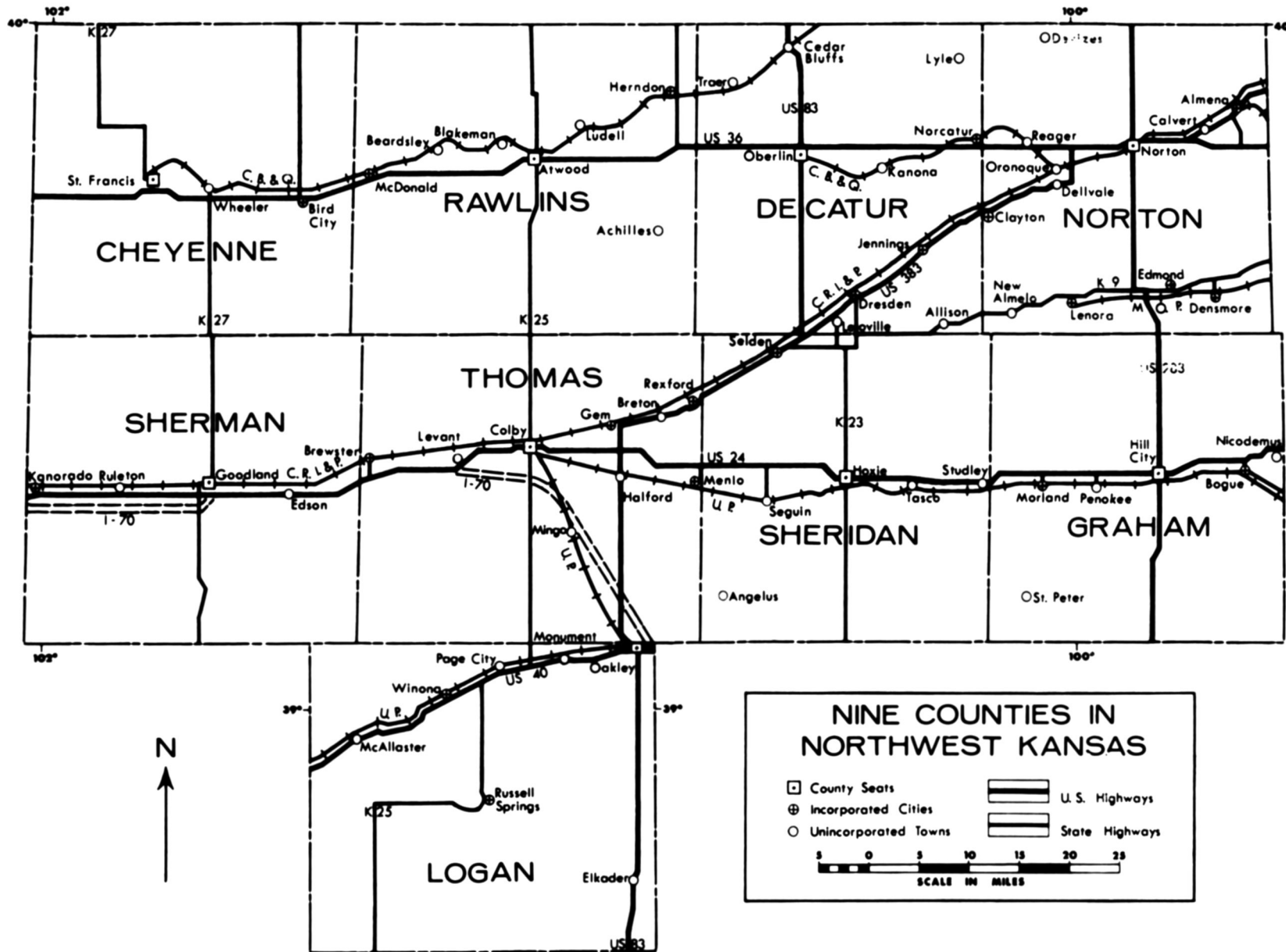
The three counties studied for the purpose of contrast are: Logan, Norton, and Graham. Logan County, located to the south of Thomas County, is in State Economic Area 1, the West Central Crop Reporting District, and Type-of-Farming Area 12. Norton County is located east of Decatur County, and it is in State Economic Area 4, the Northwest Crop



### EXPLANATION OF PLATE I

Plate 1 is a map of the counties studied in this thesis. It shows:  
(1) county seats; (2) incorporated cities; (3) unincorporated towns; (4)  
highways; and (5) railroads.

PLATE 1.



Reporting District, and Type-of-Farming Area 8. The third contrast county, Graham County, is located east of Sheridan County. It is in the same state economic area, crop reporting district, and type-of-farming area as the six homogeneous counties. Agriculture in the three contrast counties is slightly dissimilar to that in the six homogeneous counties, but Graham and Norton counties differ considerably from the homogeneous counties in mineral production. Graham County is studied because it has a much more important production of petroleum than any of the other counties studied, and because it is one of the few counties in northwestern Kansas that gained population from 1950 to 1960. Norton County is studied because it lies closer to the Corn Belt than the other counties studied, and because its petroleum production is generally greater than that of any of the homogeneous counties. Logan County is studied because livestock ranching is generally of more importance in its agriculture than in the agriculture of the homogeneous counties.

Importance of the study. Since 1940, economists, sociologists, and geographers have recognized that the Great Plains states are experiencing a large farm-to-city migration. Some scholars, emphasizing the migration from the predominantly agricultural regions to the important industrial regions within the state, have studied this migration for the state as a whole. Few, if any, have included in

their studies the local migration of the population from the farms to the larger cities within dominantly agricultural regions, and the economic and geographic factors responsible for this limited migration. In this thesis, a special attempt is made to learn the economic factors of migration within nine essentially agricultural counties in northwestern Kansas.

Preview of the thesis. Chapter II of this thesis describes the physical environment of the nine counties studied as a whole. Special attention is given to the (1) land forms, (2) geology, (3) soils, (4) climate, and (5) vegetation of the region. Chapter III describes the cultural environment. In this chapter, attention is focused upon the region's (1) history, (2) government, (3) transportation, and (4) cities and their growth. Chapter IV is divided into three parts: (1) an introduction to the counties, (2) a county-by-county analysis and description as to how the economic and other factors have affected the population trends in the six homogeneous counties, and (3) a county-by-county analysis and description of the economic and other factors affecting the population trends in the three contrast counties. Chapter V contains the summary and conclusions arrived at in the thesis.

### Part 3. Definitions of Terms Used

City. A city is any area and agglomeration of people which as been incorporated as a city under the statutes of Kansas. A city in Kansas may incorporate if it has one hundred or more people, or it may incorporate with less than one hundred if it is a county seat.

Contrast county. Graham, Logan, and Norton counties are used for the purpose of contrasting their differences in agriculture, or mineral production, or population trends, or other aspects with those of the six homogeneous counties.

Crop reporting district. Kansas is divided into nine crop reporting districts by the Kansas State Board of Agriculture for convenience in compiling and presenting statistical information on crops and livestock. The nine districts are: Northwest, West Central, Southwest, North Central, Central, South Central, Northeast, East Central, and Southeast. This thesis is concerned only with eight counties in the Northwest and one in the West Central districts.

Dry farming. Northwestern Kansas is a relatively arid region. In dry regions without water available for extensive irrigation, cultivation practices must be followed that encourage the conservation of moisture, and crops must be grown that are relatively resistant to drought. The most general

practice of dry farming in Kansas is that of summer fallowing in which the land is left idle for a year or more after a period of cropping. Stubble mulching is another important dry farming practice. Strip farming, in which strips of farm land are planted to crops between strips of land being summer fallowed as a control of wind erosion, is also used.

Hamlet. A small, unincorporated agglomeration of people living in a very limited area. There are numerous hamlets throughout northwestern Kansas.

Homogeneous county. Cheyenne, Decatur, Rawlins, Sheridan, Sherman, and Thomas counties are generally similar to each other in agriculture, mineral production, population trends, and in almost all other factors of their physical and cultural environments. They are often studied as a group in this thesis.

State economic area. During the Census of 1950, it was found desirable to form regions which were relatively homogeneous as to their economic and social characteristics and which were intermediate in size between that of a county and that of a state. The forming of the state economic areas was done to assist in the analysis of area-to-area migrations and for the convenience of compiling statistics. The homogeneous counties and Graham County are located in State Economic Area 2a. Logan County is located in State

Economic Area 1, and Norton County is located in State Economic Area 4.

Town. A collective term meaning an incorporated or unincorporated agglomeration of people living in a limited area. The term may be used interchangeably with "city," "hamlet," or "urban place."

Type-of-farming area. The counties of Kansas have been divided into type-of-farming areas according to the following criteria: (1) the percentage of farm land in different crops and pastures; (2) the kind and number of livestock per one hundred acres of farm land; (3) the trends of the acreages of crops and numbers of livestock; (4) the number and percentage of farms of a given type; and (5) the acreage and percentage of farm land occupied by farms of a given type. The homogeneous counties and Graham County are in Type-of-Farming Area 11. Logan County is in Type-of-Farming Area 12, and Norton County is in Type-of-Farming Area 8.

Urban place. An urban place is defined by the United States Bureau of the Census as an incorporated or unincorporated area having 2,500 or more inhabitants within a limited area.

#### Part 4. Review of the Literature

Members of the Department of Agricultural Economics, the Department of Economics and Sociology, and the Department of History, Political Science, and Philosophy at Kansas State University and members of the Kansas Agricultural Experiment Station have written much about population, agricultural, and economic trends in Kansas. Some of these scholars wrote solely about western and northwestern Kansas, and their publications and oral information were most helpful in writing this thesis.

A great deal of the data used in this thesis was collected from publications of the Kansas Agricultural Experiment Station, the Extension Service at Kansas State University, the Center for Research in Business of the University of Kansas, the Kansas Industrial Development Commission, the Kansas State Board of Agriculture, the Kansas State Highway Commission, and the United States Bureau of the Census. Also important as sources of data were correspondence and personal interviews with farmers, bankers, real estate agents, businessmen, and city and county officials in northwestern Kansas. The author himself was a source of information in that he has lived and worked in the general area.



## CHAPTER II

### PHYSICAL ENVIRONMENT

#### Part 1. Land Forms

Northwestern Kansas lies in the High Plains, which are part of the Great Plains Physiographic Region. The region is flat or slightly rolling. The only exceptions to the general flatness of the region are a few cliffs along the streams and rivers and small areas of badlands along the Smoky Hill River and its tributaries in Logan County. Elevations above sea level range from slightly under 2,000 feet at the eastern extreme of the region studied to about 4,000 feet near the Kansas-Colorado border.

Northwestern Kansas is in the Missouri River Basin, and is drained by several rivers and streams which flow to the east. The two main rivers that cross the region are the Smoky Hill in the south and the Republican in the northwest. The Saline River and the North and South forks of the Solomon River are tributaries of the Smoky Hill, and they join that river in central Kansas. Arikaree, Beaver, Bow, Driftwood, Prairie Dog, and Sappa creeks run in a northeasterly direction and flow into the Republican River in Nebraska.

#### Part 2. Geology

Geologically northwestern Kansas lies on and to the

west of the Central Kansas Uplift. Westward from the uplift the Pre-Cambrian stratum becomes lower in relation to sea level and the overriding strata of sedimentary rocks become progressively thicker as the elevation of the land gradually increases to nearly 4,000 feet at the Kansas-Colorado border. At this border, the Pre-Cambrian rocks lie approximately 7,000 feet below the surface; the Cambrian-Ordovician sediments lie at about 6,000 feet; the Mississippian sediments at a depth of about 5,500 feet; and the Pennsylvanian rocks lie at about 4,000 to 5,000 feet below the surface. The petroleum of northwestern Kansas is usually found in these systems, all within the Paleozoic Era.

Over the Pennsylvanian stratum lie thick strata of the Permian System. At the Kansas-Colorado boundary, these sediments occur from approximately 2,800 to 4,400 feet below the surface. None of the Paleozoic formations occur on the surface in northwestern Kansas. The Permian rocks are overlain by thick strata of the Cretaceous, and these reach the surface in northwestern Kansas only where the streams have eroded away the overlying strata of younger periods. A notable exposure of Cretaceous rocks is along the valley of the Smoky Hill River in Logan County. Here the running water has formed small badlands from the chalk formations.

The predominant surface rocks of northwestern Kansas are those of the Tertiary and Quaternary periods. These consist primarily of stream-deposited sediments from the west,

and often contain deposits of volcanic ash and diatomaceous marl. The porous nature of these rocks allows them to accumulate large quantities of ground water, of increasing importance for irrigation in the region.

### Part 3. Soils

The soils of northwestern Kansas are fertile chestnuts and chernozems developed from thick loess deposits. The chernozems are the main soils in Norton and Graham counties, but the chestnuts are the main soils in the homogeneous counties and Logan County. Both the chestnut and the chernozem soils are well-suited for the production of wheat, sorghums, and native, short grass pasture. They are also very good for irrigated crops. The only region of relatively poor soils occurs along the valley of the Smoky Hill River where erosion has eliminated, or greatly reduced, the depth of the loessal cover.

### Part 4. Climate

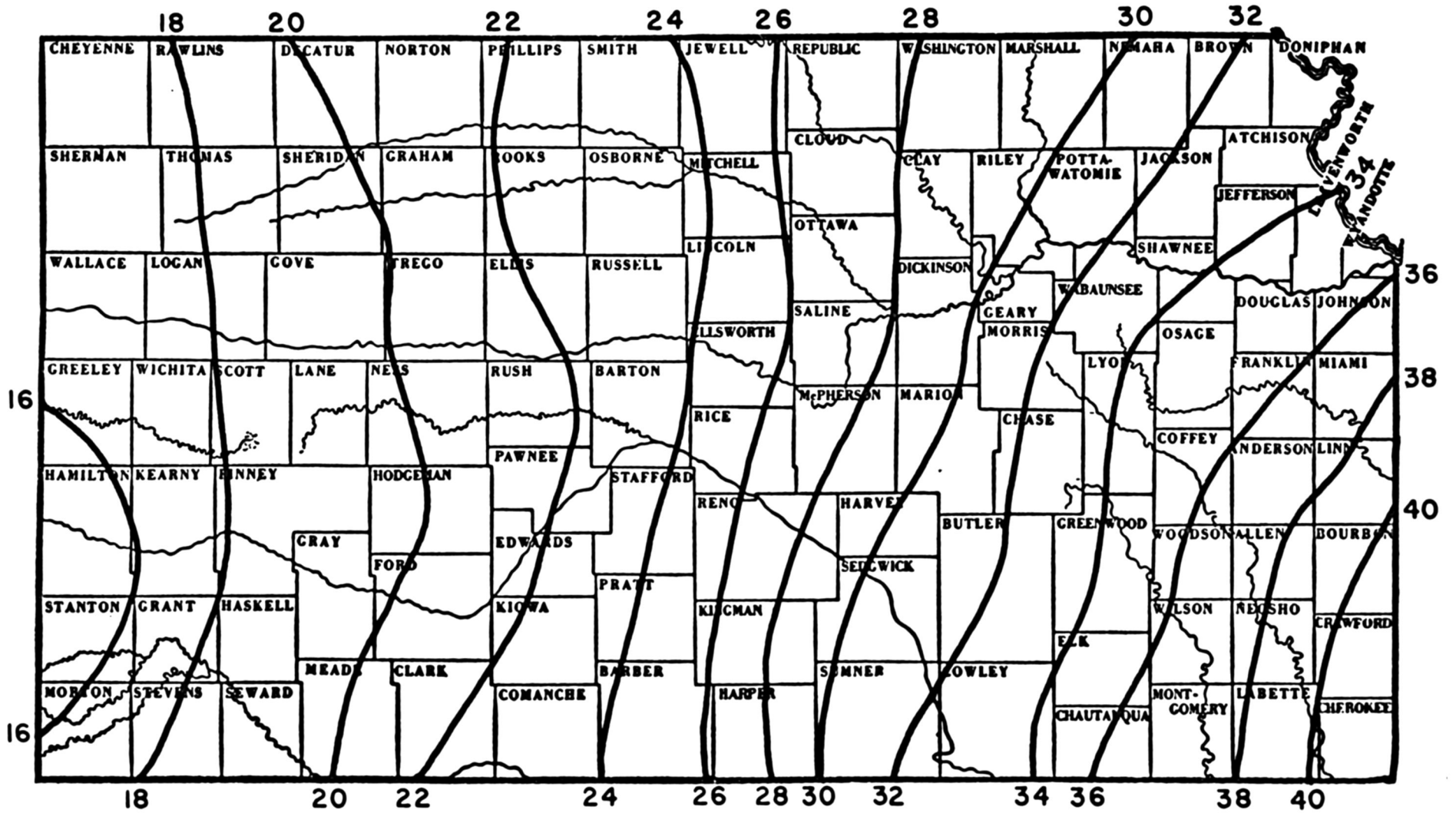
Precipitation. Northwestern Kansas has a definite steppe climate. Of the nine counties studied, only Norton and Graham counties have annual precipitation averages of more than twenty inches. The heaviest precipitation comes in the form of convectional thunderstorms during May, June, and July. Snowfall tends to be light--although falls in excess of twenty inches have been recorded--and is often part

## EXPLANATION OF PLATE 2

Average annual precipitation in Kansas. The isohyets are measured in inches of precipitation.

Source: L. Dean Bark, Rainfall Patterns in Kansas, Kansas Agricultural Experiment Station, Kansas Agricultural Situation Reprint No. 9 (Manhattan: Kansas State University, May, 1961).

PLATE 2



of the blizzards that strike the area. In addition to being quite limited, the precipitation of northwestern Kansas tends to be quite unreliable. In some years total precipitation exceeds the annual average, but it more frequently drops below this average. Drier years and wetter years tend to occur in irregular cycles. Thus, the region is occasionally plagued with drought.

Temperatures. Northwestern Kansas has wide fluctuations in temperature, as well as in precipitation. Record summer temperatures have soared above  $110^{\circ}$  F., and winter temperatures have dropped below  $-20^{\circ}$  F. Normal July mean temperatures in the region vary from  $76.6^{\circ}$  F. to  $79.0^{\circ}$  F., and normal January mean temperatures vary from  $27.5^{\circ}$  F. to  $29.4^{\circ}$  F.

Growing season. The average length of the growing season in the region varies from 155 days in Rawlins County to 167 days in Norton County.

Winds. Winds in northwestern Kansas tend to blow from a northwesterly direction in winter and from a southwesterly direction in summer at average speeds of eight to fourteen miles per hour.

Miscellaneous climatic and weather conditions. The Great Plains are known for their occasionally violent types

of weather, most of which are associated with the winds. One of these violent types is the dust storm. Dust storms usually occur in the early spring months following a very dry fall and winter. The blizzard is another severe storm of the region. Northwestern Kansas may experience several of these storms with their drifting snow, high winds, and extreme cold each decade. Severe hail storms, tornadoes, and even floods occur occasionally in this region.

#### Part 5. Vegetation

Grasses. The predominant native vegetation of northwestern Kansas is buffalo grass. It is a short, carpet-like grass which is very nutritious for range livestock. Several species of grama grass--a slightly taller grass--are also quite abundant and are also good livestock food. A few tall grasses, especially bluestem, grow along the stream valleys and in other places where moisture is more abundant.

Weeds. Like all agricultural regions, northwestern Kansas is plagued by a wide variety of weeds, but the most conspicuous are: yucca, prickly pear, and sage. These weeds usually are unpalatable to livestock and often grow where native pastures have been overgrazed. They are usually quite difficult to eradicate. The yucca and prickly pear occasionally are, however, a mixed blessing. During periods of extreme drought and blowing dust, the areas close to them are

often the only places where the native grasses can find enough moisture and protection from the wind to survive. In addition, the spines can be burned from the prickly pear for an emergency livestock feed.

Trees. The only trees native to northwestern Kansas are the eastern cottonwood and the black and peachleaf willows. They usually grow only along the rivers and streams.

The old timber claims of the 1800's and the windbreaks begun in the 1930's have caused many varieties of trees to be imported into northwestern Kansas. Most of the timber claims have died out, but the windbreaks (or shelter belts) are still quite obvious on many farms in the region. They are usually planted to the north or west of most farmsteads, and often include such trees as: Russian olive, mulberry, bur oak, Chinese elm, green ash, hackberry, honey locust, Osage orange, Austrian pine, Ponderosa pine, and eastern red cedar, most of which are completely exotic to the region.



## CHAPTER III

### CULTURAL ENVIRONMENT

#### Part 1. History

The area included in northwestern Kansas was acquired by the United States in the Louisiana Purchase of 1803. Until the 1860's, it was populated only by a few Indians. The first white explorers considered the region to be nearly uninhabitable due to its aridity. The first white settlers were cattle ranchers running large herds on the open range. Cattle ranching, however, did not become as important in northwestern Kansas as it did in other parts of the state in the 1870's; due to its greater relative distance from the railroads and its short grasses which could not feed as many cattle as the taller grasses farther east.

When the Homestead Act of 1862 was enacted, free or cheap land was offered to those who would build their homes on it and work the land for at least five years. In 1863, Congress granted the railroads vast tracts of land in the Great Plains in order to encourage them to lay their tracks across the region. In turn, the railroads sold much of this land at low prices to aid in the settlement of the Plains. Between 1863 and 1870, the Kansas Pacific Railroad (now the Union Pacific) built a line from Kansas City to Denver, and by 1888 the Chicago, Rock Island, and Pacific Railroad

completed its line from Omaha to Colorado Springs. While most of the good, arable land in eastern Kansas was settled by 1875, settlement in northwestern Kansas was much slower. However, by 1885, significant numbers of people had settled in the region, and several of the counties had been organized. Also by 1885, the amount of land fenced and under cultivation had increased to the point where it was no longer feasible for cattle ranchers depending on large areas of open range to continue their operations.

Most of the early settlers who came to northwestern Kansas came from the wetter and milder climates of the eastern United States. Few, if any, knew about life and agriculture in a steppe climate. Quite naturally, they planted corn, oats, and other crops more adapted to wetter climates. In the wetter years, these grains flourished, but in the frequent drier years the crops failed. Unable to bear the repeated droughts, blizzards, grasshopper plagues, hail storms, and dust storms, many once-optimistic early settlers left northwestern Kansas after a few years.

During the late 1880's, varieties of hard red winter wheat were introduced into the region, and wheat quickly became the major crop of northwestern Kansas. However, corn continued to be planted on substantial acreages in the region until the drought years of the 1930's. While corn was declining in importance, the sorghums were gaining, and in

the 1930's surpassed corn in acreage and production.

The promise of rich rewards from wheat and other more adaptable crops grown by improved methods caused a steady stream of settlers to move into northwestern Kansas until the population of the region reached its peak in the early 1930's.

## Part 2. Government

Kansas is divided into 105 counties. Every two years, the people elect a group of county officials whose main duties are law enforcement and tax collection. In addition, three county commissioners are elected for four-year terms. The main duties of the commissioners are the providing for the maintenance and construction of roads within the county and the implementation of certain state laws as directed by the legislature.

Each county is further subdivided into townships. The townships have few governmental functions except for providing voting facilities, acting as election districts, and, in some cases, providing for the maintenance and construction of roads. In many cases, the townships have incorporated or unincorporated towns within their boundaries. The unincorporated towns are governed as part of the townships. The incorporated cities have their own governments, which often furnish police and fire protection and provide and maintain streets and utilities. In addition, there are

school districts which through their powers of taxation and administration provide elementary and secondary schools.

### Part 3. Transportation

Railroads. Northwestern Kansas is near the geographic center of the conterminous United States. As a consequence, it relies heavily on rail transportation. The Union Pacific and the Chicago, Rock Island, and Pacific railroads cross the region. In addition, the Union Pacific, the Missouri Pacific, and the Chicago, Burlington, and Quincy railroads have branch lines in this part of Kansas. All the railroads run in an east-west direction. None lie in a north-south direction.

Roads and highways. The nine counties studied have a good network of roads and highways, as indicated in Table 1. Hauling both passengers and freight, sixty-one intrastate common carriers and thirty-eight interstate common carriers operate on these roads and highways.

Air travel. Air travel is not very important in northwestern Kansas. Only one air line (Central Air Lines) serves the nine counties, and Goodland is the only city with regularly scheduled air service. Private air travel is of minor importance, but most of the larger cities in the region have landing facilities.

TABLE I  
ROAD AND HIGHWAY MILEAGE BY COUNTIES IN 1960

Counties	Mileage of U.S. Highways	Mileage of State Highways	Mileage of Local Roads
<b>Homogeneous</b>			
Cheyenne	35	52	1,173
Decatur	82	12	1,182
Rawlins	36	42	1,224
Sheridan	45	48	1,205
Sherman	71	31	1,157
Thomas	106	30	1,487
<b>Contrast</b>			
Graham	61	8	1,129
Logan	71	39	772
Norton	86	37	1,281

Source: Correspondence with Highway Planning Department, State Highway Commission of Kansas.

#### Part 4. Cities

There are twenty-nine incorporated cities and numerous hamlets in the nine counties studied. Cities began to appear in northwestern Kansas in the late 1870's along the main transportation routes. Today, Russell Springs is the only incorporated city not located on a railroad. These cities were established to provide the surrounding agricultural regions with the necessary urban services, to act as service points for the railroads, and to provide governmental services.

Most of the cities in northwestern Kansas grew quite rapidly until 1930. Since that time the largest city in

each county has experienced a general increase in population, and usually the smaller cities have suffered a decline. The largest city in each county is the county seat and the major consumer's goods and service center of the county.

## CHAPTER IV

### THE COUNTIES

#### Part 1. Introduction to the Counties

An examination of the statistics regarding the population, agriculture, mineral production, and general economy of northwestern Kansas reveals several correlated trends which are: (1) the total population is decreasing while the populations of the larger towns are increasing; (2) the percentage of persons employed in agriculture is decreasing; (3) the number of farms is decreasing while the average size of farms is increasing; (4) the production per acre of farm land in use is gradually increasing; and (5) those counties with substantial oil production are experiencing an increase in population or a deceleration in the rate of population decline.

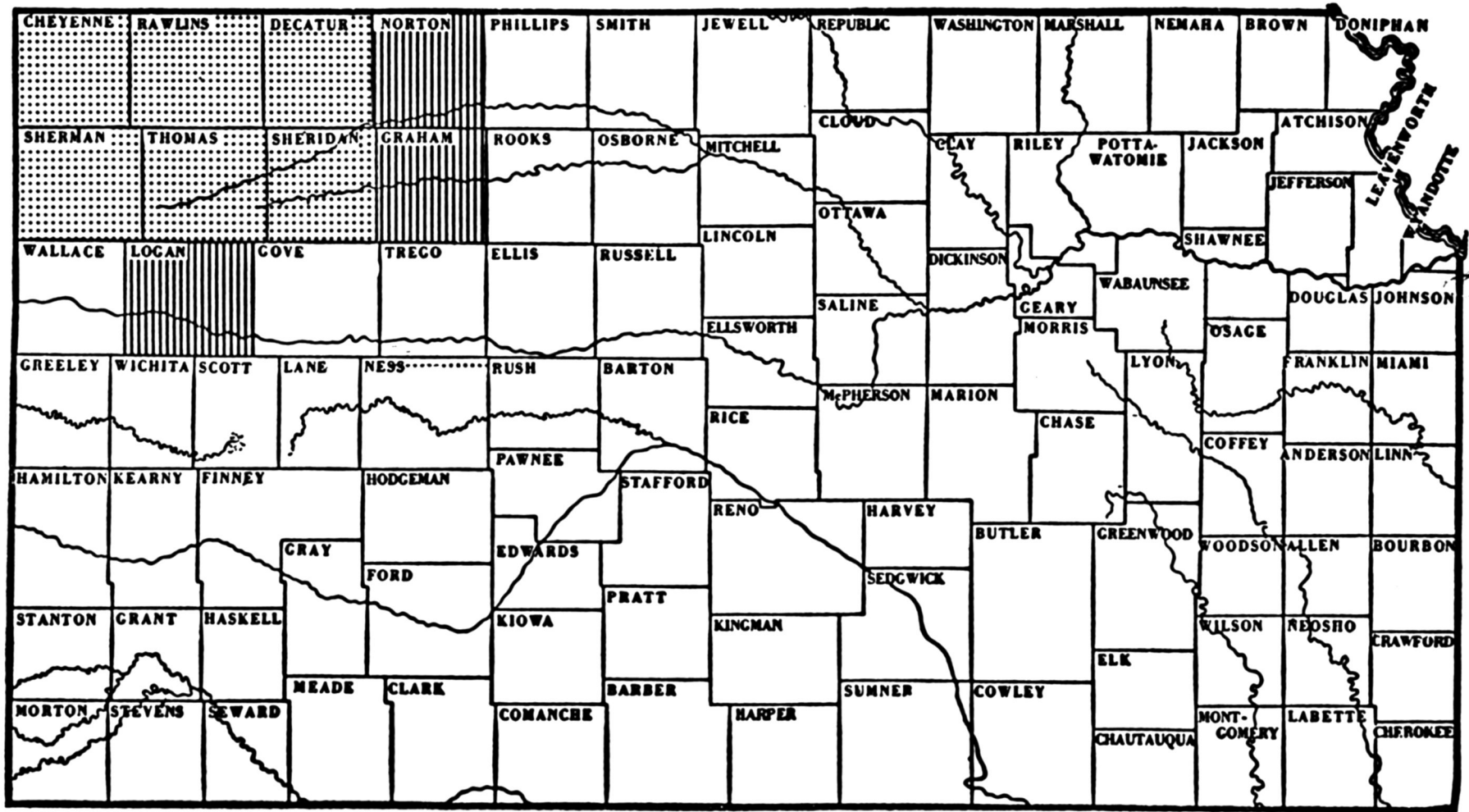
Since 1880, agriculture has been the major source of economic sustenance of northwestern Kansas. As a consequence, population trends in the area are necessarily closely correlated with agricultural trends. Since the first settlement in the region, the population increased steadily until 1930. But since that time, the populations of most of the counties have suffered a steady decline. The reasons for this decline are closely related to the major changes that occurred in agriculture during the same general period.

**EXPLANATION OF PLATE 3**

**Map showing the location of the counties studied.**



PLATE 3



HOMOGENEOUS



CONTRAST

Prior to 1930, there had been some periods of great demand and high prices for wheat. Concurrently, during the 1920's, the unpredictable steppe climate experienced a long spell of wetter years, which also tended to greatly abet the production of this grain. Also during the 1920's, tractors were replacing the horse at a rapid rate as a major source of power on most northwestern Kansas farms. With power machinery, the farmer was enabled to plant increasingly larger acreages of wheat with less human labor. The larger profits that were possible to be realized from wheat and the relative ease of its production encouraged many farmers to specialize and to rely solely on wheat as a source of income. These favorable conditions also caused many people to remain in or to immigrate into the region for the purpose of growing wheat. As a result, the production of previously important, but less remunerative, secondary crops which required more human labor dwindled greatly. Thus, until the fall of 1929, agriculture in northwestern Kansas had tended to become relatively attractive.

The bright picture was quickly and drastically changed after the calamitous crash of the stock market in October, 1929. The Great Depression set in, and prices for agricultural products dropped to record lows. The steppe climate of the Great Plains turned abnormally dry, hot, and windy. Consequently, the region experienced some of the worst droughts in its history, and extensive, terrible dust storms

turned the region into a "dust bowl." Most crops failed. For those that the farmer did harvest, he received extremely low prices. This period of extreme drought and low prices lasted until the late 1930's. The repeated crop failures and low prices forced many farmers to leave the region, and a major, continuing exodus from northwestern Kansas began.

As a result of the calamities suffered in the 1930's, new methods of farming were adopted. The dry farming methods of summer fallowing, strip farming, and stubble mulching were introduced to conserve the soil and its moisture and to prevent the blowing of the fine, loessal top soils, and as a result, the risks of crop failure were reduced. In addition, some of the less arable acreages of farm land were returned to native pasture as another moisture and soil conservation method and to encourage the diversification of the region's agricultural economy through the production of more livestock. Also in attempting to diversify agriculture, sorghums, sugar beets, and other new crops were introduced into the region.

The years 1939 and 1940 saw the return of wetter years to northwestern Kansas, and World War II brought a greater demand and higher prices for wheat and other agricultural products. Production and prices of wheat attained new highs in the 1940's. By 1950, the price and production of wheat had reached phenomenal levels. Soon after, as a

consequence, the demand and the prices began to drop. As in the 1930's, drought conditions coincidentally accompanied the falling prices. This time, however, disaster was averted. The greatly improved methods of agriculture held crop failures to a minimum, and government price supports and other control measures kept prices from falling to the lows recorded in the 1930's. Also the fact that many farmers had important secondary sources of income from beef cattle, sorghums, or other crops further aided in the prevention of economic disaster in the region.

Agriculture in northwestern Kansas in the 1960's relies, as it did in the 1950's, primarily on the production of hard red winter wheat, with sorghums and beef cattle being the important secondary sources of income. Most farmers use dry-land farming methods with cultivated crops being grown on the more level regions and livestock being pastured on the more rugged regions. Farming by the use of irrigation is of some importance along some stream valleys and where artesian or sheet water is available. Irrigation is usually devoted to the production of alfalfa and sorghums for forage and occasionally to the production of sugar beets.

For many years, two of the main problems of agriculture in northwestern Kansas have been the unreliability of the yield of farm products and the instability of prices the farmer receives for them. Especially since the New Deal of the 1930's, the federal government has used various methods

to solve the problems of agriculture. Two of these methods include the promulgation of better farming methods and the introduction of improved crop varieties by the agricultural experiment stations. In the same light, the federal government has paid part of the individual farmer's cost of building terraces and farm ponds, the planting of shelter belts, and other soil and moisture conserving aids.

Overproduction and its consequent low prices tend now to be more of a problem than underproduction. In order to prevent prices for agricultural products--especially wheat--from falling disastrously, the United States government has restricted the number of acres planted to wheat and feed grains and has instituted price controls on many farm products. Notable among these governmental efforts in northwestern Kansas is the "soil bank" program started in the 1950's by which farmers were paid substantial sums to take land out of cultivation and return it to native pasture. The ostensible purpose of these governmental controls is to maintain high prices by limiting the production of farm crops, and thereby enable the farmer to maintain a relatively high standard of living.

It is, however, in relation to governmental controls of agriculture that a vicious circle effecting the industry exists. As the United States government enforced more controls to curtail production, farmers reacted by using better methods to grow better varieties of wheat which had been de-

veloped on governmental experiment stations, and which produced more grain per acre. In return, the government used even stricter controls, and the farmers reacted by planting even better varieties of wheat, and ad infinitum. Since the imposition of governmental controls on feed grain acreage beginning in 1959, a similar situation has recently come into existence as regards forage crops and livestock production. In addition to using better crop varieties and better farming methods, the wealthier farmers have also reacted to these governmental controls by increasing the size of their farms. As the size of the farms has increased, the numbers of farms and farmers have decreased. Thus, fewer farms and farmers are attempting to produce more wheat, feed grains, and livestock on fewer acres.

Due to the governmental acreage allotments, many of the smaller farmers have found it difficult to rely on agriculture as their sole source of income. This fact, concurrent with the expenses of maintaining a modernized farming program, has caused many farmers with small acreages to quit agriculture completely or to supplement the meager earnings of their farms with jobs in the nearby towns. While some smaller farmers continue to live on the farmstead, many have moved to the nearby towns to work and continue to operate their farms as a secondary source of income. Others, lured by the promise of better wages in the more industrialized regions, have sold or leased their farms and have moved away

from northwestern Kansas.

The economic and governmental limitations on agriculture are not the only reasons people are leaving the farms in northwestern Kansas. Many young people are leaving the farms because their fathers often do not have the necessary land and capital to provide or help each child in the family with an adequate farming enterprise. Thus, it is usually agreed that one child will eventually inherit the entire family farm, while the other children are given a cash settlement or an advanced education. As a result, many farm youths reared in the region soon move away from northwestern Kansas.

Other farmers leave the farm because of the lure of the amenities of town life. Many of these farmers merely move to a nearby town in order that they may be closer to the social life, goods and services, and other attractive aspects of city life. They still carry on extensive farming operations by frequently commuting between their homes and their farms. Farming by this method has been made possible by the speed of motor vehicles and the large number of farm-to-market roads in northwestern Kansas. Older farmers often move to the nearby towns--after discontinuing or greatly reducing their farming operations as part of their retirement--in order to be closer to medical facilities.

Mineral production in most of the homogeneous counties of northwestern Kansas is generally quite limited, and

consequently, it has had little effect on the population trends of these counties. Petroleum, sand, and gravel are usually the major minerals produced. The production of petroleum began in the 1930's and reached its peak in the late 1950's. In some of the homogeneous counties, production is limited to a handful of wells, and in some cases, it is non-existent. Even in the counties where there is production of petroleum, output is generally declining, and some wells have been abandoned. The two exceptions to this trend are Rawlins and Decatur counties. Production increased from 83,181 barrels in 1959 to 756,869 barrels in 1962 in Rawlins County. During the same period, oil production in Decatur County increased from 364,390 to 502,678 barrels as new wells and fields were discovered. This new production will undoubtedly have an important effect on these counties' population trends.

In the contrast counties of Graham and Norton, petroleum production is somewhat greater, and therefore more important. Graham County is among the top ten oil producing counties in Kansas, and consequently, this production has had a significant impact on its population trends. Oil production in this county, however, is declining. It dropped from a total of 6,889,023 barrels in 1959 to 5,471,446 barrels in 1962. Norton County's production is considerably less than that of Graham County, and it does not appear to have had a great effect on the county's population trends.



The oil production in Norton County has declined from 888,130 barrels in 1959 to 778,559 barrels during the same three-year period. The oil production in Logan County, the other contrast county, is very small.

Sand and gravel are produced in most of the counties for use on roads and in the construction of buildings, and they are the major minerals produced in Cheyenne, Logan, Sherman, and Thomas counties. Building stone is also produced from periodically-mined quarries. The production of these last minerals requires very few workers and their value is small.

Transportation has also had an effect on the migration of people from the farms to the towns in northwestern Kansas. An extensive system of roads and highways and significant increases and improvements in motor vehicles have facilitated and accelerated movements between the farms and the towns.

Since 1930, there have been important changes not only in agriculture, mineral production, and transportation in northwestern Kansas, but also in many other aspects of life in the region. Especially important is the rise in the standard of living of the people. This rise has, in turn, stimulated a rise in the service industries of the region. More farm income has resulted in a greater demand for consumers' goods and services, and many people who have been raised on the farms have moved to the nearby towns and have gone into

business to provide these goods and services for the local residents.

The rising standard of living of the local population is not the only reason for the increase in consumer goods and services. The fact that northwestern Kansas occupies a central position between the Rocky Mountains and the more populous sections of the East, while being crossed by several important highways, causes the catering to tourists passing through to be a fairly important additional reason for these increases in personal services and consumer goods.

## Part 2. County-by-county Analysis of the Homogeneous Counties

Introduction. Six counties--all of which are in State Economic Area 2a and Type-of-farming Area 11--have been selected for study as a group due to their general homogeneity. They are examined for the purpose of discovering any correlations between their population trends and their trends in agriculture and/or mineral production. Although the term "homogeneous" is used, it must be remembered that some dissimilarities do exist among these counties. This group includes Cheyenne, Decatur, Rawlins, Sheridan, Sherman, and Thomas counties.

Cheyenne County. Cheyenne County is located in the extreme northwestern corner of Kansas, bordered by Nebraska

on the north and Colorado on the west. It has a steppe climate with an annual normal precipitation of 17.86 inches and an average growing season of 160 days. This climate occurs over a terrain that varies from extremely level to quite hilly, and which is crossed by the Republican River and several intermittent streams. In the southeastern part of Cheyenne County, Beaver and Little Beaver creeks drain a region that is extremely flat, and which has numerous small deflation and/or solution basins. The Republican and its tributaries have extensively eroded the northwestern part of the county. Consequently, this part of the county is quite hilly. These land forms of Cheyenne County are covered by rich chestnut soils developed from loess, and, in turn, these soils are covered by the usual native short grasses. Thus, the physical environment of Cheyenne County causes it to be a dominantly agricultural county with winter wheat, sorghums, and beef cattle being the main products. Its economy and consequent population trends are thus dependent on agriculture.

Cheyenne County reached its peak population of 6,948 in 1930 at the end of a propitious period for agriculture that occurred during the 1920's. Then as the droughts and the financial depression of the 1930's set in, the production of agricultural products dropped disastrously, and the population of Cheyenne County declined to 6,221 by 1940. As production per acre increased and as the farms grew larger,

the population continued falling. By 1950, the county had only 5,668 inhabitants, and only 4,708 by 1960.

In addition to the county's overall population decline, several other trends are correlative to the trends in agriculture. During the same thirty-year period, the percentage of Cheyenne County's labor force employed in agriculture has decreased from 66.9 percent to 47.9 percent, and the percentage of the county's population living in the incorporated cities has increased from 24.2 percent to 48.3 percent.

Several agricultural trends are concurrent with, and probably causative of, Cheyenne County's decline in population. The average farm size in the county increased from 550.2 acres in 1930 to 941.9 acres in 1959. During this period, the number of farms decreased from 1,091 to 713, and wheat yields increased from 19.0 bushels per acre to 36.0 bushels per acre.

Cheyenne County varies from the general population trends of northwestern Kansas in two major aspects. It lost a significantly greater percentage (16.9) of its population between 1950 and 1960, and its largest city lost population. Due to its location deep within a climatic region which has an unreliable precipitation, agriculture in Cheyenne County is carried on under rather difficult conditions. The usual low precipitation requires that the dry farming practices of summer fallowing and strip farming be carried to extremes.

For each year an acre of cultivable land is cropped, it must lie idle from one to three years in wide strips between the acreages under crops. Such idle acres require maintenance in the form of occasional cultivations, while producing no income for the farmer, and simultaneously increasing his expenses. Farms on which dry farming methods are used must necessarily be quite large in order for the farmer to make a living in a precipitation regime which does not encourage great production of crops per acre. Thus, the necessity of having larger farms increases the initial capital outlay and the amount of taxes per farm. Governmental controls of acreage and production have further aggravated to local struggle of agriculture.

Mineral production in Cheyenne County is quite limited. Petroleum was first discovered in the county in 1958, and by 1962 there were only five small fields which produced only 7,330 barrels of oil during that year. Sand and gravel are the only other minerals produced in the county. Consequently, mineral production has had practically no effects on the population trends of Cheyenne County.

Cheyenne County has only two incorporated cities and one unincorporated hamlet. St. Francis, located close to the center of the county, is the largest and the county seat. Its dominant function is to act as a consumers' goods and service center for the neighboring agricultural community. Consequently, its population trends closely reflect the trends

of agriculture in the county. St. Francis grew in size concurrently with the increase in agriculture in the region until 1930, when it attained a population of 944. It continued to grow--absorbing many migrants from the local farms--until 1950 when it had a population of 1,892. The decline in demands from the agricultural parts of the county was so great during the 1950's that St. Francis was forced to curtail the number and amount of goods and services it furnished. As a consequence, its population declined to 1,594 by 1960.

In providing consumer goods and services for the agricultural community, St. Francis has the usual grain elevators, repair shops, dry goods stores, groceries, service stations, churches, schools, county governmental offices, transportation services, etc. Manufacturing firms are limited to the municipal power plant, a weekly newspaper, and a firm making concrete, pumice, and haydite blocks.

The other incorporated city, Bird City, is located in the eastern part of Cheyenne County and functions as a consumers' goods and service center for the agricultural community in its part of the county. Consequently, the city's population trends are keenly sensitive to the changes in agriculture. Bird City, too, reached its peak population (784) in 1950 due to the same reasons that St. Francis attained its peak in the same year. Similarly, its population declined to 678 by 1960 due to the decrease in demands from the agricultural sector. Being smaller than St. Francis, Bird City

has only two manufacturing firms: one publishing a weekly newspaper and doing commercial printing, and the other making miscellaneous small farm tools.

TABLE II  
POPULATIONS OF CITIES IN CHEYENNE COUNTY BY DECADES

City	1900	1910	1920	1930	1940	1950	1960
St. Francis	-	492	733	944	1041	1892	1594
Bird City	88	190	489	740	694	784	678

Source: U. S. Bureau of the Census.

Sherman County. Sherman County is located immediately south of Cheyenne County and equally deep within the steppe climate. An average annual precipitation of 17.98 inches waters a terrain that varies from extremely flat to hilly, and which is drained by several intermittent streams. The soils are loessal chestnuts covered by buffalo and other native short grasses. Much like that of Cheyenne County, the physical environment of Sherman County causes its economy to be largely agricultural with the major emphases placed on the production of wheat, sorghums, beef cattle, and sheep.

Due to the reliance of Sherman County's economy on agriculture, its population trends are correlative with the changes in this industry. Consequently, the population of the county has decreased since 1930. It declined 9.7 percent from 1930 to 1960, while between 1930 and 1959 the number of

farms in Sherman County declined from 804 to 573. During the same periods, the percentage of people living in the cities increased from 53.9 to 70.4, the percentage of the labor force employed in agriculture decreased from 43.4 percent to 25.3 percent, and the average size per farm increased from 719.7 acres to 1,136.5 acres. Wheat yields from 1930 to 1960 increased from 17.0 to 41.0 bushels per acre.

Mineral production in Sherman County consists of only nine oil wells in one small field, and sand and gravel mined for paving, building, and road maintenance. Diatomaceous marl mined in neighboring Wallace County is processed by the Delore Division of the National Lead Company at the hamlet of Edson in the eastern part of the county. Prospects of greater mineral production in the immediate future are dim because the oil wells are suffering great declines in production, and because recent test holes have not found any new pools. However, geologists at Kansas State University believe that there are possibilities for further discoveries of petroleum. The demand for diatomaceous marl is limited, and the demand for sand and gravel is necessarily local. As a consequence, mineral production may never have a very important effect on the population trends of Sherman County unless more oil is discovered or there are much greater demands for the other minerals.

Goodland and Kanorado are the only incorporated cities in Sherman County. Goodland is the county seat and the



largest city in northwestern Kansas with its 4,459 inhabitants. Its primary function is that of a service center of the entire county and parts of surrounding counties. In addition, it furnishes certain specialized goods and services for an even larger trade area including much of northwestern Kansas and parts of eastern Colorado and southwestern Nebraska. In performing its function as a regional service center, Goodland has thirteen manufacturing firms. These firms engage in the production of a wide variety of products, most of which are consumed within northwestern Kansas. Goodland also serves as an important transportation center. It is located on the intersection of U. S. Highway 24 and Kansas Highway 27, and it is on the Chicago, Rock Island, and Pacific Railroad which maintains roundhouse facilities there. In addition, it is the only city in northwestern Kansas with regularly scheduled air line service. Central Air Lines makes two daily stops--one eastbound, and the other westbound. In 1960, Goodland had 73 persons employed in the manufacture of durable and non-durable goods and 252 persons employed in transportation, communications, and public utilities.

Goodland's position as the major service center of northwestern Kansas is the main reason that Sherman County has a greater percentage of its population living in cities than any other county in the region. But, even in light of this position, Goodland's population declined from 4,690 in

1950 to 4,459 in 1960. The major reason for this decline is the general decrease in population throughout the region resulting in a decline in the demands for urban goods and services.

TABLE III  
POPULATIONS OF CITIES IN SHERMAN COUNTY BY DECADES

City	1900	1910	1920	1930	1940	1950	1960
Goodland	1,059	1,993	2,664	3,626	3,306	4,690	4,459
Kanorado	-	-	-	359	322	285	245

Source: U. S. Bureau of the Census.

Rawlins County. Rawlins County lies immediately to the east of Cheyenne County on the Kansas-Nebraska border. Like the other homogeneous counties, Rawlins County has also experienced a loss of population. From 1950 to 1960, it lost 7.8 percent of its people by a decrease of 5,728 to 5,279. The percentage of decline from 1930 to 1960 was 28.4, or from 7,362 to 5,279. However, during this same period, the percentage of the people of Rawlins County living in its incorporated cities increased from 27.7 to 48.6, while the percentage of its labor force in agriculture decreased from 65.1 in 1930 to 40.7 in 1960. These aforementioned trends are reflected in the decrease of the 1,176 farms the county had in 1930 to 750 farms in 1959, and consequently, in the increase in the average farm size from

566.2 acres to 929.9 acres during the same period. Simultaneously, the average wheat yields have increased from 18.0 bushels per acre to 40.0 bushels per acre.

The physical environment of Rawlins County--which is similar to those of the other homogeneous counties--accounts for its production of winter wheat, livestock (especially beef cattle), and sorghums, which are the county's main agricultural products. The wheat and grain sorghums are grown on the vast level areas, while beef cattle--and to a lesser extent sheep--are raised on the buffalo grass pastures of the more rugged regions. Along the creek valleys--where more soil moisture is available--alfalfa, corn, and forage sorghums are grown for winter feed for the livestock. When sufficient forage is available, there is some winter feed-lot fattening of livestock for the eastern markets. However, due to the withdrawal of land from cultivation, mechanization, and the higher yields per acre, agriculture no longer demands a high percentage of the labor force.

Rawlins County is much like the other homogeneous counties in that its mineral production until the late 1950's was insignificant. The production of minerals in the county was limited to some infrequently mined limestone quarries until 1956, when petroleum was discovered. Since that time, petroleum has become the most valuable mineral in Rawlins County. The discovery of oil fields, however, was quite slow. Until 1959, production was limited to a few small

pools of low output. The production of petroleum was 83,181 barrels in 1959; 545,415 barrels in 1960; and 756,869 barrels in 1962. The recent large increase in production is due to the important discovery of new wells and fields. In 1962, eleven scattered fields were in production. Geologists at Kansas State University tend to think that the possibility of finding even more petroleum in the county is quite good.

The great increase in petroleum production in Rawlins County will, no doubt, have an important effect on its population trends. However, the discoveries are too recent to thoroughly evaluate their effects on these trends. But it is reasonable to assume that the expanding oil industry will create demands for more workers and for materials and services used in the oil fields. These demands, in turn, will create demands for more consumers' goods and services and for more workers to supply them. Although the oil industry is certain to affect the population trends of the cities within the county, it must be kept in mind that the petroleum production of Rawlins County is not nearly as great as that in Ellis or Barton counties, which are the two greatest petroleum-producing counties in Kansas, and whose population trends are very greatly affected by the oil industry. Consequently, unless much greater amounts of petroleum are discovered and/or produced, it is not probable that the declining trend of Rawlins County's population will be reversed.

It is quite probable, however, that this declining trend will be significantly decelerated.

Rawlins County has three incorporated cities and several unincorporated hamlets. Atwood, the county seat, is the largest, and it is located in the approximate center of the county. In addition to its county governmental functions, Atwood serves as a marketing, service, and consumer goods center for the central part of Rawlins County. The city's hinterland is restricted by the much larger one of Mc Cook, Nebraska, which is a much larger city (8,301) approximately fifty-five miles to the northeast, and by the hinterland of Colby immediately to the south. Also restricting Atwood's influence are the smaller cities in the county which serve as local centers providing convenience goods and some agricultural services.

Atwood grew in population from 1,613 in 1950 to 1,906 in 1960; there are several important reasons for this growth. The fact that it is centrally located, and that it is the largest city in the county probably attract many farmers who are moving from their farms to the neighboring towns. It has also benefited from its crossroads location. It is situated on U. S. Highway 36, Kansas Highway 25, and a freight branch of the Chicago, Burlington, and Quincy Railroad. Also, a recent contributor to Atwood's growth has been the rising standard of living which is creating a greater demand for goods and services.

In answering the demand for consumer goods and services, Atwood has several small manufacturing firms. Among the items produced are a weekly newspaper, electricity, prepared meat products, and sunbonnets. The services rendered include the processing of grain and animal feeds and commercial printing. Most of these goods and services are for the benefit of the local populace.

There are four unincorporated hamlets in Rawlins County, in addition to the three incorporated cities. All four have lost population and importance primarily due to the improvements and increases in farm-to-market roads and motor vehicles which have allowed the agricultural populace easier and more rapid transit to the larger towns. Beardsley, Blakeman, and Ludell have maintained a bare minimum of functions due to their locations on a railroad. Achilles is located on neither a railroad nor a highway. Thus, isolation by not being situated on both a major highway and a railroad --which bring in the economic mainstreams--has probably contributed greatly to the demise of these hamlets.

TABLE IV

## POPULATIONS OF CITIES IN RAWLINS COUNTY BY DECADES

City	1900	1910	1920	1930	1940	1950	1960
Atwood	486	680	919	1,166	1,408	1,613	1,906
Herndon	-	273	411	430	448	321	339
Mc Donald	-	-	341	442	425	426	323

Source: U. S. Bureau of the Census.

Thomas County. Thomas County is located immediately south of Rawlins County and immediately east of Sherman County in one of the richest agricultural regions of northwestern Kansas. The county has a topography slightly more level than the other homogeneous counties, which is broken by a few rolling hills and a few stream courses. The streams are small and intermittent with shallow valleys, and included among them are the Saline River which flows eastward along the southern edge of the county; the South Fork of the Solomon River which flows to the east in the southern part; the North Fork of the Solomon River which heads in the western part of the county and leaves in a northeasterly direction; and the North and South forks of Sappa Creek which flow across the northwestern part of the county. These stream valleys provide important regions for the production of crops requiring more soil moisture, especially forage crops.

The soils of Thomas County are rich chestnuts developed from loess. The climate has an average annual precipitation of 18.02 inches and an average growing season of 160 days. The native vegetation is of the short grass types, particularly buffalo and grama. Under such natural conditions, wheat is the most important agricultural product, followed by beef cattle, sorghums, and sheep.

Like the other homogeneous counties, Thomas County has similar population and economic trends, but with some significant modifications. Between 1950 and 1960, Thomas

County's population declined from 7,572 to 7,358, or only 2.8 percent. This decline in population has not been steady over an extended period of time. Thomas County's population gradually increased from pioneer days to 7,334 in 1930, but then declined to 6,472 during the following ten-year period for a 12.5 percent decline. The general unattractiveness of agriculture caused by the extreme drought conditions and financial depression were responsible for this large decline in the 1930's. From 1940 to 1950, however, this trend was notably reversed as the population increased 17.9 percent (from 6,425 to 7,572). The food demands of World War II and the higher prices combined with better climatic conditions were largely responsible for re-stimulating population growth in the county. Since then, the population has declined due to the changes in agriculture.

As in the other homogeneous counties of northwestern Kansas, the number of farms in Thomas County has decreased, while the average farm size has increased. The county had 998 farms in 1930, but only 672 farms in 1959. During this 29-year period, the average farm size increased from 690.2 acres to 1,172.9 acres. In approximately the same period (1930 to 1960), average wheat yields increased from 17.0 bushels per acre to 40.0 bushels per acre.

The agricultural trends noted in the preceding paragraph are reflected in Thomas County, as in the other homogeneous counties, in the steady decrease since 1930 of the



percentage of the labor force employed in agriculture. In 1930, 47.8 percent of the county's labor force was in agriculture, but in 1960 only 26.1 percent were so occupied. Of all the counties in northwestern Kansas, only Sherman County has a lower percentage of its labor force in agriculture. Closely related to this trend is the tendency toward urbanization. In 1960, 63.7 percent of Thomas County's population was living in its five incorporated cities. This represents a significant increase over the 46.6 percent living in these cities in 1930. The trend toward urbanization in Thomas County has been significantly affected by other factors, in addition to the predominant agricultural factors.

Mineral production has never been an important factor in the economy of Thomas County. Sand and gravel are the main minerals produced. Two small oil fields were discovered in the eastern part of the county in the 1950's, but their production was always very small, and they have since been abandoned.

Thomas County has five incorporated cities and five unincorporated hamlets. The largest and most important of these is Colby, the county seat. Colby is one of the fastest growing cities in northwestern Kansas, increasing in population from 2,153 in 1930 to 4,210 in 1960, or 95.5 percent. One of the most important reasons for this growth is the greatly increased importance of Colby's function as a trade and service center for Thomas County and much of northwestern

Kansas. The importance of this function has increased due to the greatly rising demands induced by the rising standards of living in the area.

Consequent of providing consumers' goods and services for the region, Colby has fifteen industrial firms producing millwork and cabinets, newspapers, electricity, mattresses and box springs, books, animal feeds, and accessories for farm machinery. These firms also render a wide variety of services which include commercial printing, slaughtering and meat processing, hard chrome plating of farm machinery parts, and processing of seeds and animal feeds. These important service, manufacturing, and trade functions are greatly aided by Colby's location on several important transportation routes. Two railroads serve the city. The Chicago, Rock Island, and Pacific traverses the city in an east-west route, and a branch line of the Union Pacific enters from the east and leaves by the southeast toward Oakley, where it joins the main line. In addition, Colby is located on U. S. Highway 24 and Kansas Highway 25. It is also the site of a radio station (KXXX), which is one of the more important broadcasting stations in the region. The effect of industry and transportation is revealed by the fact that in 1960 Colby had 68 persons employed in the manufacture of durable and non-durable goods and 137 persons employed in transportation, communications, and public utilities. Colby has more people employed in these industries than any other city in northwestern Kansas

except Goodland.

Colby's importance to the region is further enhanced by the location of the 594-acre Colby Branch Station of the Kansas Agricultural Experiment Station nearby. The station strives to improve the agricultural methods and crops of the region and promulgates information helpful to agriculture.

Although Colby is one of the fastest growing cities in northwestern Kansas, the rapid growth that occurred between 1920 and 1950 now appears to be leveling off. The city's growth is undoubtedly somewhat restricted by the existence of larger Goodland to the west and by smaller, but growing, cities to the east, north, and south. Colby should continue, however, to be one of the largest and most important cities of the region.

Brewster is a small agricultural service center, and as such, its population trends are reflected in the region's agriculture. The population of the city reached its peak of 487 in 1930, but dropped to 408 by 1940. It recovered somewhat with the concurrent recovery of agriculture in the 1940's, and as a result, Brewster had 467 people in 1950. Then, the population decreased greatly (to 317) by 1960. And while most of the smaller towns in northwestern Kansas have been adversely affected by the improvement and increase in roads and motor vehicles, the effect has been more harmful on Brewster because it is located almost exactly between Goodland and Colby.

TABLE V  
POPULATIONS OF CITIES IN THOMAS COUNTY BY DECADES

City	1900	1910	1920	1930	1940	1950	1960
Colby	641	1,130	1,114	2,153	2,458	3,859	4,210
Brewster	-	-	-	487	408	467	317
Rexford	-	-	237	375	244	304	245
Gen	-	-	-	200	125	118	116
Menlo	-	-	-	204	144	113	99

Source: U. S. Bureau of the Census.

Decatur County. Decatur County, located immediately east of Rawlins County, has a physical environment very similar to that of the other homogeneous counties. Consequently, the county's economy is predominantly agricultural, and winter wheat, beef cattle, sorghums, and corn are the major products.

Decatur County is very close to the western salient of the Corn Belt that extends along the Kansas-Nebraska boundary. Corn production here is concentrated along the stream valleys. The corn is grown primarily to fatten livestock that have been raised in the surrounding short grass regions of Kansas and Nebraska. Thus, the influence of this grain is reflected in the greater numbers of beef cattle and hogs in Decatur County than in any of the other homogeneous counties. The influence of corn is also noted in the larger number of farms and the smaller average farm size of the county. Corn, therefore, has exerted in the past, and still

exerts in the present, a stronger influence on the agricultural and population trends of Decatur County than in any of the other homogeneous counties. Today, however, corn is of minor importance compared to the dominance of wheat. In 1960, 142,000 acres were planted to wheat and sorghums, and only 20,000 acres were planted to corn. Consequently, the changes in wheat farming and production have had the most important impact on the county's agricultural and population trends.

Mineral production in Decatur County is gaining in importance. The first oil field was discovered in 1951, and by 1962 sixteen fields had been discovered. The production of petroleum in 1962 was 502,678 barrels, and there were indications that it would continue to increase as more new fields were discovered. At present, however, the production does not approach that of the major oil producing counties in the state. And while the oil industry has probably retarded the decline in Decatur County's population, its influence is not great enough to reverse this trend. Small amounts of sand and gravel are the only other minerals produced in the county, and they have had no effect whatever on its population trends.

Decatur County has experienced a steady decline in its population since it reached its greatest amount (8,866) in 1930. In 1960, 5,778 persons were living in the county representing a thirty-year decrease of 34.8 percent. This

trend appears to be decelerating in that the county lost only 6.6 percent of its population between 1950 and 1960. Undoubtedly, the rapidly increasing oil industry has played an important part in this deceleration of the population decline. It is also quite probable that the oil industry has tended to accelerate the urbanization of the county. The percentage of Decatur County's inhabitants living in its four incorporated cities has increased from 30.7 percent in 1930 to 53.0 percent in 1960.

These contrasting trends in the population are, as in the other homogeneous counties, reflected in the agriculture of the region. In 1930, Decatur County had 1,340 farms, but in 1959 it had only 796 farms. The average farm has increased from 416.6 acres in 1930 to 720.1 acres in 1959. Wheat yields in the county have increased from 13.0 bushels per acre in 1930 to 31.0 bushels per acre in 1960. Corn yields have remained about the same, but the acreage planted has decreased from 92,375 acres to 20,000 acres during the same period. Concomitantly, the percentage of Decatur County's labor force employed in agriculture has decreased from 60.5 percent in 1930 to 43.4 percent in 1960.

Decatur County has four incorporated cities: Oberlin, Norcatatur, Jennings, and Dresden. It also has six unincorporated hamlets. As previously noted, the percentage of the county's inhabitants living in its incorporated cities is increasing. Oberlin is the largest city in the county, and

it has had a steady increase in population since 1900. It is centrally located in Decatur County, and it is the county seat. It serves as the major goods and service center for the county's farms and oil fields. In providing these goods and services, Oberlin has several firms manufacturing animal feeds, electricity, soft drinks, and cushions. In addition, there are firms which process seeds and one that publishes a newspaper. The hinterland of Oberlin is, however, seriously restricted to the north by the hinterland of Mc Cook, Nebraska, and to the east by the hinterland of Norton, both larger cities.

Oberlin's growth has also probably been effected by its transportation facilities. It is located at the intersection of U. S. Highway 83 and U. S. Highway 36. In addition, it is at the terminus of a freight branch of the Chicago, Burlington, and Quincy Railroad. Oberlin is also benefited by Decatur County's good network of farm-to-market roads which greatly aid access to the city. Thus, the transportation facilities available to the city, in combination with the improvements and increases in motor vehicles, have greatly abetted and increased the movements of farmers into it. Another type of facility that may have some slight effect on Oberlin is a television station, KOMC-TV, nine miles to the west.

The unincorporated elevator hamlets of Traer and Cedar Bluffs are located in the northwestern part of the county on

the Chicago, Burlington, and Quincy Railroad, and they provide only a very few goods and services for the immediate farming regions. The hamlet of Kanona also provides elevator services. Leoville in the southern part of the county on Kansas Highway 223 is a religious center for the Roman Catholics in the vicinity due to its large cathedral, but because it is not located on a railroad its functions as a central place are very limited. Lyle is a crossroads hamlet on a county road in the northeastern part of the county. Allison is also a crossroads hamlet not located on a railroad and is situated in the southern part of the county on Kansas Highway 9. All the hamlets of Decatur County have been severely affected by the changes in agriculture and transportation. Often their functions are limited to having a church and/or elementary school. If they are located on a railroad, they will have grain elevators which may operate during the wheat and sorghum harvest seasons.

TABLE VI

## POPULATIONS OF CITIES IN DECATUR COUNTY BY DECADES

City	1900	1910	1920	1930	1940	1950	1960
Oberlin	937	1,157	1,247	1,629	1,878	2,019	2,337
Norcatour	-	482	476	524	440	368	302
Jennings	-	259	253	344	311	330	292
Dresden	-	-	-	231	180	162	134

Source: U. S. Bureau of the Census.



Sheridan County. Sheridan County is located south of Decatur County and east of Thomas County. It is the southeastern county of the homogeneous group, and the final county of this area to be examined. It, too, is a predominantly agricultural county with a steppe climate. The average annual precipitation is 19.35 inches, and the average growing season is 163 days. The soils are chestnuts developed from loess. The terrain is flat to rolling, and it is crossed in an easterly direction by the Saline River, the North and South forks of the Solomon River, Prairie Dog Creek, and Bow Creek. In this natural environment, hard red winter wheat, sorghums, and beef cattle are the main products of agriculture.

Agriculture, as in the other homogeneous counties, dominates the economy of Sheridan County. Thus, the changes in the agriculture have been concomitantly reflected in the population, as the following figures indicate. The population of Sheridan County, the least populous of the homogeneous group, has steadily declined since reaching its peak of 6,038 in 1930. In 1960, the population was 4,267. During the same period, the percentage of people living in the county's incorporated cities increased from 19.9 percent to 38.3 percent, and the percentage of the labor force employed in agriculture decreased from 70.1 percent to 53.6 percent. Simultaneously, the number of farms in Sheridan County has decreased from 1,049 to 688, while the average size of the

farms has increased from 535.8 acres to 798.4 acres. And wheat yields have increased from 17.0 bushels per acre to 40.0 bushels per acre.

Agriculture, however, is not the only economic factor affecting Sheridan County's population trends. The first oil field was discovered in 1944, and production has increased to the 269,154 barrels produced in 1962. This production is comparatively small, but may have exerted a brake on the county's population decline. That the oil industry has had only a minor effect on the population trends of the county is revealed by the fact that the rate of decline for Sheridan County has been similar to those of counties without petroleum production. The oil industry has not had an important effect on the population because of the comparatively small production, and because most goods and services directly related to the industry are centered in Hill City to the east. Sand and gravel are the only other minerals produced in the county, and they have had no effect on population trends.

Hoxie is the largest city and the county seat of Sheridan County. With the exception of its county governmental services, its functions are mainly those of furnishing consumers' goods and services to most of the county, especially to the agricultural segment, and, to a much lesser degree, the oil fields. Hoxie has only two manufacturing firms: one publishes a newspaper and the other produces elec-

tricity. In performing these functions, it is greatly aided by its location on two major highways and on a branch line of the Union Pacific Railroad and by the extensive network of farm-to-market roads in the county.

Hoxie has experienced a steady increase in population throughout its history. In 1930, it had a population of 800, and by 1960 this population had increased to 1,289. While Hoxie is the largest city in Sheridan County and its population is steadily increasing, it is one of the smallest county seats in northwestern Kansas. This is probably a reflection of the fact that Sheridan County has one of the smallest county populations in the region. Thus, there is an indication that the population trends of an overall decrease with a concurrent increase in the larger cities exist even in the counties with smaller populations. This would also indicate that the larger cities in the more populous counties of the region are not getting their increases in population from the lesser populated counties.

TABLE VII

## POPULATIONS OF CITIES IN SHERIDAN COUNTY BY DECADES

City	1900	1910	1920	1930	1940	1950	1960
Hoxie	250	532	616	800	957	1,157	1,289
Selden	-	297	280	399	401	438	347

Source: U. S. Bureau of the Census.

Summation of the Homogeneous Counties. Throughout the six homogeneous counties, there is a distinct connection between their declines in population and their changes in agriculture. There is also a connection between the declines in population and the changes in transportation. And to a lesser extent, there is a connection between the population trends and the changes in petroleum production. From 1930 to 1960, the total populations of the six counties have steadily decreased from 43,948 to 34,072, and the percentage of the population living in the incorporated cities has increased from 34.2 percent in 1930 to 56.4 percent in 1960. Concomitantly, the following correlating changes have taken place in agriculture: (1) the total number of farms has decreased from 6,458 in 1930 to 4,176 in 1959; (2) the average farm size in the six counties has increased from 559.6 acres in 1930 to 959.8 acres in 1959; (3) wheat yields have increased from 16.5 bushels per acre in 1930 to 39.4 bushels per acre in 1960; and (4) the percentage of the labor force employed in agriculture has decreased from 58.1 percent in 1930 to 37.3 percent in 1960.

The effect of mineral production on the population trends of the homogeneous counties is difficult to determine, especially in relation to petroleum. However, a definite correlation has been established between population trends and petroleum production in other counties of Kansas in which petroleum production has been of a much longer duration.

Most of the six homogeneous counties have some petroleum production, and the declines in their populations have generally been slower than in other agricultural counties of the state which have no petroleum production. In 1930, there was no oil production in these counties, but in 1962, they produced 1,598,964 barrels of petroleum. Most of the producing fields were discovered in the 1950's. The recency of the discoveries increases the difficulty of learning the impact of the petroleum production on the population trends.

The convenience, ease, and speed of transportation has undoubtedly encouraged the growth of some of the larger cities. Of course, the railroads originally encouraged the settlement of the region and were very influential in determining the locations of the cities. They are still the major means by which the agricultural products grown in the region are taken to the eastern markets and by which many other products are shipped in and out of the region. Since the 1920's, the state and national highways have become increasingly important routes for movement within and out of the region. In addition, farm-to-market roads have become much more important for movement between the region's farms and cities. Although the use of the roads in the region is increasing, the actual mileage of farm-to-market roads in the six counties has gradually decreased from 8,838 miles in 1932 to 7,428 miles in 1960. This decrease appears to be correlative with the general decrease in farm population.

As more and more people have left the farms, the need for some roads has ceased to exist. However, as the farm-to-market road mileage has decreased, there has been a trend to improve the construction and surfacing of the remaining mileage. The improvements in many of the roads have caused them to be usable in periods of severe weather, and thus greatly encouraging movements of the populace.

The movements of the population in the six homogeneous counties have also been encouraged by the improvements and the increases in the numbers of motor vehicles. In 1931, these counties had 3,478 trucks and 12,550 automobiles registered, and by 1960 10,129 trucks and 14,347 automobiles were registered. Transportation improvements, and especially improvements in motor vehicles, are also reflected by the large number of intrastate and interstate common carriers (sixty-one and thirty-eight, respectively) that have been authorized to do business in these counties.

Manufacturing in these predominantly agricultural counties has always been quite minimal and has had little effect on the population trends. Of the 12,402 persons employed in the six homogeneous counties in 1960, only 271 were employed in manufacturing. Manufacturing is generally limited to the production of a few basic goods and services most needed by the immediate agricultural communities.

In conclusion, then, the population trends in the six homogeneous counties are controlled by: (1) a steppe climate

which limits the amounts and kinds of agricultural products that can be grown; (2) the economics of agriculture and the interrelated governmental policies; (3) the types and numbers of minerals that can be mined; and (4) the relative isolation of this group of counties from the major centers of population of the United States.

### Part 3. County-by-county Analysis of the Contrast Counties

Introduction. Three counties conterminous with the six homogeneous counties have been selected for the purpose of contrasting their differences in agriculture and/or mineral production with their consequent differences in population trends. Although the term "contrast" is used, it must be kept in mind that there are only a few major dissimilarities between the homogeneous counties and the contrast counties. The contrast counties are Graham, Logan, and Norton.

Norton County. Norton County differs from the homogeneous counties for the following reasons: (1) it was settled earlier; (2) it has a larger population; (3) it has a greater mineral production; (4) its climate is wetter; (5) it has a major state institution and a federal reservoir; and (6) it is in Type-of-farming Area 8 and State Economic Area 4.

Norton County is located on the Kansas-Nebraska

border immediately east of Decatur County in a type-of-farming area which is described as an area having cash grain, livestock, and general farming with some importance placed on corn and hay. Corn production has been of greater importance in Norton County's agriculture than in that of the homogeneous counties, and its importance was one of the major reasons that Norton County was chosen as a contrast county. Some geographers place Norton County within the westward salient of the Corn Belt that extends along the Kansas-Nebraska boundary, while others place it just to the west of the westward limits of this salient. Regardless of its exact position within or without of the Corn Belt, Norton County is undoubtedly within the transition zone between the Corn Belt and the Winter wheat Belt.

Corn was the major grain crop produced in Norton County until the late 1930's, when the acreage of hard red winter wheat exceeded the acreage of corn. Since that time, wheat has continued to be the major grain crop, and corn acreage has continued to decline. During the 1940's, this decline was quite rapid. Its acreage has dropped from the 150,682 acres planted in 1930 to the 18,000 acres planted in 1960. Corn suffered more from the drought and depression years of the 1930's than did wheat. Therefore, when sorghums and better varieties of wheat were introduced in the 1930's, corn lost much of its former acreage to these crops. In 1960, Norton County farmers planted 87,000 acres of wheat



and 50,000 acres of sorghums, as compared to the 18,000 acres of corn. Like wheat, corn is subjected to governmental controls which greatly reduce its acreage.

The importance of corn and forage crops in the agriculture of Norton County is reflected in the county's large numbers of hogs and beef cattle. The county has more hogs and often more beef cattle than any other county in the entire northwestern Kansas region. The corn is used primarily to fatten the animals before they are sold at eastern markets. The cattle, hogs, and sheep fattened in the feed lots of Norton County often come from neighboring regions in Kansas and Nebraska, as well as the local farms.

The agriculture of Norton County is carried on in a physical environment that is slightly different, but still quite similar, from that of the homogeneous counties. Its average annual precipitation of 20.82 inches and its growing season of 167 days are slightly greater than those of the homogeneous counties and place the county on the continental edge of the humid continental, warm summer type of climate. Its soils are rich chernozems developed from loess. The native vegetation of short grasses grows on a terrain that is flat to rolling. This terrain is crossed by several rivers and creeks. These natural characteristics are responsible for Norton County's location in the transition zone between the Winter Wheat Belt and the Corn Belt. In this natural setting, winter wheat and sorghums are usually grown on the

more level areas of the uplands; corn, alfalfa, and other forage crops are usually grown extensively along the stream valleys; and beef cattle are pastured in the more rugged regions. Because its natural environment is more conducive to agriculture than the environment of the homogeneous counties, Norton County has been more attractive to heavy settlement.

Although its agriculture differs from that of the homogeneous counties, Norton County resembles these counties in that agriculture is the dominating force in its economy, too. Therefore, the population trends of Norton County can also be correlated with the changes in the local agriculture. The county's population has decreased from its peak of 11,701 inhabitants in 1930 to 8,035 in 1960 for a thirty-year decrease of 31.3 percent. This decline is in contrast to the tendency of the percentage of the population living in the incorporated cities to increase. The percentage of the county's urban population has increased from 37.7 percent to 50.6 percent in 1960. During the same period, the percentage of the labor force employed in agriculture has decreased from 52.9 percent to 30.8 percent. In addition, the average farm size has increased from 312.7 acres in 1930 to 612.5 acres in 1959, and the number of farms has decreased from 1,705 farms to 879 farms during the same period of time. And from 1930 to 1960, wheat yields increased from 15.0 bushels per acre to 35.0 bushels per acre.

Many of the previously cited figures on agriculture differ from those of the average homogeneous county due to the influence of corn. Corn farming usually requires smaller acreages than does wheat farming. Therefore, the average farm size in Norton County between 1930 and 1950 was considerably smaller than those of the more western counties where corn has less influence. As a consequence of the smaller farms, there are more farms in Norton County than in the average homogeneous county. Compared to the aforementioned figures for Norton County, the average farm size of the average homogeneous county in 1959 was 959.8 acres, and the number of farms in the average homogeneous county during the same year was 696. Another noticeable effect of the Corn Belt is the fact that Norton County usually has fewer acres in wheat than the counties to the west. In 1960, the average wheat acreage for a homogeneous county was 140,833.3 acres, but Norton County had only 87,000 acres in wheat.

Mineral production is another factor in which Norton County differs from the six homogeneous counties. Petroleum was first discovered in 1940, and by 1962 there were eight fields which produced 778,559 barrels of oil during the same year. This production was somewhat greater than the 1962 production of Rawlins County, which is the largest oil producer of the homogeneous counties. In addition to petroleum, Norton County has one of the two volcanic ash mines in Kansas. It has been mined near Calvert since 1908. At present,

the mine is operated by Wyandotte Chemical Corporation. Sand and gravel are also produced in the county. This mineral production itself does not appear to have a very great effect on the population of Norton County because the Census of 1960 listed only seventeen persons employed in mining. However, it is quite likely that the demands for goods and services from the various mineral producing units may have a minor effect on the population trends.

Norton County also differs from the homogeneous counties in that it has a federal reservoir and a state sanatorium within its boundaries that have an effect on its population. Three miles southwest of the City of Norton on Prairie Dog Creek, a federal reservoir, Norton Reservoir, is under construction. It is scheduled for completion in 1966. It will be used for flood control and irrigation. Undoubtedly, the reservoir will have an effect on the county's population because it will require maintenance personnel and because farms using irrigation require more labor per acre. The demands of the recreational aspects of the reservoir may also encourage more people to move into the county.

The Kansas State Sanatorium for Tuberculosis is located five miles east of the City of Norton. Its effect on the population is noted in the 276 persons in Norton County that were employed by welfare, religious, and non-profit organizations in 1960.

History also differentiates Norton County from the

homogeneous counties. Because it is located farther east, it was settled before the homogeneous counties. Norton County was organized as a county in 1872, while most of the homogeneous counties were organized in the 1880's. Therefore, Norton County's head start in settlement may have caused it to gain more inhabitants than the homogeneous counties before the important changes of the 1920's and 1930's.

Increases and improvements in transportation, as in the homogeneous counties, have also had an effect on Norton County's population trends. Three federal highways, one state highway, and numerous farm-to-market roads crisscross the county. The convenience, ease, and speed of transportation have probably encouraged more population movements to the larger cities and the abandonment of the smaller ones.

Norton County has five incorporated cities and seven unincorporated hamlets. The largest of these is Norton, which is the centrally-located county seat. It functions as a consumers' goods and service center for the agricultural community and oil fields of the entire county and the nearby parts of Nebraska and surrounding counties. However, its hinterland, in regards to consumers' goods and services, is limited in the eastern part of the county by the hinterland of Alma and in the southern part of the county by the hinterland of Lenora. In addition to providing consumers' goods and services, Norton has fourteen manufacturing firms

producing dairy products, cabinet work, animal feeds, farm machinery accessories, electricity, soft drinks, sheet metal products, and ice. There are also firms which publish a newspaper, do commercial printing, and process seeds. In addition, Wyandotte Chemical Corporation has a plant at Norton which processes the volcanic ash mined at Calvert for shipment out of the region. Norton is also the dormitory city for most of the persons employed at the tuberculosis sanatorium.

Norton's growth has been influenced by its location on U. S. Highways 36-383 and 283 and on the combined tracks of the Chicago, Burlington, and Quincy and of the Chicago, Rock Island, and Pacific railroads, which make it one of the major transportation foci in northwestern and north central Kansas. This transportation network has influenced the growth of Norton by attracting the large (for northwestern Kansas) number of industrial firms, and thus, it has played a significant role in Norton's population increase of 23.1 percent from 1930 to 1960.

TABLE VIII

## POPULATIONS OF CITIES IN NORTON COUNTY BY DECADES

City	1900	1910	1920	1930	1940	1950	1960
Norton	1,202	1,782	2,186	2,767	2,762	3,060	3,345
Almena	491	702	674	703	543	616	555
Lenora	247	454	520	519	537	511	512
Clayton	-	191	258	226	153	157	161
Edmond	-	-	213	197	180	110	91

Source: U. S. Bureau of the Census.

Graham County. Graham County is the second of the contrast counties to be examined. It was chosen as a contrast county because it ranks sixth among the counties of Kansas in mineral production. With the exception of its mineral production and a slightly greater average annual precipitation, it differs very little from the homogeneous counties.

Petroleum is the most valuable product of Graham County. In 1962, the county's petroleum production was valued at \$15,866,274, and the total of all its agricultural products was valued at \$10,070,620. Petroleum was first discovered in the county in 1938. By 1945, the production had increased to 1,139,284 barrels from six pools. Production continued to increase, and 2,131,272 barrels of petroleum were produced from nineteen pools in 1950. In the 1950's, exploration was greatly accelerated, and in 1955, 4,897,852 barrels were produced from fifty-three fields. The increase continued, and in 1960, 6,116,015 barrels of oil were produced from ninety-two fields. The 1962 production was 5,471,446 barrels from ninety-nine fields. It seems logical to expect such an important production of petroleum to have a very important effect on the county's population trends. There is evidence that this production has had an impact on both the population trends of the county and the cities within it. These population trends are, however, also connected with agriculture.

The agriculture of Graham County is carried on in a physical environment typical for northwestern Kansas. The terrain is flat to rolling covered by chernozem soils which are carpeted by short grasses. The South Fork of the Solomon River and several other streams flow across the county. Like Norton County, Graham County is on the continental edge of a zone of humid continental, warm summer type of climate. It has an average annual precipitation of 20.55 inches and an average growing season of 165 days. This physical regime is largely responsible for Graham County being classified in the State Economic Area 2a and in Type-of-farming Area 11-- as all the homogeneous counties are--in which winter wheat, sorghums, and beef cattle are the major products of agriculture.

Agriculture was the economic mainstay of Graham County until the value of agricultural products was exceeded by that of petroleum in the early 1950's. Therefore, it was the dominant factor affecting population trends until that time. Both agriculture and the oil industry have had effects on the population trends of Graham since the early 1950's.

Unlike the populations of most of the other counties in northwestern Kansas, the population of Graham County has not shown a steady decline after reaching its peak. Rather, it has alternated with the changes in petroleum production and agriculture. The county attained its peak population of 8,700 in 1910. This early heavy settlement was probably



encouraged by a series of good years for agriculture during the 1890's and the first decade of the twentieth century. Then between 1915 and 1920, the region was struck by drought and other natural disasters. The production of most agricultural products decreased very sharply, and as a consequence, the Census of 1920 revealed a decrease to 7,624 persons living in Graham County. The 1920's were good years for agriculture, and by 1930 the population of the county had recovered to 7,772. Agriculture was plagued by the dual disasters of depression and drought during the 1930's, and consequently, the population of the county declined very sharply to 6,071 by 1940.

During the 1940's, the impact of the petroleum industry began to be felt in some aspects of the economy of Graham County, but the population continued to decline. The impact of oil was not yet great enough to counteract the drop in population caused by the changes in agriculture, and during the decade the county suffered another sharp decline in population--to 5,020 in 1950. During the 1950's, the decline in agriculture gradually began to decelerate, while oil production and discoveries increased so rapidly that Graham County became one of the major petroleum producing counties in Kansas (sixth).

Since 1950, many notable changes in Graham County's population trends can be correlated with the great increase in the oil industry. The county experienced its first increase

in population since 1910, which was from 5,020 in 1950 to 5,586 in 1960. This increase emphasizes the significance of the oil industry in Graham County because it was the only county in northwestern Kansas to have an increase in population from 1950 to 1960. Another notable change in the population trends that can be correlated with the oil industry is the decrease in the percentage of the labor force employed in agriculture. From 1930 to 1950, this percentage decreased from 67.6 percent to 53.6 percent, but by 1960 this percentage had decreased to 32.4 percent. The effect of the oil industry since 1950 may also be seen in the increase in the percentage of the county's population living in its incorporated cities. This percentage increased from 18.2 percent in 1930 to 38.4 percent in 1950 and may be attributed largely to changes in agriculture. However, the increase in urbanization to 53.2 percent since 1950 was probably largely caused by the increase in the oil industry. This increase is even more significant when it is realized that all the incorporated cities of Graham County experienced an increase in population between 1950 and 1960; and not only the largest city--which is the case in most of the other counties of northwestern Kansas. The growth of these cities was undoubtedly influenced by the 118 persons employed in mining in Graham County during 1960. It is uncertain how many were employed in activities auxiliary to the oil industry, but there are probably more than in any other county in northwestern

**Kansas.**

Although now second in importance as a factor in Graham County's economy, agriculture continues to exert a significant force on the county's population trends. The trends of Graham County's agriculture tend to be very similar to those in the homogeneous counties. The average farm size has increased from 425.4 acres in 1930 to 798.0 acres in 1959, and the number of farms has decreased from 1,286 to 659 during the same period. And, the yield of wheat has increased from 15.0 bushels per acre in 1930 to 31.0 bushels per acre in 1960. As previously mentioned, these changes in agriculture are partially reflected in the decrease in the percentage of the county's labor force employed in that industry. Until the 1950's, these changes in agriculture were more responsible for the changes in population than the oil industry.

Transportation has probably had effects on the population trends of Graham County similar to those in the other counties of northwestern Kansas. The improvements and increases in motor vehicles and in the county's 1,129 miles of farm-to-market roads have, no doubt, encouraged the movement of the rural population to the cities. It is certain that this abundance of transportation facilities in Graham County and the improvements in motor vehicles has facilitated the development of the oil industry in the county. In return, the oil industry has probably had an impact on the transpor-

tation systems, and, in turn, on the population trends of the county. The oil companies have crisscrossed Graham County with oil and gas pipelines on which they pay taxes. They also pay a great amount of taxes on their extensive holdings in the county; and because petroleum is the most valuable product of Graham County, the oil companies are the county's major sources of revenue. Due to the large amounts of revenue, Graham County has been able to improve its roads to a degree superior to those of rural counties with less petroleum production.

Graham County has three incorporated cities and three unincorporated hamlets. Largest and most important of these is Hill City, the county seat. Hill City serves as a dormitory and goods and service center for the county's oil industry and as a consumers' goods and service center for the immediate agricultural community. As such, it can contribute its gradual growth from 732 in 1910 to 1,432 in 1950 largely to the changes in agriculture that occurred during that period. But the very sharp increase in population to 2,421 in 1960 closely correlates with the rapid rise of the oil industry during the same period.

Several factors have contributed to Hill City's becoming the center of Graham County's oil industry. It is centrally located in relation to the oil fields, and it is on several important transportation routes: U. S. Highways 24 and 283 and a branch line of the Union Pacific Railroad.

Its larger size also makes it more attractive as a location for the offices of oil companies and for housing for the industry's employees.

Hill City is located between larger Norton to the north and Wa Keeney, a larger city to the south. As such, its hinterland includes that area between these larger cities. As part of providing goods and services for the oil fields and the farms in its hinterland, Hill City has seven firms which manufacture and provide various products and services for these industries. Many of these firms and many non-manufacturing firms have been attracted to Hill City since 1950 by the demands originating from the petroleum industry.

TABLE IX  
POPULATIONS OF CITIES IN GRAHAM COUNTY BY DECADES

City	1900	1910	1920	1930	1940	1950	1960
Hill City	468	983	732	1,027	1,115	1,432	2,421
Morland	-	237	296	385	356	287	317
Bogue	-	-	-	-	157	211	234

Source: U. S. Bureau of the Census.

Logan County. Logan County is the third of the contrast counties to be examined. It was selected as a contrast county because it is located in State Economic Area 1 and in Type-of-farming Area 12, which is the area with the largest average farm size in Kansas and which produces wheat, sorghums, and range cattle. In this type-of-farming area,

cattle ranching is a little more prevalent in the agricultural economy than is usual for a county in northwestern Kansas. But with the exception of its slightly more rugged terrain, it is very similar to the homogeneous counties in most economic and physical aspects.

Logan County is located immediately south of Thomas and Sherman counties. And like the homogeneous counties, it is located in the steppe climatic region, and consequently, the county has an average annual precipitation of 18.97 inches and a growing season of 163 days. The terrain in the north central and northeast parts of the county is very flat and dotted with numerous deflation and/or solution basins that have limited areas of interior drainage. The soils are chestnuts developed from loess. In this type of physical environment, buffalo and grama grasses are the native vegetation, and wheat and sorghums are the major agricultural crops.

The rest of Logan County is very eroded and quite rugged. Erosion centered on the intermittent Smoky Hill River has cut through the sedimentary rocks of the Tertiary and Quaternary periods and into the chalk of the Cretaceous Period. The erosion has formed several small badlands from this chalk. This rugged region has brown and chestnut soils developed from consolidated calcareous old alluvium. These soils are very poor and shallow. They are so poor that in some places the terrain is barren even of short grasses.

In this region, cattle ranching is the main endeavor of agriculture, and the farms are necessarily quite large.

Although much of Logan County is not very attractive to agriculture, that industry is the dominant factor in the county's economy, which, consequently, affects its population trends. These trends tend to follow the changes in agriculture more closely in Logan County than in most of the counties of northwestern Kansas. In 1910, the county reached its highest population figure of 4,240 after several good years for agriculture, but as the industry experienced some bad years between 1915 and 1920, the population plummeted to 3,223 by 1920. With the return of times beneficial to agriculture, the population of the county climbed to 4,145 by 1930. Then as drought and depression battered the industry during the 1930's, the population declined again. In 1940, Logan County had only 3,688 inhabitants. Then the 1940's smiled on agriculture, and the population rose to 4,206 in 1950. The leveling-off of agriculture in the 1950's witnessed another decline in population, and by 1960, it was 4,036.

The agricultural trends of Logan County show less alternations than the population trends, and they have some significant variations from the agricultural trends of the homogeneous counties. The average farm size of Logan County increased from 1,022.7 acres in 1930 to 1,625.4 acres in 1954. From 1954 to 1959, however, the average farm size decreased

to 1,447.0 acres, and a concurrent trend is revealed in the number of farms. The county's farms decreased in number from 541 in 1930 to 345 in 1954, but increased to 378 by 1959. A reverse of the agricultural trends has been caused by the advent of irrigation in the 1950's. Wells pumping sheet water are being used to irrigate forage crops and sugar beets. Because irrigation requires more human labor, it is the major factor in reversing the general agricultural trends, and it may be a factor in braking the population decline of Logan County. However, geologists at Kansas State University believe that the supply of water being used for irrigation is limited, and therefore, this reversal of agricultural trends may be only temporary.

Regardless of the reversals in the average farm size and the number of farms, the trends of the percentage of the labor force employed in agriculture, of the percentage of persons living in the incorporated cities, and of the per acre yields of wheat follow the general trends of the region. The percentage of the labor force employed in agriculture has decreased from 50.3 percent in 1930 to 32.4 percent in 1960, and the percentage of the population living in the incorporated cities of Logan County has increased from 39.2 percent in 1930 to 66.3 percent in 1960. Wheat yields during the same period have increased from 14.0 bushels per acre to 38.0 bushels per acre.

Mineral production is of very little importance to



Logan County. There is only one small oil field. It was discovered near Monument in 1959, and it produced only 1,205 barrels of petroleum in 1962. Sand and gravel are the only other minerals produced. Consequently, mineral production has had no effect on the county's population.

Logan County has three incorporated cities and four unincorporated hamlets. The largest of these is Oakley, located in the northeastern corner of the county. It serves as an important consumers' goods and services center for its surrounding agricultural hinterland, including most of Logan County. Consequently, its population trends are generally correlative with the local changes in agriculture. The population of Oakley was 1,159 in 1930, but the poor agricultural years of the following decade witnessed a concurrent slight decline in the city's population to 1,138 by 1940. But the 1940's were very prosperous years for agriculture in western Kansas, and the population of Oakley reacted by a large rise to 1,915 inhabitants by 1950. During the 1950's, agriculture began to level off and then to decline, while the city's population was growing slowly. In 1960, Oakley had a population of 2,190.

Oakley has several other functions, in addition to servicing agriculture, which may have an effect on its population trends. Among these functions is that of serving as an important transportation center for western and northwestern Kansas. It is located on U. S. Highway 40, which is

a major east-west route. It is also on U. S. Highway 83, a north-south route. In addition, it is on the main line of the Union Pacific Railroad between Kansas City and Denver, and it is on the terminus of the branch line of the Union Pacific Railroad which begins at Salina; goes westward to Colby; and then southeastward to Oakley. As a transportation center, it serves as a distribution center for much of the region. Oakley is also the county seat of Logan County. After a long, bitter dispute, the county seat was moved from Russell Springs to Oakley in 1963. The city also has some manufacturing. Five firms produce a few items for local use by agriculture and transportation.

Russell Springs is centrally located within Logan County on Kansas Highway 25. Prior to 1963, its historic main function was that of being the county seat, although to a lesser degree it was a consumer's goods and service center for the immediate farming community. The population trends of Russell Springs, however, are closely related to both these factors and transportation, too. As governmental operations increased in size and importance, the city continued to grow throughout the bad agricultural years of the 1930's, instead of declining as many other cities did during this period. The city reached its peak population of 198 in 1940. Then, the changes in transportation began to take effect. The improvements in roads and the improvements and increases in motor vehicles caused farmers to go to the larger cities,

which offered more goods and services. Russell Springs has a disadvantageous location in that it is not situated on a railroad or on a major east-west highway. The city has also suffered because it is located in one of the more rugged and sparsely settled regions of the county. The effects of transportation and poor location are noted in the decline of the city's population to 161 by 1950 and to 93 by 1960. With the recent removal of its governmental functions, it is expected that Russell Springs will decline even more.

TABLE X

## POPULATIONS OF CITIES IN LOGAN COUNTY BY DECADES

City	1900	1910	1920	1930	1940	1950	1960
Oakley	269	681	768	1,159	1,138	1,915	2,190
Winona	-	-	-	324	317	382	393
Russell Springs	-	82	115	141	198	161	93

Source: U. S. Bureau of the Census.

Summation of the Contrast Counties. The contrast counties are different from the homogeneous counties and among themselves in some aspects of their physical and human geography, but they are also similar in many geographic aspects. As in the homogeneous counties, these differences and similarities are reflected in the population trends of contrast counties.

All the contrast counties have a steppe climate, as the homogeneous counties do. Consequently, all have a short grass vegetation. The terrain in both groups is generally

flat to rolling. In such a physical environment, agriculture based on winter wheat, sorghums, and beef cattle has always been a major factor in the economy of all the counties in northwestern Kansas. Therefore, the population trends of both the homogeneous and the contrast counties have usually been influenced by the changes in agriculture, which have generally been similar. The two groups show similarities in their changes in agriculture and consequent population trends in the following ways: (1) the number of farms has decreased; (2) the average farm size has increased; (3) the percentage of the labor force working in agriculture has decreased; and (4) the percentage of the population living in the cities has decreased.

In addition to the similarities mentioned in the preceding paragraph, the counties of northwestern Kansas are alike in several other respects. Most of them were settled and organized later than the counties in the eastern part of the state. The most rapid settlement in each usually occurred after the railroads were built through the county. However, in comparison to many eastern Kansas counties, all the northwestern counties are sparsely populated. There is also an overall similarity in that the county seat in each is the largest city. And, they are alike in that their number of manufacturing firms is small, and manufacturing is carried on only to furnish some local needs. Finally, all the counties have been affected by the improvements in roads and

motor vehicles with the resultant increased speed and ease of movement between the cities and the farms.

Norton County differs from the homogeneous counties because it is closer to the Corn Belt. Consequently, corn and the fattening of hogs and beef cattle are of more importance in its agriculture, and the farms are smaller and more numerous. The county is different, also, in mineral production. It produces more petroleum than any of the homogeneous counties, and it has one of the two volcanic ash mines in Kansas. In addition, it is the only one of the counties studied which has a federal reservoir.

Graham County differs from the homogeneous counties because it has a much greater production of petroleum. It is also notably different in that it was one of the few counties in the region to experience an increase in population between 1950 and 1960. Thus, it is unique in that its recent population trends have been more effected by mineral production than by agriculture.

Logan County stands out from the other counties in northwestern Kansas because cattle ranching, due to the more rugged terrain, is more important in its agriculture than is usual for counties in the region. Because cattle ranching is characterized by larger and fewer farms generally requiring less human labor, it is reflected in the county's lower population density. This tendency toward a sparser population may be reversed because irrigation--which requires a

great deal of human labor--is becoming more important to Logan County than to most of the counties in the region. The county also stands out from the other counties in northwestern Kansas because it has recently moved its county seat, and because it was crossed by a railroad before any of the other counties studied in this thesis.

Through their differences in human and physical geography, the contrast counties tend to emphasize the correlation between population trends and changes in agriculture in the homogeneous counties. While the two groups differ mainly in agriculture and/or mineral production, secondary differences such as terrain and history have also had an effect on the variations in population trends.

## CHAPTER V

### SUMMARY AND CONCLUSIONS

#### Part 1. Summary

Located in the Great Plains, the counties of northwestern Kansas have a physical geography typical of that region. Each county has a steppe climate with a growing season of approximately 160 days and an average annual precipitation of less than twenty-one inches. The terrain, crossed by numerous intermittent streams, is flat to rolling and covered by chestnut and chernozem soils. The vegetation is largely short grasses. Geologically, the counties have deposits of petroleum, sand, gravel, volcanic ash, diatomaceous marl, and limestone.

The counties of northwestern Kansas are also typical of the Great Plains in their human geography. Their economy is based primarily on agriculture and secondarily on mining. Agriculture, which is greatly influenced by the steppe climate, concentrates on the production of hard red winter wheat, beef cattle, and sorghums; usually by dry farming methods. Mining is predominantly the production of petroleum, although deposits of some of the other minerals are mined.

The counties' human geography also includes an extensive network of transportation lines. Two major east-west railroads cross the region and connect it with cities in the

Midwest and the Rocky Mountains. There are also several railroad branch lines serving the region. In addition, several state and federal highways cross northwestern Kansas, and each county has an extensive network of farm-to-market roads which are being used by an increasing number of automobiles and trucks.

The counties of northwestern Kansas were not heavily settled and organized until the 1870's and 1880's, after the coming of the railroads. The county seats are generally located near the centers of their respective counties close to several transportation lines. In each case, the county seat is the largest and most important city in its county. The smaller cities and unincorporated hamlets are scattered throughout the counties, usually on fewer and less important transportation routes. Especially since 1930, the cities and hamlets in the region have experienced changes common to northwestern Kansas.

The decade of the 1930's was one of great change for northwestern Kansas. The tractor, automobile, and truck almost completely replaced the horse as a source of transportation and farm power. Severe drought and financial depression caused major changes in agriculture. Drought resistant sorghums largely replaced corn as the major secondary grain crop (Plate 4), and dry farming practices were initiated on a large scale. Many cultivated acres were returned to native pasture, and the raising of livestock--especially beef cattle

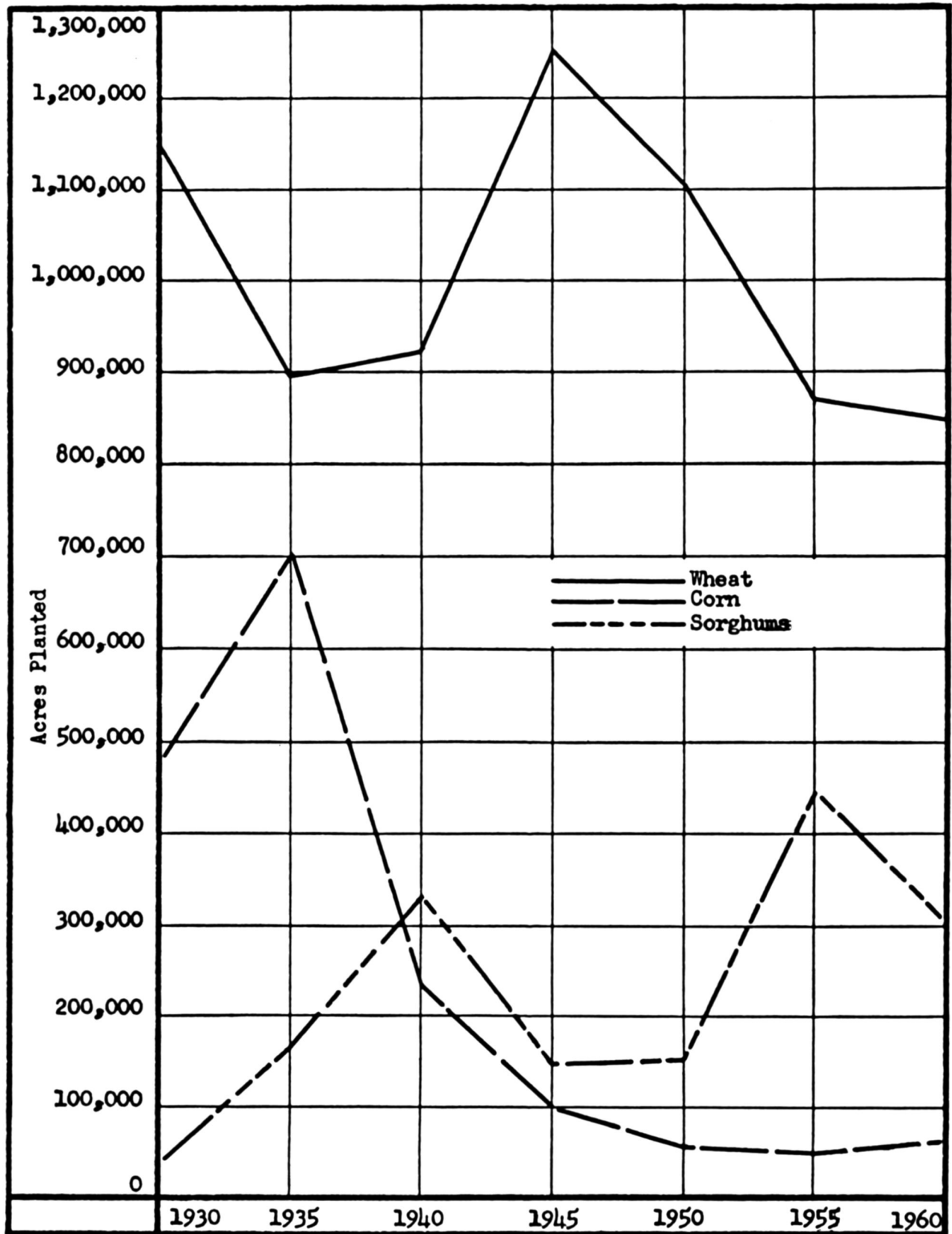


#### EXPLANATION OF PLATE 4

Plate 4 shows the total acreages planted to wheat, corn, and sorghums in the homogeneous counties from 1930 to 1960. The dominance of wheat, the increasing importance of sorghums, and the decreasing importance of corn are revealed.

Source: Kansas State Board of Agriculture.

PLATE 4



and sheep--received increased emphases (Plate 5). During the same period, governmental controls were introduced. In addition, the average farm size continued to increase and the percentage of the labor force employed in agriculture began to decrease. After 1940, the per acre yields of crops began to increase.

The 1930's also saw the beginning of major changes in northwestern Kansas' population trends. The counties began to lose population, while the percentage of their populations living in the incorporated cities began to increase. In general, however, only the larger cities experienced an increase. Many of the smaller cities lost population. These trends in population and agriculture have generally continued to the 1960's.

The 1930's also witnessed a major change in mineral production in northwestern Kansas. Petroleum was discovered in the region. Discoveries were slow and production was limited during the 1930's and 1940's. During the 1950's, many new fields were discovered, and production increased greatly. It increased so much in Graham County that the value of petroleum exceeded that of agricultural products. Production is also quite large in Decatur, Norton, and Rawlins counties, but agriculture is still the major source of income.

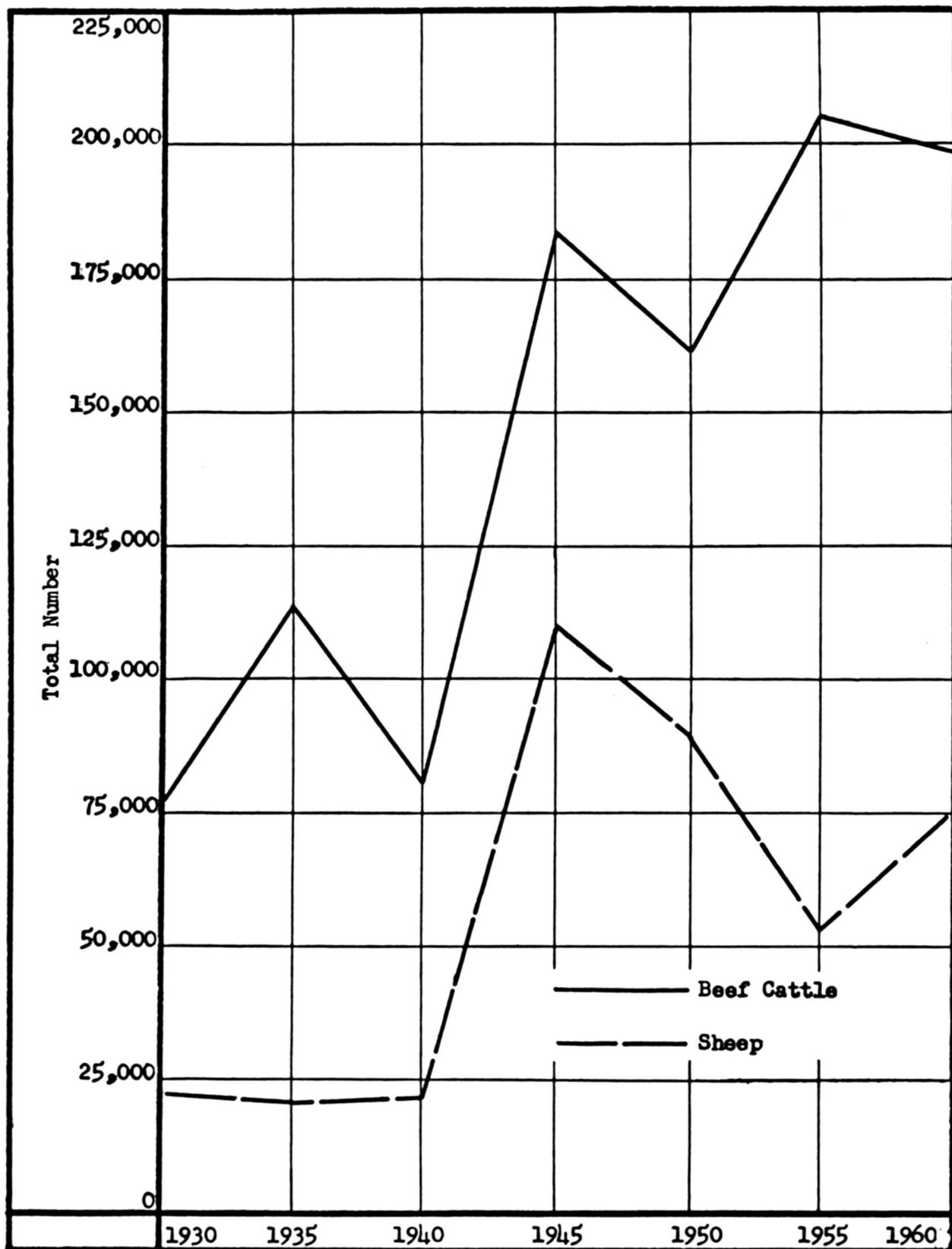
While the physical and human geography of all the counties in northwestern Kansas is relatively similar, there are some significant differences. These differences are most

**EXPLANATION OF PLATE 5**

Plate 5 shows the increasing importance and numbers of livestock in the homogeneous counties from 1930 to 1960.

Source: Kansas State Board of Agriculture.

PLATE 5



notable in agriculture, mining, and population trends. There are less important differences in physical environment and history. The variations are easily noticeable when the homogeneous counties are compared to the contrast counties. The greater emphasis on corn in Norton County's agriculture, the greater importance of cattle ranching in Logan County, and the large production of petroleum and the increasing population in Graham County are the most notable differences in the region.

## Part 2. Conclusions

Agriculture is the primary source of income of northwestern Kansas. Consequently, the population trends of the region are closely correlative to the changes in that industry. The continuing growth of the region's population until 1930 is largely the result of the increasing agricultural prosperity, which encouraged people to live there. Likewise, the changes in agriculture since 1930 have also been primarily responsible for the concomitant changes in population (Plates 6 and 7).

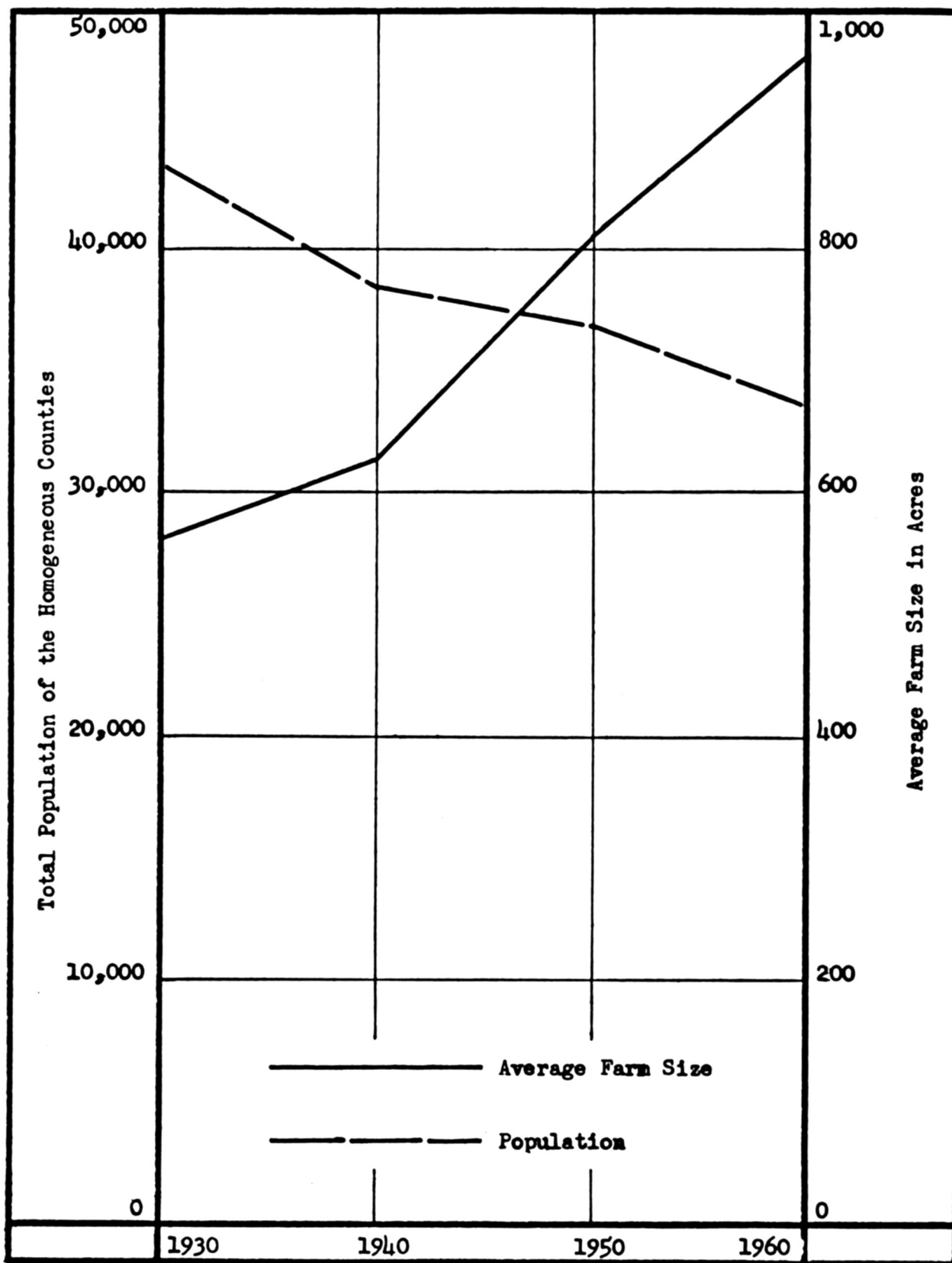
Increasing farm mechanization, the switch from corn to sorghums, the use of dry farming methods, and governmental controls have all contributed to the increase in farm size. As the farms grew larger, many people quit agriculture and moved to the neighboring towns or the large industrial cities outside of the region. Many of those who moved

### EXPLANATION OF PLATE 6

Plate 6 shows the simultaneous increase in the average farm size and the decrease in total population in the homogeneous counties from 1930 to 1960.

Source: U. S. Bureau of the Census.

PLATE 6



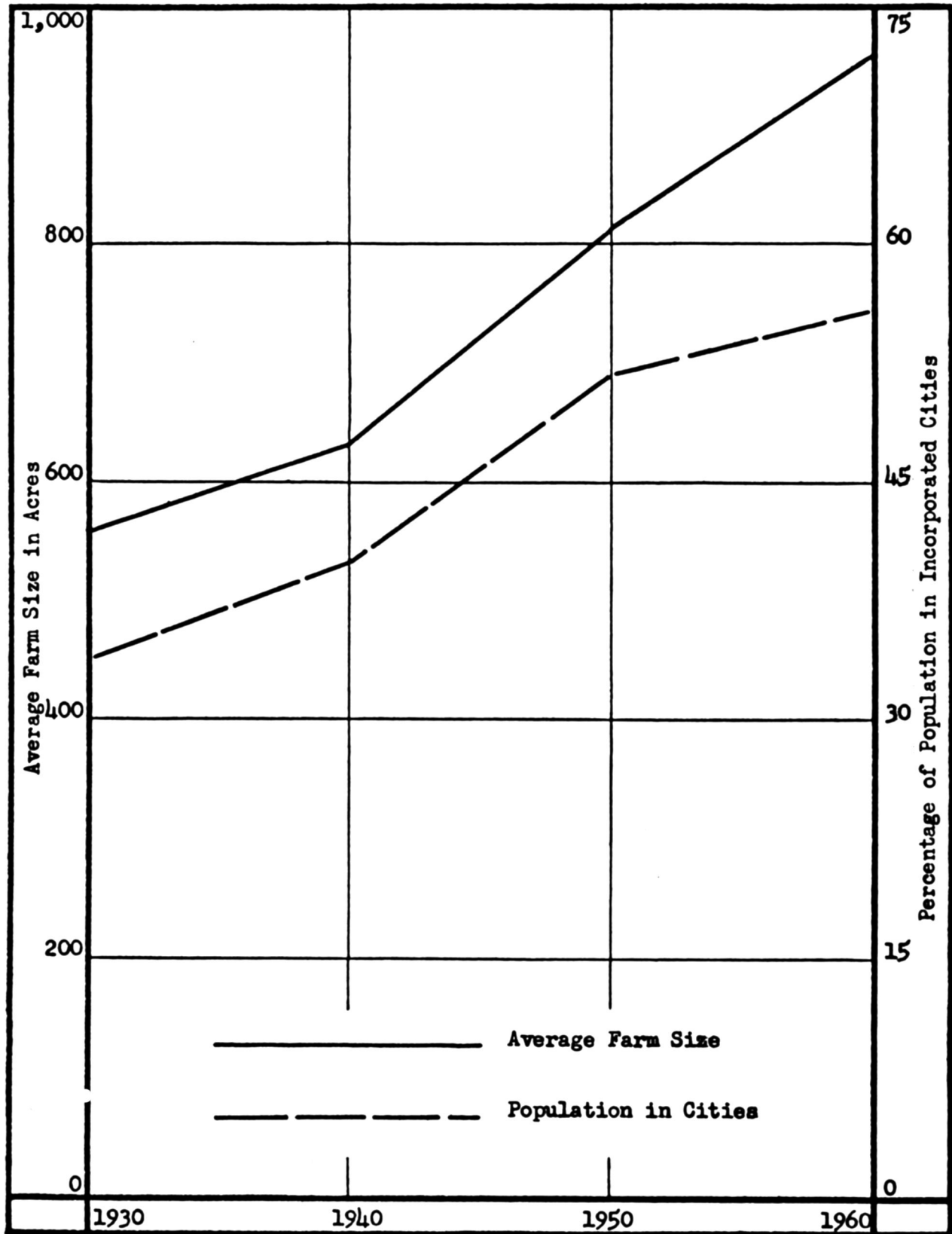


#### EXPLANATION OF PLATE 7

Plate 7 compares the increase in the average farm size of the homogeneous counties with the concomitant increase in the percentage of the population living in incorporated cities from 1930 to 1960.

Source: U. S. Bureau of the Census.

PLATE 7



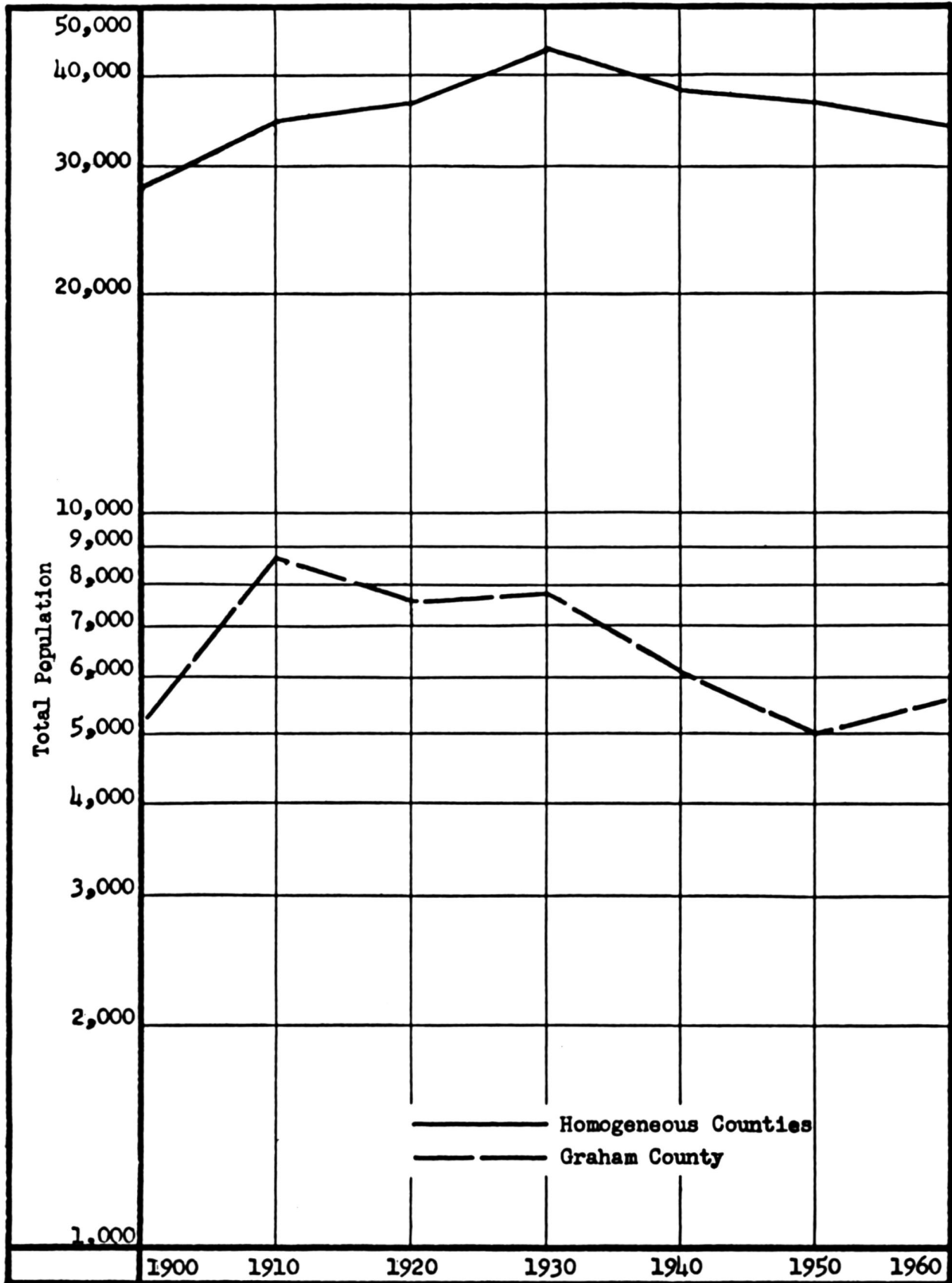
to the local towns went into business providing goods and services to a local populace that was enjoying a rising income and standard of living. The migration out of the region, however, was greater than the migration from the farms to the local cities. Thus, the population in northwestern Kansas decreased while the populations within it increased. The move to the larger cities in the region is reflected in the increasing percentage of the population living in these cities and the decreasing percentage of the region's labor force employed in non-agricultural occupations. There is some evidence that the simultaneous growth of the larger cities in the counties and the decrease in total population will not continue indefinitely. Both Goodland and St. Francis lost small amounts of population between 1950 and 1960. Because they are in the most westerly counties--and consequently those counties with the least precipitation--studied in this thesis, it is logical to believe that this trend toward larger cities may no longer exist in Cheyenne and Sherman counties.

Petroleum production has been a secondary factor affecting the population trends of northwestern Kansas. Production was quite limited in the 1930's and 1940's, and consequently, it had little effect on the region's population trends. A great increase in production in the 1950's resulted in the reversal of a population decline of long duration in Graham County (Plate 8) and probably decelerated the

## EXPLANATION OF PLATE 8

Plate 8 is a semi-logarithmic graph comparing the population trends of the homogeneous counties and Graham County since 1900. The graph shows the steady decline in population of the six homogeneous counties since 1930. It also shows the divergent trend in Graham County alone, predicated on the great increase of petroleum activity and production in that one county since 1950. In addition, the graph indicates the effect of earlier settlement on population trends; Graham County, which is located to the east of the homogeneous counties, reached its peak population in 1910, while the homogeneous counties did not reach their peak until 1930.

Source: U. S. Bureau of the Census.



decline in population in Decatur, Norton, and Rawlins counties, due to the number of workers needed in the oil fields and the people required to provide the necessary increases in goods and services.

Transportation has also had an effect on the population trends. The increasing improvements in farm-to-market roads and the improvements and increases in automobiles and trucks have greatly facilitated the movements of farmers to the cities, especially to the larger cities in the counties. Consequently, many farmers are living in the local cities and commuting to their farms. In addition, transportation has had an effect on the populations of the larger cities due to the increasing numbers of tourists traveling through the region needing various goods and services.

The rising standard of living in the United States has also had an effect on the population trends of northwestern Kansas. The resultant generally greater farm income has created a demand for more goods and services from the agricultural community. In addition, the rising standard of living is partly responsible for the increase in tourism. In turn, the increased demand for goods and services requires more people to furnish them, and, consequently, the populations of most of the larger cities have increased.

### Part 3. Future Trends

The trends in population and agriculture--especially

those of declining total population and increasing farm size--will probably continue. While there are optimists in the region who believe that these trends will eventually be reversed, most of the farmers, bankers, businessmen, and local citizens interviewed in northwestern Kansas and many of the scholars in agriculture, economics, and sociology at Kansas State University believe these trends will continue. Similar sentiments were expressed by Mr. Oscar Brown, president of Farmers and Merchants Bank, Hill City, Kansas:

Unless more industry moves into this section of the state, it is likely to lose more population. With the increase in farm acreage, the farms are losing population to those cities favored with manufacturing and other industry. Due to modern machinery requiring less manpower to farm the same amount of acres or to carry feed production programs in the care of livestock, farms must be larger to meet the needs of modern living.<sup>1</sup>

The trend toward ever larger farms and fewer people in northwestern Kansas is being encouraged, and probably will continue to be encouraged in the future because the raising of livestock is more profitable than wheat farming. The expected increasing importance of livestock is reflected and encouraged by the policies of banks in northwestern Kansas toward farm loans. In an interview, Mr. Ernest J. Zerfas, first vice-president of Ellis State Bank, Ellis, Kansas, stated:

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<sup>1</sup>Correspondence with Oscar Brown, president of Farmers and Merchants Bank, Hill City, Kansas, dated February 4, 1964.

Most banks in western and northwestern Kansas will not loan money to a farmer unless he has a farm with at least six hundred or seven hundred acres. In addition, at least sixty percent of his operations must be devoted to raising livestock. In the years ahead, most bankers in the region intend to demand an increasingly higher percentage of farm enterprise devoted to livestock production before they will loan money to farmers. Small farms and/or farms with a limited livestock program tend to have a much greater possibility of failure.<sup>2</sup>

Social attitudes will also cause the average farm size to increase, the total population to decline, and the populations of the larger cities to increase. Many young farmers in the region dislike wheat farming and much prefer the raising of livestock. Most of them feel that livestock production is easier, more profitable, and more dignified than wheat farming. This feeling is so strong that many young farmers have visions of the Winter Wheat Belt being transferred into a land of large, prosperous, livestock ranches. Undoubtedly, such attitudes have been reinforced by the "soil bank" program, the declining prices for wheat, and the policies of banks.

Transportation and tourism should also help cause the present trends to continue for the indefinite future. The continuing improvements in cars and trucks and in farm-to-market roads and the decreasing number of people per motor vehicle in the region should result in even more farmers living in the larger cities and commuting to their farms.

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<sup>2</sup>Interview with Ernest J. Zerfas, first vice-president of Ellis State Bank, Ellis, Kansas, on January 24, 1964.



In addition, the improvements in federal and state highways should encourage more natives of the region to leave it permanently. Kansas City and Denver are now only five to seven hours away; thus making the larger cities more attractive by allowing occasional trips back and forth for those desiring to visit friends and relatives. These same highways will also bring more tourists into and through the region. Consequently, many communities in the region are becoming increasingly aware of the financial benefits to be reaped from emphasizing various scenic and historic sites and other types of tourist attractions, and increased development of tourist facilities is anticipated.

The future of mineral production in the region is uncertain. The great production of petroleum in Graham County has been very influential in reversing its decline in population, and it has probably caused the decline in other counties to slow down. Production, however, is limited in Cheyenne, Logan, Sheridan, Sherman, and Thomas counties, and if no more petroleum is found, their populations will continue to decline. Geologists at Kansas State University, however, feel that there are possibilities of finding much more petroleum in northwestern Kansas. If more is found, other counties may experience a reversal or deceleration of their population declines. Other minerals in the region are not expected to have an effect on the population trends.

Like small towns all over the United States, the cities

of northwestern Kansas hope they will be able to attract large manufacturing industries. This is a hope that is not likely to come true. The region is too far from the major markets and too sparsely populated to attract such industries. Manufacturing (or industry) will be limited to furnishing a few consumers' goods and services for the agricultural community, the people living in the local cities, and the tourists passing through.

Those who are optimistically inclined believe that the increasing use of irrigation in northwestern Kansas may eventually reverse the trends of declining population and increasing farm size. Much of this optimism stems from the substantial production of irrigated sugar beets in Logan and Sherman counties and neighboring Wallace County in 1962 and 1963. Dr. Henry V. Beck, geologist at Kansas State University, believes that the underground water used for irrigation in western Kansas may last for a long time if it is used wisely, but the supply of water is limited. Consequently, the effects of irrigation will be limited, and it is quite possible that irrigation will continue to be used primarily as it is today; for the growing of forage for livestock, and thus reinforce the trends toward larger farms.

There is, undoubtedly, a limit to how much the population of northwestern Kansas can decline and how large the average farm can become. Indications that these limits may be gradually approaching are revealed in the deceleration or

slight reversal of some of these trends in a few localities. There is also the possibility that the world population explosion and the consequent increased demand for food may cause a reversal of the population and agricultural trends in northwestern Kansas in the very distant future. But for the immediate future, it appears that the region will become a land of increasingly sparse population with large and prosperous farms and ranches, growing county seats, and occasional oil fields.

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A STUDY OF FACTORS AFFECTING POPULATION TRENDS  
IN  
NORTHWESTERN KANSAS

by

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## ABSTRACT

Northwestern Kansas is a region which is quite homogeneous in its physical and human geography. Located in the High Plains and the Winter Wheat Belt, it has a steppe climate and a flat-to-rolling topography. Petroleum and agriculture producing wheat, sorghums, and beef cattle are the major sources of income of this region in which--since 1930--the total populations of most of the counties have been declining while the populations of the larger cities have been increasing. It is the purpose of this thesis to investigate the causes of these population trends in northwestern Kansas since 1930 in light of the region's trends in agriculture, mineral production, transportation, and other geographical factors and economic activities.

The region studied comprises nine counties in the northwest corner of Kansas. A compact group of six counties very similar in their human and physical geography are studied in a separate chapter, and are entitled "homogeneous counties" for the purpose of this investigation. The homogeneous counties are: Cheyenne, Decatur, Rawlins, Sheridan, Sherman, and Thomas. In another chapter, three contiguous, but slightly dissimilar, counties are studied for the purpose of contrasting their differences with the homogeneous counties. This group of "contrast counties" includes Graham, Logan, and Norton counties. Each county and county seat and several smaller cities are examined in order to learn any

correlation which exists today, or which has existed between 1930 and the present, between their population trends and the trends in agriculture, mineral production, transportation, and other pertinent factors.

All of the counties examined--except Graham County--have lost population since 1930, while their county seats have generally continued to grow and their smaller cities have generally declined. All, but Graham County, rely on agriculture as their major source of income. As farming methods changed, the farms became more mechanized, crop varieties were improved, governmental controls were introduced, and standards of living increased, farms became increasingly larger and required fewer people to operate them. Consequently, many people have left the region or have moved to the larger cities within it.

Mineral production has affected the population trends of several counties in northwestern Kansas, but especially those of Graham County. The long trend of declining population in this county was abruptly reversed in the 1950's simultaneously with a great increase in petroleum production. In other counties with substantial production, population declines have probably been decelerated.

Improvements in roads and motor vehicles have affected population trends by encouraging more movement between the farms and the larger regional cities, and by encouraging more tourism. In addition, politics and social attitudes

have affected the populations in some instances.

The present trends in population and economic activities in northwestern Kansas will probably continue. Plagued by a steppe climate and great distances from markets, the region's hopes for the future seem to be in further changes in agriculture, the discovery of more petroleum, and in attracting more tourists.