Land use adjustments in Blaine, Phillips and Valley counties, Montana, 1934 to 1940
by Nicholas Helburn

A THESIS Submitted to the Graduate Committee In partial fulfillment of the requirements for the Degree of Master of Science in Agricultural Economics at Montana State College
Montana State University
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Abstract:
This thesis is an evaluation and criticism of the land use adjustments which have been brought about since 1933 in Blaine, Phillips and Valley counties, and a generalization on future adjustments for the area.

A physical characterization of the area shows it to be a part of the rolling, semi-arid plains, and a history of settlement points out that ranching dominated the area until 1910 when homesteaders started raising wheat with success at first, failure later.

Evidence from the human adjustments to the physical resources shows that the central axis of trade and transportation is the Milk River Valley; that population has increased in the valley, decreased on the upland; that ownership and control of land is scattered and varied; that the major problems of the area are: insecurity, over-specialization, exploitation of agricultural resources, and inability of the upland to support the expected services.

The critique of the action programs dealing with these problems shows that: the State Grazing districts maintain a centralized control over range land within their boundaries; the Agricultural Adjustment Administration tries to control production and to Increase productivity by liberal subsidy; the Land Purchase program In buying about a million acres of land fulfilled the major national objectives,- the distribution of money (pump priming) and the bringing of land into government ownership; but the fulfillment of local objectives, only a minor part of the national program, would have achieved greater adjustment; the Resettlement program has resettled 169 families on irrigated units but with policies such that the clients carry an extremely heavy financial burden.

In conclusion it is noted that a resettlement project falls into four main stages: conception, proposal, development, and repayment; that the Milk River project is still in the development stage. Finally, if a dynamic adjustment is ever to be achieved in this area, concentrated rather than scattered settlement must prevail; community controls over land use must be developed and applied locally; individual units must be diversified; and financial arrangements must take into account fluctuations in climatic conditions.
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Approved:

[Signatures]

[Names]

Boxeman, Montana
June, 1941
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PART I: INTRODUCTION

The traditional land settlement policy of the United States has been to let the individual settle wherever he chose on the assumption that the welfare of both the individual and society would be served best by such free choice. This assumption was undoubtedly sound in the early days of the republic when there was plenty of land and the big job was to clear and settle it. However, as the settlers moved out of the long-grass into the short-grass plains, the assumption was no longer sound. The Northern Great Plains, bounded roughly by the hundredth meridian on the east, the Rocky Mountains on the west, the Wyoming-Colorado border on the south, and the southern extremity of the Laurentian shield on the north (see figure 1, "Location of Blaine, Phillips and Valley counties in the Great Plains") presented problems of settlement completely new to the pioneers. 1/

The Plains can be characterized only generally as a whole. They are, for the most part, flat or slightly rolling, cut by deep river valleys with occasional rough badlands. They are high, varying from about 1500 feet to 7000 feet in altitude. They are dry, usually falling in the classification semi-arid, with an average annual precipitation of from ten to twenty inches and with extreme variations from year to year. The soils are mostly light, fertile, and shallow. The natural vegetation is almost entirely short-grass and generally treeless. Some native trees are found in the river valleys and the northern Canadian part of the Plains is forested. The native animal life consisted primarily of burrowing rodents, water animals such

Figure 1.—Location of Blaine, Phillips, and Valley Counties in the Northern Great Plains.
as the beaver and muskrat, coyotes, and buffalo. The temperatures, amount of sunshine and growing season, of course, vary widely as one moves north and south or higher and lower, as well as from year to year. The settlers had little knowledge of these conditions affecting their newly acquired lands and only slowly realized that they were dealing with land to which they could not possibly adapt their hundred-year heritage of settlement pattern and methods developed in the humid regions. Thus, free choice would probably not have resulted in a satisfactory settlement pattern. The Homestead Act restricted units to 160 acres, later to 320 acres. The railroads and other land speculators directed settlement with most unsatisfactory results.

It had long been recognized by some that this unplanned, uninformed process of settlement would bring great hardships to the plains. It was not, however, until 1933 that much was done about it. The most important thing done was the withdrawal of the public domain from homestead entry. This put an end to the era of free land and further settlement was restricted. It has been further recognized that the individual is no longer able to move freely within the area now settled. He often does not know where the best opportunities lie, and even if he does he is frequently not in a position to make the adjustment. In recognition of these and other related problems several Federal agencies have been created which tend to guide or influence the direction of settlement and which help the individual to make the necessary adjustment. These agencies, influential in determining the future settlement pattern, ought to but frequently do not have a clear idea of the goals toward which they are striving and the
policies by which they are to reach these goals.

It is the purpose of this thesis to show some of the changes in the settlement and land use patterns in parts of three counties in the Northern Montana area of the Great Plains; to try to give some analysis and appraisal of how these changes came about and in what degree certain Federal action agencies are responsible for the changes; and finally to recommend a future settlement pattern for this part of the Great Plains toward which the Federal agencies should be aiming.

In order to do this the area is first described from the physical point of view, and the history of the settlement pattern is outlined. Part two presents the current pattern of occupance, some of the trends and changes during recent years, and the major fundamental problems. Part three deals with the action agencies working in the area. It attempts to criticize these programs in the light of the pattern of occupance and the problems. Part four is a theoretical treatment, first of the nature of resettlement, second of what might be the pattern of occupance in this area when and if the basic problems are solved. Finally an attempt is made to indicate what part this concept of a future adjusted and adjustable pattern of occupance should play in the present Federal programs.

The Project Area And Its Resources

The three counties: Blaine, Phillips, and Valley, upon which our attention will be focused, lie in the west-central part of the Northern Great Plains, in the northeastern part of Montana. (See figure 1.) They are bounded by Canada on the north, the Missouri River on the south. Blaine
County adjoins Hill and Chouteau counties on the west, while Valley County adjoins Daniels and Roosevelt counties on the east. Perhaps more important than their boundaries is the fact that all three counties are bisected by the Milk River Valley. This valley forms the central axis around which the life in these counties is oriented.

Geology

The area is influenced primarily by five geologic formations which are in the order of their nearness to the surface:

- Fort Union, sandstone and shales.
- Lance, sandstones and shales, marine and fresh water.
- Bearpaw, marine shales.
- Judith River, sandstones.
- Clagget, shales.

These formations have been covered by glacial till laid down by the continental ice sheet during Pleistocene times and do not outcrop except where stream erosion has been active. 2/

Topography and Drainage 3/

The topography of the project area, except for the Little Rocky Mountains which have only minor local significance, is typical of that over


most of the Great Plains. Two major rivers cut into this upland: the Missouri at the southern edge and the Milk through the center. The Missouri has cut its present course relatively recently: that is, since the retreat of the continental ice sheet. Consequently it flows through a narrow and extremely eroded gorge. In early Pleistocene times the Missouri, much larger than it is at present, cut the wide valley in which the Milk River now flows. This valley through which the Milk meanders widely, varies in width from a little less than a mile to about five miles without serious badlands at its edge. Here is practiced all the irrigation of the area. Most of the area of the three counties drains into the Milk River, comparatively little into the Missouri.

Since glacial times stream erosion has been very active close to these large intrenched rivers, especially along the Missouri where the protective glacial till is very thin. This erosion has led to the development of occasional "badlands" which are almost, if not entirely, useless even as range land.

A prominent feature of the topography of these counties between the Milk River and the Canadian border is the group of "Flaxville Plateaus". The plateaus are remnants of Miocene and Pliocene stream deposition which left a layer resistant to erosion. This resistant layer has protected these areas from the levelling which has taken place around them so that they now stand out about three hundred feet above the level of the surrounding plains. The largest and most important of these plateaus is the Turner Flat located in northeastern Blaine County. This has been one of the most productive wheat areas of the region.
In the southern part of the area, stretching north from the Missouri River, the "Larb Hills" are the dominant topographic formation. These hills are the remains of a high plateau which was not covered by any protective layer. The Plateau has, therefore, been carved up into hills separated by deep, wide depressions. These hills are practically useless as farm land and have a fairly low carrying capacity as range. As an index of this it is interesting to note that most of the Larb Hills are still public domain.

There are localized areas of badlands along several of the other streams where rapid erosion is taking place. The type of formation varies with the kind of rock which outcrops.

Soils

The soils of the area have developed in three different ways: from recent or ancient streams deposits; from ground and terminal moraines left by the glaciers; and from a breakdown of the underlying rocks. All the upland soils are brown loams underlain by gray subsoil and containing varying amounts of gravel and sand. The profiles vary with the age of the soil, many containing a well-formed "hard-pan". Most of the soils were fertile in their original condition but their shallowness caused them to be easily exhausted. A large percentage, however, are not suited to tillage because of shallowness, slope, or stoniness.

The soils of the Milk River Valley are also quite varied. The better
soils are the fine sandy loams and silt loams of the Havre series, those parts of the Scobey series which are irrigable, and the Harlem silty clay loams. A large part of the area has a clay soil of the Harlem or Bowdoin series which is almost useless in its present state for most crops. Alkali accumulation and seepage have affected some of the soils, especially the flat, heavy clays, and threaten some more.

The Bureau of Reclamation has classified the land of the valley, taking into account not only soil but also danger of flood, seepage or alkali, feasibility of getting water to the land, and vegetative cover. In this survey, completed in 1933, it was found that only 55 per cent of the land in the whole project area, which includes all the land in the valley from Chinook to Nashua, was irrigable; that another 41 per cent of the land might sometime be irrigable; that 3 1/2 per cent of the land is permanently unirrigable. 5/ (See table I, "Land Classification Summary for Milk River Project").

Natural Vegetation

The natural vegetation of the project area, like that of the Great Plains, consists primarily of short grasses with occasional shrubs. Gramma grass (Bouteloua gracilis) is the most common grass with western wheat grass,

**TABLE I. 1933 LAND CLASSIFICATION SUMMARY FOR MILK RIVER PROJECT**

<table>
<thead>
<tr>
<th>Land Class</th>
<th>Chinook Division</th>
<th>Malta Division</th>
<th>Glasgow Division</th>
<th>Total project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per</td>
<td>Per</td>
<td>Per</td>
<td>Av. per</td>
</tr>
<tr>
<td></td>
<td>Acres</td>
<td>Acres</td>
<td>Acres</td>
<td>Acres</td>
</tr>
<tr>
<td></td>
<td>cent</td>
<td>cent</td>
<td>cent</td>
<td>cent</td>
</tr>
<tr>
<td>Class 1</td>
<td>--</td>
<td>4,804</td>
<td>339</td>
<td>--</td>
</tr>
<tr>
<td>Class 2</td>
<td>--</td>
<td>5,659</td>
<td>1,521</td>
<td>--</td>
</tr>
<tr>
<td>Class 3</td>
<td>--</td>
<td>5,014</td>
<td>2,759</td>
<td>--</td>
</tr>
<tr>
<td>Class 4</td>
<td>--</td>
<td>9,574</td>
<td>5,907</td>
<td>--</td>
</tr>
<tr>
<td>Total pay</td>
<td>30,536.5</td>
<td>25,030</td>
<td>10,506</td>
<td>66,072.54</td>
</tr>
<tr>
<td></td>
<td>70.4</td>
<td>42.4</td>
<td>61.6</td>
<td>55.5</td>
</tr>
<tr>
<td>Class 5, temporarily suspended</td>
<td>11,097.6</td>
<td>31,259</td>
<td>6,264</td>
<td>48,620.6</td>
</tr>
<tr>
<td>Class 6, permanently suspended</td>
<td>1,703.67</td>
<td>2,361</td>
<td>225</td>
<td>4,309.67</td>
</tr>
<tr>
<td>Totals</td>
<td>43,337.81</td>
<td>53,670</td>
<td>16,995</td>
<td>119,002.81</td>
</tr>
</tbody>
</table>

\(a/\) Chinook pay class lands not subdivided as in Malta and Glasgow divisions.

Data from Slagvold and Bingham, op. cit. p. 17.
needle grass, and nigger wool associated with it. Blue joint is common on the flooded valley lands. Mountain sage and black sage along with match weed and gum weed make up most of the shrub growth. These forms of vegetation are naturally well adapted to the conditions of the area. They are of themselves very drought resistant. Continual over-grazing, however, easily lowers their productive power and their resistance and has been accompanied in recent years by an invasion of weeds of much less value for grazing purposes.

Climate

The area in question lies in the climatic region referred to by geographers as semi-arid middle latitude, or the steppe climate. Total annual precipitation averages between thirteen and fourteen inches, with between 70 and 80 per cent falling between April 1 and September 30, 6/ and about 60 per cent falling between April 1 and September 1. (See figure 2, "Seasonal Precipitation and Temperatures at Malta".) The annual variation as well as the seasonal variation is great. Annual precipitation has been known to go lower than seven inches and as high as twenty-five inches. This has an important effect on dry land agriculture and ranching. After a couple of wet years everyone forgets about the dry years and plans his unit on the basis of yields of wheat and grass during the wet years. Then the rainfall drops, there is little or no yield of wheat or grass, the soil starts to blow, many farmers are left destitute and must

6/ Slagsvold, P. L.; and Bingham, G. H.: op. cit. p. 10; and Reitz, L. P.: Crop Regions in Montana as Related to Environmental Factors, Montana Agricultural Experiment Station, Bull. 340, 1937, appendix.
Figure 2. Seasonal Precipitation and Temperature at Malta, Montana.

Data averaged over 24 years.
start again. It takes several years to bring back the productivity of the range and it is impossible to restore the soil which has blown away.

The mean annual temperature varies from 40.7° F. at Glasgow to 42.0° F. at Chinook. The average growing season temperature (April 1 to September), on the other hand, varies from 58.9° F. to 59.7° F. at Chinook and Glasgow respectively. Winter extremes are indicated by the January and February average at Glasgow of 9.9° F. The frost free period averages 121 days at Glasgow and 130 days at Malta, running usually from the middle of May to the middle of September. This data is taken at towns in the Milk River Valley and should not be generalized too far. As the Valley County Agricultural Planning report suggests, climate, and especially rainfall, not only varies widely from year to year but also from locality to locality.

In 1931, for instance, Glasgow received 9.55 inches of precipitation while Opheim in the northern dry farming area of Valley County received only 5.97 inches. In 1933 Glasgow received 10.02 inches, yet Opheim received 13.96 inches. Table II, "Variation in Precipitation During 1939 at Selected Points in Valley County" from the same report shows more of the same variation.

One measure of temperature is the number of heat units during the growing season. Table III, "Number of Heat Units at Selected Points in Montana" shows heat units at Malta in comparison with those at Billings.

\[\text{Data on temperature from Reitz, loc. cit.}\]
TABLE II a. VARIATION IN PRECIPITATION DURING 1939 FOR GROWING SEASON AND ENTIRE YEAR, RECORDED BY FARMER COOPERATORS AT SELECTED STATIONS IN VALLEY COUNTY.

<table>
<thead>
<tr>
<th>Farming community</th>
<th>Precipitation for growing season</th>
<th>Precipitation for entire year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glasgow</td>
<td>9.4</td>
<td>12.1</td>
</tr>
<tr>
<td>Frazer</td>
<td>11.7</td>
<td>15.1</td>
</tr>
<tr>
<td>Opheim</td>
<td>10.5</td>
<td>12.5</td>
</tr>
<tr>
<td>Luster</td>
<td>9.4</td>
<td>12.2</td>
</tr>
<tr>
<td>Fort Peck</td>
<td>9.2</td>
<td>11.4</td>
</tr>
<tr>
<td>Theony</td>
<td>14.4</td>
<td>---</td>
</tr>
<tr>
<td>Cork (near Hinsdale)</td>
<td>11.1</td>
<td>---</td>
</tr>
</tbody>
</table>

From: Agricultural Planning in Valley County, Montana. A Statement of Progress, Nov. 1940, M.S.

TABLE III. a/ NUMBER OF HEAT UNITS AT SELECTED POINTS IN MONTANA

<table>
<thead>
<tr>
<th>Location</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September b/</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malta</td>
<td>372</td>
<td>586</td>
<td>847</td>
<td>769</td>
<td>135</td>
<td>2709</td>
</tr>
<tr>
<td>Billings</td>
<td>401</td>
<td>626</td>
<td>841</td>
<td>737</td>
<td>151</td>
<td>2306</td>
</tr>
<tr>
<td>Bozeman</td>
<td>208</td>
<td>433</td>
<td>654</td>
<td>632</td>
<td>99</td>
<td>2031</td>
</tr>
<tr>
<td>Fairfield</td>
<td>305</td>
<td>467</td>
<td>715</td>
<td>643</td>
<td>108</td>
<td>2233</td>
</tr>
</tbody>
</table>

From Slagsvold, and Bingham, op. cit. p.12.

b/ First ten days.
and Bozeman. A base of \(43^o\) F is used. The area is subject to considerable wind as is to be expected in the Plains. Strong west winds are frequent, especially in spring. Soil drifting and blowing on the lighter, drier types of soil is often a problem. In spring the problem is not only the loss of the soil but also the possibility of either the blowing or the smothering of the seed. Hot southwest winds in summer sometimes "burn" dry-land crops in dry years. Occasional chinooks (warm dry winter winds) and local hail storms, both typical of the High Plains, add to the unpredictability of the climate.

Minerals

Outcrops of soft coal are common in the Northern High Plains. It can be purchased at the mine for from $2.50 to $4 per ton in Blaine County. Natural gas underlies much of the Milk River, one field supplying Chinook and Havre, another supplying Malta, Saco, Hinsdale and Glasgow. Gold and silver in very limited quantities are found in the Little Rocky Mountains. The towns of Zortman and Landusky are built around the mines in these mountains. These are the resources of land and climate upon which settlement in this area was built.

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\(6/\) Slagsvold and Bingham, op. cit. To quote further from p. 11: "Using \(43^o\) F as a base, the number of heat units for a given day is calculated by subtracting \(43\) from the mean temperature. If the mean temperature is \(53^o\) F the number of heat units is 10."

\(2/\) ibid. p. 33.
History

It is very difficult to gather any specific, non-conflicting material on the years of settlement and land use pattern for the area of the High Plains. Sources for this area, including Montana and Wyoming east of the Continental Divide and the western half of the Dakotas are scanty, contradictory and wholly vague.

However, it is fairly certain that the High Plains were first settled by fur traders following the Lewis and Clark expedition. Until 1853 the region was populated almost entirely by Indians subsisting for the most part on wild life. In that year the first survey for a railroad route was made and white settlers began coming into the region in small numbers. In 1859 the first Montana counties were surveyed and created. Until 1880 fenceless open range was used by scattered, small ranchers. In 1887 the Great Northern railroad was completed through Northern Montana, thus opening the country to the commercial cattle interests. The area became predominantly that of the white man. Even while the cattlemen were widely scattered (as they still were for some time after 1887) making a living was not an easy job. The struggle with long, cold winters, dry years, lack of knowledge of the country and low average rainfall (13.5 inches over a seventy-year period) was more than they could stand. The era of the large cattle company lasted about twenty years. These companies overstocked the

range and depended entirely upon all-year grazing, both summer and winter, thus standing the yearly chance of losing their entire herds in a single blizzard. In 1883 and 1884 Stock Growers' Associations tried to draw the companies together for their mutual benefit, but they failed in a solution because they were not powerful enough to force the owners to cooperate with one another. The only reason the industry was able to last as long as it did was that the land was tax-free open range, there were no schools or roads to support, and costs of local (county) government were small. In 1897 the peak of the cattle industry was reached. By the beginning of the century it gave way to the small stock ranchers who settled permanently along the streams and around water holes. This time each operator conserved water and grass on his own land to a limited extent. These men constructed reservoirs, practiced limited irrigation, raised winter feed and practiced a system of winter and summer pasture rotation. 13/

On March 14, 1903 the Secretary of the Interior conditionally authorized an irrigation project on the Milk River. Construction was begun on July 27, 1906, and the land opened to irrigation in 1911. 14/ The Milk River irrigation system was developed at this time for the primary purpose of establishing feed bases for the ranchers. However, the result was a "wholesale land grabbing by ranchers who did not need additional commensurate lands" 15/ and other such speculators. The development was also retarded

13/ Semi-annual Progress Report, loc. cit.
15/ Ibid. p. 3.
by the inrush of homesteaders with the consequent emphasis on dry land farming.

A great change took place in the land pattern when, in 1910, the land was opened to homesteading. There was a rush of farmers into the region, despite the warnings of the cattlemen that this was no land for farming. Farmers laid this warning to jealousy. So 67 per cent of this area was settled between 1910 and 1919. 16/ From 1906 to 1917 precipitation averaged higher than usual, and this fact plus the fact that there was moisture still in the unbroken sod, high wheat prices, and the ever-present land speculation drew more people to the land than might naturally have been expected. Thus homesteaders, flushed by the success of the first few crops, settled more thickly than the area warranted, and schools, roads and cost of government mushroomed. The homesteader, a man trained in the humid, forested regions, brought with him the traditions and concepts of these areas such as a publicly maintained road to every farm. Until 1922 the largest and most popular size unit for the homesteader, a man used to the climatic conditions of the humid homeland, was 320 acres, belatedly increased to that size from 160 acres in 1909. 17/ Stockmen were filing claims on tracts of 640 acres, their top limit. Nineteen-seventeen was the peak year of dry land farming and immigration. Population tripled in northern Montana. From then until the bumper year of 1927 occupation fell off


and many farmers failed because of the low rainfall and previous land misuse. In the meantime, the overpopulation of farmers plus the practice by some of the more "progressive farmers" who diversified crops and pastured a few head of cattle on the range worked increasing hardship on the cattlemen. Range was consequently heavily overgrazed. Dry years came, farm taxes became delinquent and many farmers moved away. There was no grass for the ranchers to fall back upon but they stayed on. Again there was a short period when the small stockman was dominant despite the fact that much of the land was not much good for livestock, due to misuse by farmers, overgrazing, and a series of dry years. But before the cattlemen were able to do a great deal to remedy the situation the crops began improving, both in yield and price, and from 1925 until 1927 the farming land was again trying to support many more people than was possible. Immediately following this fresh immigration of farmers (due to 1927 prices) the dry years returned, and by 1933 the soil was blowing, reservoirs had dried up and a large percentage of the farmers were bankrupt. A great many of them simply moved away. Others stayed on and tried to do what they could with the land they had, sustained by relief in the form of seed and feed loans and Red Cross aid.

The settlement pattern of the area was still in a state of flux, still out of adjustment with the resources, and no relief from this situation was in sight since most of the people seemed not to have learned anything from the past experience.

It was in this historical setting that the thinking people of the Milk River Valley developed the "Malta Plan" in about 1925. They realized
that the dry-land farmer could never make a satisfactory adjustment to the 
cclimate, that much of the land in the Valley was being used too extensively 
and was only partially developed for irrigation. They, therefore, proposed 
to let the dry-land farmer work on the partially developed irrigable land 
for five years rent-free, during which time he would further develop the 
land. After this period he would purchase the land on a long-term basis. 
The guiding agency, at that time, the Commercial Club of Malta, would trade 
him an equity in his irrigable land for his equity in the dry land. The 
dry land they would then either lease or sell to a neighboring rancher.

Before this plan had a chance to get started locally, the Federal 
government became interested and inaugurated the Milk River-North Montana 
Project in the three counties above-mentioned (and to be referred to as 
the "Project Area") to try to make some adjustment between the resources 
and the settlement pattern. The enormous resources of the Federal Relief 
programs distorted the local plan. Acquisition of land by the Federal 
government became an end in itself. This occurred during the "pump priming 
era" and the distribution of as much money as fast as possible also became 
an objective in itself. The taking of farm land from production was a 
minor objective along with the removal of low-income families from the dry 
land and the opportunity of using relief labor in developing this land for 
ranching. These purposes were not clear at the outset of the project. 
There was a difference of opinion locally as against nationally as to what 
the project should try to do. Thus the objectives have been complex, con-
fused and changing.

The Land Purchase program started in 1933, first under the Land
Policy section of the Agricultural Adjustment Administration, later under Resettlement Administration, Farm Security Administration, Bureau of Agricultural Economics, and the Soil Conservation Service, in that order. It bought land at random in north Elaines, Phillips and Valley counties. (See figures 3, 4 & 5.) Until 1938 there was no selection involved in the purchase. From 1938 on, under the Bankhead-Jones Act, only submarginal farm land was purchased. By 1940 a total of 966,189 acres had been acquired, at a cost of $2,225,162.93. The land was not "blocked up" in large units but was scattered widely with some little concentration in the northern two tiers of townships across all three counties. Federal appraisers set the price of the land, and those on it had to move off.

The program also involved the development of this purchased land. Fifty-three thousand seven hundred and sixty-seven (53,767) acres of crop land were reseeded to crested wheat grass at a cost of about 80 cents per acre. Three hundred and forty-nine reservoirs were built to store water for stock. Springs and wells were developed, farmsteads obliterated, a few corrals and dipping vats built.

Meanwhile the Farm Security Administration was working on the resettlement of displaced and destitute families of the area. It did not get underway until 1936, and most of the clients came onto their units in 1937 or later. It bought 16,720 acres of land in the Milk River Valley which it divided into units ranging from 80 to 160 acres, now occupied by 157 clients. Most of these families were from the group of 500 to 600 families who had been bought out by the Land Purchase. Their units were almost completely developed when they took over. Land had been cleared,
Figure 5. Distribution of Purchased Land in Blaine County.
Figure 4a. Distribution of Purchased Land in Phillips County.
Figure 5c. Distribution of Purchased Land in Valley County.
leveled, ditched and drained. House, barn, chicken coops and fences were all built by the Farm Security Administration at a relatively high cost. Much of the soil still needed considerable attention before it could produce diversified crops. Most of these families were destitute and, therefore, had to take on a large operating loan as well as the loan covering the original cost of the unit. Although the original intention was to have clients start purchasing their units over a forty-year period, all but nine or ten are now merely leasing their units and paying off their operating loans, not making any payments on the initial investment.

Further description and criticism of the purchase and resettlement programs requires a background of the settlement pattern and its changes during the period 1933 to 1940.

PART II: HUMAN PATTERNS, CHANGES AND PROBLEMS

Patterns and Changes

From 1933 to 1941 the human occupancy of the area was in a state of flux. The droughts of 1934 and 1936 affected both dry-farming and ranching disasterously. Considerable migration took place. Part II gives a picture of the ecological patterns in the area and presents its most serious problems.

Transportation and Trade

In the changing picture only the transportation pattern remained stable. The main line of the Great Northern Railway and U. S. Highway No. 2, a transcontinental route, run through the valley of the Milk River. A branch of the Great Northern runs northwest from Saco to Loring, then west
to Turner and Hogeland. Dirt roads, some graded and gravelled, others just two ruts in the grass, run north and south from the river. Several of the roads have ferry connections across the Missouri River. Through traffic is almost entirely east and west on the valley highway, while local traffic is almost entirely north and south to and from the highway and towns. The road pattern is shown on figure 6, "Roads and Schools Area V, Montana, 1939".18/ There is no regular air service in the area though Harlem and Glasgow both have airports. Power, telephone, and telegraph lines mainly follow the valley though there are local offshoots.

As might be expected the major towns are on the through transportation routes. Glasgow, Malta and Chinook, the county seats, all have a population of over two thousand (according to the 1940 census). Harlem, Nashua, Saco, Dodson and Opheim rank next in size in that order. These towns are all incorporated. Unincorporated trade centers are Turner and Hogeland in north Blaine County, Landusky and Zortman in south Phillips County, and Hinsdale in east Valley County. Of these towns, Turner and Hogeland are supported in part by the branch line of the Great Northern; Landusky and Zortman by gold and silver mines; and Hinsdale by the irrigation and traffic of the valley. There were at one time villages growing up on the dry land with nothing to support them but the trade of the surrounding farms. Since then, the further development of the automobile, the improvement of roads, and the decrease in farming population have made it impossible for a village to continue without some support other than that of dry

18/ Area V includes all of Blaine and Phillips counties, most of Valley County, and parts of Hill, Chouteau, Fergus, Petroleum, and Garfield counties. Part of the project area in Valley County is not included in Area V.
Figure 6:
ROADS AND SCHOOLS;
AREA V, MONTANA,
1939

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farmers and ranchers. Today they remain only as names on outdated maps.

Population

The total population of the three counties has changed from 28,395 in 1930 to 32,639 in 1940, an increase of 4,244. Incorporated towns and cities have grown from 7,322 to 11,367, an increase of 4,045 in the ten-year period, or practically the entire growth in the total population. All but one of the incorporated places are in the Milk River Valley; and all but two increased in size from 1930 to 1940. The two that decreased were Opheim in northern Valley County, and Saco, a village in the valley thirty miles east of Malta in Phillips County.

It should not be supposed, however, that the classification "incorporated" infers urban. It is impossible to make any clear-cut distinction between rural and urban populations. The significant thing about the above comparison is the fact that the trade centers of the valley have grown considerably while the rest of the area as a whole has not changed greatly.

Two quite distinct trends are mainly responsible for this change. First is the greater mobility of the farm people who can now travel farther to do their trading, no longer supporting the stores upon the high lands, but trading in the larger towns in the valley. Second is the increased irrigation in the valley and its consequent concentration of population near the larger towns. Perhaps a third factor is the greater ease in obtaining relief in the towns.

Figures 7, 8, and 9 present further evidence of the migration from the dry land to the valley during the period 1930 to 1940. These maps are
Figure 7. Population Change by Minor Civil Divisions, Blaine County, 1930-1940
Figure 8. Population Change by Minor Civil Divisions, Phillips County, 1930-1940
Figure 9. Population Change by Minor Civil Divisions, Valley County, 1930-1940
based upon the census population data given by minor civil divisions which in the area coincide with the school districts. It will be noted that a great majority of those school districts whose population has increased contain within their boundaries a part of the Milk River Valley. The increase in the two southwestern districts in Phillips County is due to the growth of the mining towns of Landusky and Zortman. It will also be noted that all the districts which have decreased more than 75 per cent are located mainly on dry land.

Agriculture

Number and Location of Farms.—Material in the census indicates certain trends in the number of farms of the three counties. The number increased from 1930 to 1935 in Blaine and Phillips counties, decreased in Valley County. From 1935 to 1940, on the other hand, there were significant decreases in all three counties. (See figure 10, "Changes in the Number of Farms").

It must be remembered that while only part of Blaine and Valley counties are in the project area, most statistics are available only for entire counties. This decrease of 1,412 farms in spite of the development of new irrigated units by the resettlement program was caused partly by the land purchase and partly by emigration of farmers from the dry land due to such natural forces as low prices for wheat and insufficient rainfall.

Figure 11, "Location of Farms by Type and Type-of-Farming Sub-Areas, Area V, Montana" shows the approximate location of farms in the project area by type of farms. The data for this map was taken from a number of different
Figure 10. Changes in Number of Farms in Blaine, Phillips and Valley Counties, 1930 to 1940.
Figure 11: Present Location of Farms by Type and Type-of-Farming Subareas, Area V, Montana
sources, but is probably most accurate for about 1933.

Over the whole area, with the exception of the vacant, rough area in southwestern Valley County, there is a fairly even scattering of ranches. There is a slightly higher density of ranches on the Bearpaw Mountains of Blaine County due to the availability of winter range. The wheat and combination farms, although somewhat scattered, are mainly concentrated in restricted areas. Turner Flat is perhaps the most conspicuous of these groupings. On figure 11 this is designated as sub-area 26. Sub-areas 26 and 27 in central Phillips County are areas of less concentration. Saco bench in eastern Phillips County, almost surrounded by irrigable land, is a small but dense area of grain farming. Likewise, concentrations are found in sub-areas 21 and 22 bordering the valley of the Milk River in Valley County.

A less obvious grouping lies in the central northern part of sub-area 24. A comparison of the denser areas with figure 12, "Land Classification Area V, Montana", shows that in some cases the farming is being done on second grade land as in Turner Flat, but more often is done on third grade land.

According to Neil Johnson 19/ there are in Area V 59 wheat farms, a little less than half of which have income expectancies of $1,000 or less; 31 combination farms about a third of which have income expectancies of $1,000 or less; 1,259 ranches over 500 of which have income expectancies of $1,000 or less. More detailed data are given in table IV. For location of the low-income farms see figure 13, "Farms Having Gross Income Expectancies of $1,000 or Less, Area V, Montana".

Figure 12:
LAND
CLASSIFICATION
AREA V.
MONTANA

GRAZING LAND
GRADED AS TO ACRES PER 1,000-POUNDS STEER FOR A 10-MONTH GRAZING PERIOD

First grade: 18 acres or less
Second grade: 19-27 acres
Third grade: 28-57 acres
Fourth grade: 38-55 acres

FARM LAND
GRADED AS TO YIELD OF SPRING WHEAT ON SUMMER FALLOW

First grade: 22 bushels or over
Second grade: 16-21 bushels
Third grade: 12-15 bushels
Fourth grade: 8-11 bushels

MOUNTAINS, IRRIGATION OR SMALL STREAM BOTTOMS

SCALE IN MILES
0 5 10 15

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NEG. 38810 BUREAU OF AGRICULTURAL ECONOMICS
TABLE IV. PROBABLE INCOME EXPECTANCIES OF FARMS AND RANCHES IN AREA V, MONTANA

<table>
<thead>
<tr>
<th></th>
<th>Wheat</th>
<th>Combination</th>
<th>Livestock</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>859</td>
<td>431</td>
<td>1,259</td>
<td>2,549</td>
</tr>
<tr>
<td>$1,000 or less</td>
<td>396</td>
<td>136</td>
<td>518</td>
<td>1,050</td>
</tr>
<tr>
<td>$1,000 to $2,000</td>
<td>234</td>
<td>166</td>
<td>320</td>
<td>720</td>
</tr>
<tr>
<td>Over $2,000</td>
<td>229</td>
<td>129</td>
<td>421</td>
<td>779</td>
</tr>
</tbody>
</table>

\(a/\) From Johnson, N. W.: op. cit., p. 7.
Farms Having Gross Income Expectancies of $1,000 or Less

All Farms

Wheat Farms

Combination Farms

Livestock Farms or Ranches

U.S. Department of Agriculture

Neg. 38135

Bureau of Agricultural Economics

Figure 13
Size of Farms.--Farms in the project area have changed considerably in size during the last five years. The average size of farm in the three counties has grown from 931 acres in 1930 to 1103 acres in 1935 to 1249 acres in 1940. Table V, "Changes in Size of Farms for Blaine, Phillips and Valley Counties", shows the number of farms in certain size groups in both 1935 and 1940 and the percentage change in number. It will be noted that the greatest decreases were in the group of farms of less than ten acres and those between 220 acres and 999 acres. Greatest increases were in the groups from 70 to 139 acres. The increases are due primarily to the development of new irrigated farms, while the decreases are caused by the migration of farmers from the dry land, due in part to the land purchase program.

In connection with temporal changes in size of farm it is interesting to note the variations in size by tenure of operator. Figure 14, "Number of Farms and Land in Farms by Tenure, 1940", shows that part owners and managers control an inordinately large share of the land in farms, while full owners and tenants control a very small share considering their numbers. The average size of farm, for instance, of the full owners in the area is 537.6 acres while the average size farm of the part owners is 2176.3 acres.

Land Ownership.--Table VI, "Land Ownership in Blaine, Phillips and Valley Counties, 1934", presents a general picture of the importance of different types of land ownership. Residents of Montana and the United States Government are the most important classes of owners, owning together about two-thirds of the land of the three counties. Non-resident individuals, state and county governments are next in importance, owning together another fifth or quarter of the land. Corporate holdings make up the rest.
### TABLE V a/
1935 - 1940

**CHANGES IN SIZE OF FARMS FOR BLAINE, PHILLIPS, AND VALLEY COUNTIES COMBINED**

<table>
<thead>
<tr>
<th></th>
<th>A No. farms</th>
<th>B No. farms</th>
<th>C Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in 1935</td>
<td>in 1940</td>
<td></td>
</tr>
<tr>
<td>Under 10 A</td>
<td>76</td>
<td>39</td>
<td>-48.7</td>
</tr>
<tr>
<td>10-29</td>
<td>33</td>
<td>35</td>
<td>+ 6.1</td>
</tr>
<tr>
<td>30-49</td>
<td>103</td>
<td>87</td>
<td>-15.5</td>
</tr>
<tr>
<td>50-69</td>
<td>31</td>
<td>33</td>
<td>+ 6.5</td>
</tr>
<tr>
<td>70-99</td>
<td>92</td>
<td>138</td>
<td>+50.0</td>
</tr>
<tr>
<td>100-139</td>
<td>98</td>
<td>115</td>
<td>+17.3</td>
</tr>
<tr>
<td>140-179</td>
<td>356</td>
<td>265</td>
<td>-25.6</td>
</tr>
<tr>
<td>180-219</td>
<td>66</td>
<td>64</td>
<td>- 3.0</td>
</tr>
<tr>
<td>220-259</td>
<td>92</td>
<td>66</td>
<td>-28.3</td>
</tr>
<tr>
<td>260-379</td>
<td>835</td>
<td>506</td>
<td>-39.4</td>
</tr>
<tr>
<td>380-499</td>
<td>357</td>
<td>235</td>
<td>-34.2</td>
</tr>
<tr>
<td>500-699</td>
<td>807</td>
<td>533</td>
<td>-34.0</td>
</tr>
<tr>
<td>700-999</td>
<td>624</td>
<td>437</td>
<td>-30.0</td>
</tr>
<tr>
<td>1000 and over</td>
<td>1060</td>
<td>868</td>
<td>-18.1</td>
</tr>
<tr>
<td>Total</td>
<td>4630</td>
<td>3421</td>
<td>-26.0</td>
</tr>
</tbody>
</table>

Figure 14. Number of Farms and Land in Farms by Tenure, 1940.
<table>
<thead>
<tr>
<th>Public Agencies</th>
<th>Corporate Groups</th>
<th>Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>Land Ins.</td>
<td>Non-Res.</td>
</tr>
<tr>
<td>County</td>
<td>Railroads</td>
<td>Res. Indiv.</td>
</tr>
<tr>
<td>Misc. Public</td>
<td>Mortgage Co.</td>
<td></td>
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<tr>
<td>Agencies</td>
<td>Com. Land</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Corporations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Land Companies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>banks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>banks stations</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Blaine</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>30.82</td>
<td>0.91</td>
<td>37.62</td>
</tr>
<tr>
<td>6.98</td>
<td>0.02</td>
<td>12.38</td>
</tr>
<tr>
<td>5.33</td>
<td>1.27</td>
<td></td>
</tr>
<tr>
<td>0.01</td>
<td>1.24</td>
<td></td>
</tr>
<tr>
<td>0.01</td>
<td>2.62</td>
<td></td>
</tr>
<tr>
<td>0.91</td>
<td>0.30</td>
<td></td>
</tr>
<tr>
<td>Phillips</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.19</td>
<td>0.27</td>
<td>28.41</td>
</tr>
<tr>
<td>5.08</td>
<td>0.04</td>
<td>12.32</td>
</tr>
<tr>
<td>9.55</td>
<td>4.02</td>
<td></td>
</tr>
<tr>
<td>0.02</td>
<td>1.23</td>
<td></td>
</tr>
<tr>
<td>0.27</td>
<td>0.54</td>
<td></td>
</tr>
<tr>
<td>0.02</td>
<td>0.29</td>
<td></td>
</tr>
<tr>
<td>Valley</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40.15</td>
<td>0.17</td>
<td>31.81</td>
</tr>
<tr>
<td>6.68</td>
<td>2.39</td>
<td>11.61</td>
</tr>
<tr>
<td>3.05</td>
<td>2.09</td>
<td></td>
</tr>
<tr>
<td>0.02</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>0.17</td>
<td>1.22</td>
<td></td>
</tr>
</tbody>
</table>

\(a/\) Renne, R. R., Montana Land Ownership, Montana Agricultural Experiment Station Bulletin No. 322, June 1936, Appendix Table I, pp. 56-58.
KIND OF LAND OWNERSHIP;
AREA V, MONTANA,
MARCH 1, 1937
Figure 15, "Land Ownership, Area V, Montana, March 1, 1937", shows the typical shotgun pattern of land ownership of the Great Plains. Owner-operator lands are concentrated in south Blaine County and on Turner Flat. Federal and State owned land is predominant in southwestern Valley County and in the rough land along the Missouri River in Phillips and Blaine counties. But ownership of land is not synonymous with control.

Tenure.--Owner-operators supposedly have the ability to do what they wish with their land. Often, however, they are burdened by mortgage or other debt which forces them to maintain their enterprises on a cash-crop basis. Many farmers try to return about as much to the land as they take from it in order not to permanently decrease its producing capacity. These operators are only those whose unit is sound both from a financial and resource point of view. It is impossible for those owner-operators who are hard pressed to meet current operating expenses (loans, taxes, etc.) and/or to make a decent living to maintain the productivity of their soil. The urgency of meeting the immediate obligations assumes greater importance than the advantage of having land in good condition five or ten years hence.

This attitude toward "exploiting agricultural resources" of the soil, grass and water is made more easy and more dangerous by the extreme variations in the climate. Many farmers and ranchers have gone into debt far beyond their ability to repay because they based their operations and obligations on production of grain or grass during the wet years. This debt has forced them to mine their soils in order to remain in operation. It has been common practice to use all the grass during the wet years, leaving no carry-over from one year to another, thus reducing the natural ability of the grass to withstand drought. The owner-operator does not
always know the best practices for his land, but even those who do are frequently unable to use them because they are forced to meet a pressing financial obligation.

The tenant is in the same position as the owner except that he has less security in that he usually can be displaced at the end of any year. More than half, or 458 out of 805, of the tenants in the three counties are on a share-crop basis. More than a quarter, or 227, are on a simple cash basis. The rest are on a share-cash, or some other basis. 20/

Part owners as a whole are perhaps in the soundest position of any tenure group. They do not have all their capital tied up in land, and yet they cannot be displaced from their units. As was shown above, (see p. 43) they have larger units than either full owners or tenants.

Figure 16, "The Changes in Tenure in the Project Area, 1920 to 1940", shows a marked increase in both tenants and part owners at the expense of the full owners. This trend is due in part to the gradual failure of homesteaders who owned their whole 320 acres. These units are now rented by part owners and tenants.

Type of Enterprise.—In one type of farming study, the area is referred to as "A broken area thinly interspersed with low-grade dry-farming and ranching areas.... The area is bisected by irrigated lands along the Milk River on which are produced alfalfa, grains, and sugar beets." 21/

Wheat farming is the most important agricultural enterprise as far

20/ Sixteenth Census, op. cit.
21/ Clawson, M.; Saunderson, M. H.; and Johnson, N. W.: Farm Adjustments in Montana, Study of Area IV, Montana Agricultural Experiment Station, Bull. 337, Bozeman, 1940, p. 5.
Figure 16. a/ Percentage Changes in Tenure in Project Area 1920-1940

a/ Source: 15th and 16th Census.
as number of farms is concerned. In the 1940 census 2468 farms in the three counties report wheat threshed, while 1425 farms report "cows and heifers two years old or older" and 431 farms report ewes eighteen months old, making a total of 1856 farms running cattle or sheep. The Agricultural Adjustment Administration summary 22/ indicates that there were only 2270 farms seeding wheat in 1939. In any case, both ranching and wheat farming are the major types of enterprise in the area. From 1929 to 1939 there was a decrease of 731 or 23 per cent in the number of farms reporting wheat threshed. During the same period, there have been decreases of 11 and 13 per cent in number of farms reporting cows and heifers "two years old or older" in Phillips and Valley counties respectively; and an increase of 14 per cent in Blaine County. Data are not available for a comparison of farms running sheep. It may be concluded that there has been a decrease in both ranching and wheat farming in the area, but that the decrease is more significant in respect to wheat than in respect to livestock.

Irrigated farming cannot be omitted from this picture. According to estimates of the county agents there are about 750 irrigated farms in the three counties. Many of them have been developed during the last five years. One hundred fifty seven have been developed by the Farm Security Administration alone. One index of the growth of irrigated units is the increase in acreage and tonnage of sugar beets. In 1929 there were only 111 operators growing sugar beets in Blaine County, 30 in Phillips County, and two in Valley County. By 1939 this had grown to 279, 140, and 89 in Blaine, Phillips and Valley counties respectively.

Figure 17, "Trends in Acreage and Tonnage of Sugar Beets", shows that Blaine County has maintained a large lead in both acreages and production, while Phillips and Valley counties have increased relatively more rapidly. Sugar beets grow well in the light soils of the valley under the intense heat of summer. The value of sugar is complemented by the value of the tops and pulp as food for livestock. To this value has been added considerable subsidy. (See below table XI, p. 70.) The production of sugar beets now, however, is strictly limited and there is little likelihood that there will be much more expansion.

Increase of irrigated farms is shown by a number of other indices. One of these is the changes in size of farms. (See above, p. 43.) Another is the change in number and location of schools.

Schools

In 1933 there were 197 rural schools open in Phillips, Valley and the north half of Blaine counties, 23 of which were in the Milk River Valley or the Missouri Valley east of the junction of the two. (See table VII.) In 1939 there were 123 open schools throughout the area, a loss of 38 per cent. The schools operating in the valley, however, had increased to 26, or about 13 per cent. The fact that several of the Valley schools have more than one room (such as the new South Wagner school which employs four teachers), while almost all of the upland schools have only one room, points out that this is another index of migration toward the river during the 1934-1939 period, and of decreased rural population. This decrease in number of schools, and increased concentration of children in the valley
Figure 17. Trends in Sugar Beet Acreage and Production
### TABLE VII. NUMBER OF SCHOOLS OPERATING IN BLAINE, PHILLIPS AND VALLEY COUNTIES, 1935-1939

<table>
<thead>
<tr>
<th></th>
<th>1933</th>
<th>1939</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaine:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North</td>
<td>32</td>
<td>16</td>
</tr>
<tr>
<td>M. R. Valley a/</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Phillips:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North</td>
<td>34</td>
<td>17</td>
</tr>
<tr>
<td>South</td>
<td>32</td>
<td>18</td>
</tr>
<tr>
<td>M. R. Valley a/</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Valley:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North</td>
<td>60</td>
<td>33</td>
</tr>
<tr>
<td>South</td>
<td>16</td>
<td>13 b/</td>
</tr>
<tr>
<td>M. R. and Mo. Valleys a/</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>197</td>
<td>123</td>
</tr>
<tr>
<td>Schools in irrigated Valley:</td>
<td>23</td>
<td>26</td>
</tr>
</tbody>
</table>

a/ Schools in Glasgow, Malta and Chinook have been omitted from these data.

b/ Four of these schools directly due to concentration of people around Fort Peck Dam.

### TABLE VIII. SCHOOL ENROLLMENT IN PHILLIPS COUNTY, 1940

<table>
<thead>
<tr>
<th>Size of school</th>
<th>No. of schools</th>
<th>Total No. pupils</th>
<th>Per. of pupils</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 5 pupils</td>
<td>11</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>6 to 10 pupils</td>
<td>15</td>
<td>117</td>
<td>28</td>
</tr>
<tr>
<td>11 to 15 pupils</td>
<td>5</td>
<td>69</td>
<td>16</td>
</tr>
<tr>
<td>16 pupils or more</td>
<td>5</td>
<td>193</td>
<td>46</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>419</td>
<td>100</td>
</tr>
</tbody>
</table>
paves the way for a decrease in the cost of education and increased quality per unit cost of education. It also means that in the larger valley schools children will gain the social advantages of associating with groups of other children which they miss in the small dry-land school. But there are still 97 dry-land schools operating in the project area, and their enrollment is probably less than it was in 1930. In Phillips County, for instance, in the school year 1940-1941, there were 36 rural schools with a total enrollment of 419 pupils. Forty-six per cent of these pupils were in the five largest schools, while only 38 per cent were enrolled in the 26 smallest schools, those having an enrollment of ten pupils or less. (See table VIII.) Thus the inefficiency still exists even though it affects a smaller proportion of the people.

Tax Delinquency

Tax delinquency is one index of the maladjustment of the settlement pattern. Unfortunately, tax data are available only for 1936 and, therefore, no comparisons can be made. Figure 18, "Status of Tax Delinquency in Area V, Montana, July 1, 1936", shows the pattern of tax non-payment. In 1936, 53 per cent of the taxable acreage in Valley County was delinquent. Almost three times (297 per cent) the 1936 levy was cumulatively delinquent. 23/

Tax delinquency is generally divided into two types: short term delinquency which might arise from a poor crop year or temporary finan-

23/ Valley County and Community Agricultural Planning Committees: Agricultural Planning in Valley County, A Statement of Progress, Nov. 1940, p. 106 ES.
STATUS OF TAX DELINQUENCY; AREA V, MONTANA, JULY 1, 1936

U. S. DEPARTMENT OF AGRICULTURE
cial distress; and chronic tax delinquency, the causes of which are probably deep-seated. Certainly the drought and the depressions were responsible for a large part of the delinquency in 1936. The Blaine County Agent states, for instance, that by 1941 there was very little tax delinquency in Turner Flat.

Poor farm land, grazing land, taxes on which are higher than economic rent, and non-resident owned lands have been the principle types reverting to the counties for tax deed. These types of land suggest in themselves the causes for chronic delinquency. The farming of poor grade, sub-marginal lands, the discrepancy between ability to pay and assessment, and indifference on the part of the non-resident owners are perhaps the main causes.

If chronic delinquency is to be stopped, then poor grade farm lands must be devoted to ranching, taxes should be assessed according to ability of the land to pay, and non-resident owners must be gradually relieved of their land.

Problems

What were the major problems of the area? What were the most critical parts of the maladjustment? It can be said that all the problems arise from a maladjustment between the people and the resources.

Perhaps the most important problem is the inflexibility of the land use pattern. The climate upon which this pattern depends is highly variable, yet the pattern is based on the assumption that the next year will be as good or better than the last year.
This inflexibility is closely tied to the problem of over-specialization. The dry-land farmer in this area depends entirely upon the yield and price of dry-land crops. Should either the yield or the price drop too far, which frequently happens, he has nothing to fall back upon but a government subsidy of some kind. Likewise, the rancher usually depends entirely upon the yield of grass, the ability of his livestock to change this grass into meat, and the price of this meat. If anything happens to any of these factors his income disappears. He has a safeguard of sorts in that he can sell off part or all of his breeding stock. Then, however, he cannot return to normal operations easily, but can only slowly increase his herd to normal. The irrigation farmer is best suited to the fluctuations in climate but is just as susceptible to change in price.

In none of the three types of farming has a system of reserves been put into practice. None of the types are capable of meeting a depression-drought period on their own resources. All depend upon some form of government subsidy, particularly during the lean years.

Another problem of the area, and of most of the Great Plains, arises from the fact that the upland farmer and rancher expects or hopes to live on the same plane and in the same fashion as farmers in more densely populated regions. There is no reason why with reserves and large units he can not consume the same goods as the farmer in the humid regions. But the maintenance of services both public, such as schools and roads, and private, such as commercial establishments and professional care, must be more limited on dry land than they are at present. This extensively used land cannot hope to support the services which are supported by lands in humid regions.
Sooner or later it must be realized that either the upland farmer must get along without the services now at hand, or he must move to the towns or valley where the services can be maintained.

The fourth problem, the exploitation of soil and grass, arises in part from a difference in the values between the individual and society. The individual is trying to make his ranch or farm pay now—-at present. If necessary, he will lower its future productivity, perhaps irreparably, in order to maintain his control over his spread. As society sees it, this depletion of resources is wasteful and destructive, for society has less interest in whether the individual keeps his spread, but rather in the "best" use of the resources of the area. It is from this point of view that overgrazing and soil erosion, accompanied by a decrease in moisture absorption, are problems. Ignorance, incorrect practices, uncontrolled range over-used by a number of ranchers, and the increasing difficulty of controlling erosion once it gets started all contribute to the problem of exploitation of soil and grass.

Inflexibility of land use where the climate is highly variable; over-specialization where diversification is needed as insurance; maintenance of public services at high cost on sparsely populated land; and erosion and declining productivity of land caused by exploitation of soil and grass are the major problems of the area.
In the area there are a number of agencies dealing with these problems with varying degrees of success and exerting a certain amount of influence over the land use. The following paragraphs describe the position of each one in relation to this land use and criticizes their respective programs in terms of the problems.

The State Grazing Districts

The State Grazing districts were formed to meet the problems of insecurity of the rancher and over-use of uncontrolled range. The first enabling legislation for grazing districts was passed in 1933 but not until extensive revision of the legislation was undertaken in 1939 were the grazing districts really effective. They are now under the supervision of the State Grass Conservation Commission.

There are now thirteen grazing districts in the three counties. (See figure 19.) All the ranchers in the area are members of at least one of these districts. Charges vary somewhat from district to district but average around $1 per animal unit per eight month grazing season. In the Badlands District in south Valley County, for instance, a rancher pays $1 for grazing a steer or a cow and her calf, $1.50 for a horse, or 20 cents per sheep per grazing season which runs from April first through November thirtieth.

The grazing districts have through legal means established a secure control over the range. No one, for example, can graze livestock within the boundaries of the district without a grazing permit except on land
Figure 19. Grazing District Boundaries in the Project Area
which he owns or leases. Likewise, the grazing district can keep all persons except the owner or direct lessee from grazing land which it does not lease. Members of the grazing districts frequently do graze such lands even though this land is not included in their permits. This uncontrolled land, however, is equally well managed as the rest of the land of the grazing district.

A year after the grazing district has been formed the rights to use the range tend to become rigid and permanent. Grazing rights are distributed on the basis of three tests: dependency, commensurability and priority. Dependency lies in the fact that the land cannot be used correctly without also the use of land in the grazing district. Commensurability is the ability of a piece of land to produce winter feed during "normal" years. Priority is based on the fact that the individual ran livestock within the present boundaries of the grazing district some time during part or all of the period 1929 to 1934. Both dependency and commensurability, then, are attributes of land while priority is an attribute of a given enterprise. After priority is determined, however, it is then tied to the commensurate land.

In the project area there is more dependent and commensurable land than there is summer range. Much of this commensurate land is in the Milk River Valley and was developed after the grazing districts were formed and, therefore, although it makes a much more secure feed base than the commensurate land on the upland, it has no priority rights. Under the present law there is no hope of revision of rights. Therefore, because of priority, the grazing districts have attached rights to use the range to the undepend-
able upland commensurate lands and have permanently precluded the possibility of irrigated farmers developing a year round livestock enterprise.

County Commissioners

The County Commissioners have charge of the use of all county land. Since they are elective officials, their first interest is to obtain as much income as possible from these lands for the operation of the county government. They, therefore, try first to sell it in order to put it back on the tax rolls. Failing this, they lease it to the highest bidder on a one-year-cash-rent-subject-to-sale basis. State legislation now permits the county to lease their lands on a ten year basis, but the Commissioners of these three counties have not yet seen fit to avail themselves of this opportunity. Thus the philosophy of the County Commissioners contributed to the maladjustments of the area by creating insecurity of the individual and encouraging misuse of county lands.

The State of Montana

The administration of State lands does not contribute, as do the County Commissioners, to the maladjustments of the area, but neither does it make any positive contribution to the solution of the problems. The State is restricted by law to a one-year lease period for its lands. It follows, at the present time, an administrative policy permitting those individuals who lease any State lands to be fairly confident of their ability to continue their control over these lands. It requires the grazing districts to lease all State land offered to them at a "reasonable rental".
The Federal Government

The land owned by the Federal government in the project area is administered by several different agencies.

**The Biological Survey.**--The Biological Survey maintains wildlife refuges not used for agricultural purposes.

**The Forest Service.**--The Forest Service controls the small bit of National Forest in the project area lying in southwest Phillips County. The part which is leased to ranchers is on a controlled grazing basis and gives assurance of continued rights.

**The Indian Service.**--The use of the Fort Belknap Indian Reservation is controlled by the Indian Service of the Department of Interior. Blaine County ranchers grazed over 15,000 animal units on the reservation in 1940. It has been the practice to lease these lands on a year to year basis. Recently the Indian Service announced that it is building up the herds of the Indians and, therefore, in the future there will be less and less land available for outsiders. This policy will add considerably to the welfare of the Indians, but it will further increase the pressure on the summer range of Blaine County.

**The Grazing Service.**--The Grazing Service administers not only the Public Domain but also the land acquired by the government under the Land Purchase program. To date all this land has been leased to the grazing districts who made the individual allotments. It is probable that it will shortly make the allotments itself with the aid of an advisory council of ranchers as it has done in other states. Some definite policy should be
maintained so that both the grazing districts and the individual operator will know where they stand.

The Bureau of Reclamation

The Bureau of Reclamation, although it does not directly administer any land, has a very real control over land in this area. It has charge of administering the physical aspects of irrigation. The storage of water, the delivery to the farms in Phillips and Valley counties and to the local irrigation district in Blaine County, the collection of fees and the classification of valley land are all handled by this agency. Water for irrigation in the Milk River Valley has had to flow some two hundred and fifty miles 24/ from the St. Mary's reservoir close to Glacier National Park. Recently the Bureau of Reclamation has built the Fresno dam west of Havre which stores water close to the irrigation project.

When the Milk River Irrigation project was set up the Bureau of Reclamation expected to have repaid to it all the construction costs as well as the current costs. A construction charge to be repaid over a long period of time is levied against all "irrigable" land of the valley. This covers the construction of dams and canals. In Phillips and Valley counties it amounts to $57 per acre and will be increased by another $25 or $26 per acre when the charges for the Fresno dam are assessed. In Blaine County where local irrigation districts were formed to handle distribution of the water, construction charges amount to about $30 per acre

24/ Slagsvold and Bingham, op. cit., p. 18.
exclusive of the Fresno dam. In addition, in Phillips and Valley counties, there is a general annual charge of 15 cents per acre, an operating and maintenance charge of 75 cents per acre foot of water used, and a water charge of 75 cents per acre foot. In Blaine County the general charge is not assessed but the water charge and operating and maintenance charges total from $1.75 to $2.75 per acre foot. Considering the quality of the land and the market opportunities of the valley there is considerable doubt whether the construction charges can be paid off. Already moratoriums have been declared but no permanent adjustment has been made.

The Agricultural Adjustment Administration

Almost all the land in the project area not owned by the State or Federal governments now participates to some extent in the program of the Agricultural Adjustment Administration. This program is a combination of an attempt at a production control program, an attempt to encourage practices which will maintain or even increase productivity of the land, and a generous Federal subsidy. Production control is exercised by the granting of limited wheat and sugar beet allotments. (These two are the only crops whose productions are being controlled under the Agricultural Adjustment Administration in this area.) Soil building practices take the form of the application of fertilizers, the construction of terraces, reservoirs and dams to slow down water run-off, the seeding of legumes and grasses, and the practices of strip-cropping and contouring. On range land soil building practices take the form of deferred grazing, artificial re-seeding, construction of dams and terraces, and the development of water
facilities. Subsidy is carried out by the payment of various amounts as a reward for the completion of "good farming practices", as parity payments, and as "allotment payments".

It would be difficult to give any index of the success of the Agricultural Adjustment Administration program as a whole. The wheat and sugar beet control program, for instance, cannot be measured by the number of bushels of wheat produced in any given year or years because the program is successful only insofar as it restricts national output to the extent that price rises, or can be raised, and because too many natural factors affect the production of wheat.

The Agricultural Conservation program can be measured by some of the "soil building practices". Table IX shows the county statistics for the four most important practices in this area. 25/ Practice B-1 is the seeding of biennial or perennial legumes, perennial grasses not including timothy, redtop or crested wheat grass. Practice C-2 consists of seeding permanent grasses (crested wheat grass, slender wheat grass, western wheat grass, or grama grass.) Seeding of alfalfa and strip cropping are self-explanatory. The range conservation program can be measured in similar fashion. Table X shows the amounts of the most important range conserving practices. Deferred grazing consists of not grazing certain land until after the thirty-first of August. Range reseeding involves seeding the

### TABLE IX. a/ PRACTICES RESULTING FROM AGRICULTURAL CONSERVATION PROGRAM OF THE AGRICULTURAL ADJUSTMENT ADMINISTRATION 1939

<table>
<thead>
<tr>
<th></th>
<th>B-1</th>
<th>C-1</th>
<th>C-2</th>
<th>H-4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seeding legumes and grasses</td>
<td>Seeding alfalfa</td>
<td>Seeding perennial grasses</td>
<td>Strip cropping</td>
</tr>
<tr>
<td>Acres</td>
<td>Acres</td>
<td>Acres</td>
<td>Acres</td>
<td>Acres</td>
</tr>
<tr>
<td>Elaine</td>
<td>2,240</td>
<td>3,410</td>
<td>3,275</td>
<td>110,660</td>
</tr>
<tr>
<td>Phillips</td>
<td>1,511</td>
<td>1,751</td>
<td>5,091</td>
<td>36,771</td>
</tr>
<tr>
<td>Valley</td>
<td>1,792</td>
<td>2,417</td>
<td>13,279</td>
<td>233,012</td>
</tr>
<tr>
<td>Total</td>
<td>5,543</td>
<td>7,578</td>
<td>21,645</td>
<td>380,443</td>
</tr>
</tbody>
</table>

*Data from Facts for Future Planning, op. cit.*

### TABLE X. a/ PRACTICES IN CONSERVATION WITH RANGE CONSERVATION PROGRAM, 1939

<table>
<thead>
<tr>
<th></th>
<th>Deferred grazing acres</th>
<th>Reseeding acres</th>
<th>Earthen tanks and reservoirs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>cu. yds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elaine</td>
<td>48,107</td>
<td>8,140</td>
<td>79</td>
</tr>
<tr>
<td>Phillips</td>
<td>92,063</td>
<td>6,748</td>
<td>41</td>
</tr>
<tr>
<td>Valley</td>
<td>12,042</td>
<td>2,784</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>152,212</td>
<td>17,672</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Data from Facts for Future Planning, op. cit.*

### TABLE XI. a/ RANGE RESEEDING

<table>
<thead>
<tr>
<th></th>
<th>1936-1939</th>
<th>1937-1939</th>
</tr>
</thead>
<tbody>
<tr>
<td>Springs &amp; seeps developed</td>
<td>Range reseeding acres</td>
<td>Deferred grazing acres</td>
</tr>
<tr>
<td>Elaine</td>
<td>142</td>
<td>2,076</td>
</tr>
<tr>
<td>Phillips</td>
<td>35</td>
<td>2,968</td>
</tr>
<tr>
<td>Valley</td>
<td>18</td>
<td>977</td>
</tr>
<tr>
<td>Total</td>
<td>195</td>
<td>6,021</td>
</tr>
</tbody>
</table>

*Data from Facts for Future Planning, op. cit.*
same grasses as in practice C-2 above with the addition of brome grass.

The subsidy phase of the Agricultural Adjustment Administration program is perhaps best measured by the amount of money which was given out. Table XI shows distribution of payments by type, county and amount in 1939. Table XII (a and b) shows the distribution of payees of Agricultural and Range Conservation programs by the amounts received.

The Agricultural Adjustment Administration has helped to diversify some units. It has reduced the amount of erosion and helped to restore the productivity of the land. But the subsidy has helped to maintain the sub-marginal farmers on the dry land and slow down the natural migration to the irrigated land.

The Soil Conservation Service

The Land Purchase program of the Soil Conservation Service has been one of the most widespread of the action programs in its effects upon the area. This program was described briefly at the end of Part I.

The Land Purchase program had numerous and conflicting objectives. In the original "Malta Plan" the objectives of land purchase were secondary to resettlement. Interest was focused upon moving the destitute dry farmer off his land and onto an irrigated unit in the valley. In the national scene, however, objectives were quite different. The program planners in Washington were worried about the seeming conflict between the program of the Agricultural Adjustment Administration, taking land out of production, and that of the Bureau of Reclamation, putting new land into production. 25/26/

TABLE XI. a/ 1939 AGRICULTURAL ADJUSTMENT ADMINISTRATION SUBSIDIES

<table>
<thead>
<tr>
<th></th>
<th>Allotment Payment</th>
<th>Practice Payment</th>
<th>Parity Payments</th>
<th>Sugar Beet Payments</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wheat</td>
<td>General</td>
<td>Restoration Land</td>
<td>Soil Building</td>
<td>Range</td>
</tr>
<tr>
<td>Blaine</td>
<td>$101,068</td>
<td>$31,471</td>
<td>$356</td>
<td>$45,010</td>
<td>$25,805</td>
</tr>
<tr>
<td>Phillips</td>
<td>$88,957</td>
<td>$26,835</td>
<td>$5,627</td>
<td>$30,570</td>
<td>$18,102</td>
</tr>
<tr>
<td>Valley</td>
<td>$227,330</td>
<td>$44,923</td>
<td>$22,597</td>
<td>$92,755</td>
<td>$3,315</td>
</tr>
<tr>
<td>Total</td>
<td>$417,355</td>
<td>$103,529</td>
<td>$28,580</td>
<td>$168,335</td>
<td>$47,222</td>
</tr>
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### TABLE XII-A. PAYEES - AGRICULTURAL CONSERVATION PROGRAM

<table>
<thead>
<tr>
<th>Totals</th>
<th>0</th>
<th>100</th>
<th>200</th>
<th>300</th>
<th>400</th>
<th>500</th>
<th>1000</th>
<th>2000</th>
<th>3000</th>
<th>4000</th>
<th>Over</th>
<th>5000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaine</td>
<td>818</td>
<td>371</td>
<td>173</td>
<td>97</td>
<td>47</td>
<td>40</td>
<td>73</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Phillips</td>
<td>999</td>
<td>481</td>
<td>311</td>
<td>106</td>
<td>46</td>
<td>24</td>
<td>27</td>
<td>4</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Valley</td>
<td>1751</td>
<td>749</td>
<td>403</td>
<td>207</td>
<td>139</td>
<td>90</td>
<td>132</td>
<td>24</td>
<td>5</td>
<td>1</td>
<td>--</td>
<td>1</td>
</tr>
<tr>
<td>Totals</td>
<td>3568</td>
<td>1601</td>
<td>892</td>
<td>410</td>
<td>232</td>
<td>154</td>
<td>237</td>
<td>31</td>
<td>3</td>
<td>2</td>
<td>--</td>
<td>1</td>
</tr>
</tbody>
</table>

### TABLE XII-B. PAYEES - RANGE CONSERVATION PROGRAM

<table>
<thead>
<tr>
<th>Totals</th>
<th>0</th>
<th>100</th>
<th>200</th>
<th>300</th>
<th>400</th>
<th>500</th>
<th>1000</th>
<th>2000</th>
<th>3000</th>
<th>4000</th>
<th>Over</th>
<th>5000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaine</td>
<td>67</td>
<td>20</td>
<td>22</td>
<td>9</td>
<td>4</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Phillips</td>
<td>57</td>
<td>27</td>
<td>16</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>--</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td>Valley</td>
<td>21</td>
<td>13</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Totals</td>
<td>145</td>
<td>60</td>
<td>43</td>
<td>17</td>
<td>6</td>
<td>2</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>--</td>
</tr>
</tbody>
</table>

In 1933 the Land Purchase program was conceived to alleviate this dilemma. Twenty-five million dollars was set aside nationally from W.P.A. funds for the purchase of low-grade farm land, this land then to be put to some more extensive use, the development of the land for the new use to involve W.P.A. labor. It is common practice in looking back at the program with a wider knowledge of government activity to attribute objectives to the program which it did not have at its inception. It is very easy at this time to say: "If only they had done thus and so."

The program would have been more effective had it concentrated on one or two major objectives, other benefits being relegated to the status of by-products. Then compromise would have been eliminated and progress consequently more rapid.

Suppose that the primary objectives had been to move low-income families off the dry land and to help the remaining units to become diversified and drought-resistant. The criteria for the selection of land to be purchased would then have been the income of the operator of that land and the possibility of using that land to improve some other unit.

If, however, the objectives of the program had been to decrease the amount of dry-land crops produced and to stop erosion by restoring the grass cover of low-grade farm lands, the criteria would have been quite different. A soil survey would have preceded any purchase and the selection of land would have been based on the low-grade character of the land and the fact that it was then, and would have continued if not purchased, in the production of surplus dry-land crops.

Now suppose that the objectives of the program had been: to bring
land into Federal ownership, regardless of character; to distribute as much money as possible over a short period of time regardless of who would receive the money; with accompanying advantages of decreasing production of wheat, moving people out of an overpopulated area, and providing jobs for W.P.A. labor in developing this land. Then the program would have been to buy the land as fast as possible at a price close to the real value, without any other selection whatsoever.

This is the form the program took. And the objectives in the minds of the ultimate policy makers, those in Washington, were essentially those stated in the last paragraph. From this point of view the land purchase was a real success. It brought land into Federal ownership, which was an end in itself. It put money into circulation with perhaps as great a variety of receivers as any pump priming program. It moved destitute families off the land. (Perhaps 500 to 600 of the resident operators could come in this category.) It took considerable sub-marginal cropland out of production.

These were the objectives in spite of the fact that the "Malta Plan" was the original inspiration for a purchase project in this area. Much data had been gathered or estimated about the area and the benefits which the program would bring to it, but there were no surveys of land ownership, operating units, land in cultivation or detailed soil survey or land classification. In later purchase projects, where the objectives had been clarified, the need for these surveys was realized and they were obtained before the purchase began. In the Milk River-Northern Montana project, however, the purposes of selection of the land purchased was not recognized.
One of the reasons why the residents interested in the "Malta Plan" did not demand selection was that they expected 2,000,000 acres of land to be purchased. This amount would have satisfied both their objectives and those of the national planners. The funds were cut short, however, and the purchase program never acquired much over 900,000 acres of land. Thus it satisfied the national demands without ever being able to satisfy the needs which were considered most pressing by the local people.

One criticism which has been leveled against the purchase program is the fact that the land they bought was so scattered. (See figures 3, 4, and 5.) As pointed out above, the simplifying of the ownership pattern was not one of the original objectives of the project. Therefore, the criticism is of the purpose and not the methods of the program. Insofar as blocked out purchases would have simplified the tenure relationships in the area, the criticism is valid. It was planned at the outset, however, to turn these lands over to cooperative, locally controlled grazing districts which would then manage all the land within their boundaries not specifically reserved for other uses. These grazing districts are now functioning in all of the project area, and it, therefore, makes little difference so far as the ranchers' tenure relationships are concerned whether the purchase land is in blocks or in scattered pieces as long as the grazing district leases it all and makes individual allotments.

The problem of the rigidity of range rights has come up in the progress of the resettlement units. As the clients have reached full production they have found that they needed some kind of livestock enterprise to round out their operations. In all but a few cases they have been
unable to secure grazing rights. It is now suggested that if the land purchase program had bought its land in blocks, it could withdraw part of it to use as a community pasture for these resettled farmers. The Soil Conservation Service may still be able to use the threat of withdrawing part of its land in order to secure rights for the Farm Security Administration clients, but only with the danger that this act might further strain the relations between ranchers and irrigated farmers.

The acquisition of land by the Federal government has had several important effects upon public finance aspects in the three counties. As would be expected, the land purchase has reduced the tax base of the three counties, probably by more than $1,000,000. Likewise, it has reduced the revenue from taxes but not in proportion. Receipts from back taxes more than made up for the government indebtedness charged against the purchased lands. Reductions in government operating expenses will not be forthcoming until reorganization of school districts, perhaps of counties, is achieved. Even with reduced costs there is justification for the Federal government compensating local government for the reduction in the tax revenue. This compensation, provided for in the Bankhead-Jones Act to the amount of 25 per cent of the income from the grazing rights of this land, is now in operation.

After the land had been purchased, the Soil Conservation Service undertook a program of range development. Three hundred forty-nine stock water reservoirs were built with a capacity averaging 48 acre feet per

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reservoir at costs varying from 80 cents to $2.20 per acre foot. Eighteen springs were cleaned out and 4 wells sunk. Six hundred forty-eight farmsteads were razed, cellar holes and dry wells were filled in. Three hundred thirty miles of fence were built. Eleven corrals and 9 dipping vats were built for cooperative use. Six cattle guards, 87 miles of roads were constructed. One thousand six hundred and twenty acres were terraced or contoured for demonstration seed production plots and flood irrigation. Grass was planted on the reservoir dams and trees were planted around the edges. Four hundred eighty-two thousand acres were covered in the rodent control program. Fifty-three thousand seven hundred and sixty-seven acres were reseeded either to a mixture of crested wheat grass and western wheat grass or crested wheat grass and brome grass at a cost of about 80 cents per acre. 28/

The Land Purchase program by buying out farmers has helped to decrease the amount of public service needed on the upland; and by returning farm land to grass has helped to decrease the exploitation of agricultural resources.

The Farm Security Administration

The resettlement project of the Farm Security Administration, like the Land Purchase program, was one of the first of its kind. Its objectives, however, were clear. The first major mistake was that of timing. In the Milk River Project the client was displaced before any new location was ready for occupancy. This waiting period precluded the possibility

28/ These data have all been taken from: Annual Report, 1939, Soil Conservation Service and Farm Security Administration Programs; Mimeo. April 1, 1940, Malta, Montana.
of the client saving very much of his previous equipment or livestock for his new operations. It forced him to use up all or most of the money he had, usually only his equity in his former land. Thus he started on the resettlement unit from scratch. He had to borrow money for the land, buildings, equipment, livestock and his own living until the unit was producing. Resettlement opportunity, then, either should be developed before the individual is displaced from his former unit, or the client should be employed in its development.

Land for resettlement was chosen on a number of characteristics. Soil qualities, the amount of leveling, ditching and draining needed, clear title and willingness of the owner to sell at the government's appraised value, availability in large blocks so that communities of clients could be built up,—all entered into the choice. One criticism which is made of this project is that the project soils are so poor that no farmer would cultivate them of his own free will. The soils of the blocks of land chosen for resettlement are better than the valley average and certainly the irrigated units offer the individual a better opportunity of making a living year in and year out than did his previous dry land unit.

In dividing up the units an attempt was made to give each client some good soil. This was done in all but a few cases: these units consisting entirely of heavy, clayey soils were reserved for use in connection with upland livestock operations.

The development of the units, the transfer from raw or partly developed land to units ready for intensive farming was done by the Farm Security Administration. Large scale power machinery was used for the
leveling and ditching. Clearing was used by the Farm Security Adminis-
tration as a way to keep W.P.A. or grant clients busy during the winter.

Buildings on the "Malta Original Homesteads" which make up most of
the units in the South Wagner community were erected by the Construction
Division of the Farm Security Administration. In large part these were
experimental buildings, all of them sound, warm and comfortable. Their
only fault was the fact that they cost somewhere in the neighborhood of
$7,000 each. This was all charged against the farmers though it is con-
siderably more than they can afford. All other clients chose their house
plans from several which the Farm Security Administration had on file.
Then the buildings were put up by a private contractor using materials
supplied by the Purchase Division of the Farm Security Administration, and
according to government specifications.

The barns and poultry houses, though small, are distinctly good
quality. The houses, on the other hand, are distinctly unsatisfactory.
They have metal roofs which are neither warm nor quiet. The outside walls
are made of fitted lumber. This type of wall is not tight enough for the
winds and cold of the northwest plains even when well-seasoned wood is used.
But the lumber used was not well-seasoned due to a mistake of the Purchase
Division. No insulation was used between the outside and inside walls.
The inside walls are also of wood, a knotty pine finish which, though it
is very attractive, is not resistant to rodents. They were also con-
structed of lumber not thoroughly seasoned. Thus both inside and outside
walls have cracks, making it difficult to keep the house warm in winter
and impossible during winds. The houses were built without basements,
close to the ground, which condition, although it has not yet caused trouble, probably will cause difficulties later. Fences, too, were built by the Farm Security Administration.

It would be impossible to give a detailed analysis of costs of the irrigated units. Table XIII gives a summary of the costs on 73 units which do not include the "Malta Original Homesteads" or the labor units. Against these units there was an average total charge of $87.93 per acre. It cost the Farm Security Administration an average of $8,650.53 per unit. These costs seem excessive, certainly more than the farmers will be able to repay with hay, small grain and sugar beet units, varying from 30 to 160 acres in size.

A different set of data shows the breakdown of the total development costs. Table XIV shows percentages involved in the different parts of the development. It will be noted that about three-quarters of the development costs are involved in the items: ditches, drains, leveling and burden.

A further breakdown of the factors making up "burden" is given in Table XV.

The farmer had little or no hand in the development of his unit, although in some cases he moved into his house well before the land was ready for cultivation. Instead of the client using his own relatively inexpensive labor, he is burdened with the debt of costly labor on all the development of his unit. This fault has been recognized by the Farm Security Administration in the Flathead Lake region where this agency is subsidizing its clients until they get their units into operation, asking them to repay only those funds used for the purchase of livestock, machinery, and the
TABLE XIII a/

SUMMARY OF COSTS ON SEVENTY-THREE RESETTLEMENT UNITS

<table>
<thead>
<tr>
<th></th>
<th>Total Cost</th>
<th>Per acre cost</th>
<th>Per unit cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase cost of land</td>
<td>$145,918.42</td>
<td>$20.30</td>
<td>$1,997.51</td>
</tr>
<tr>
<td>Development cost of land</td>
<td>214,946.01</td>
<td>29.93</td>
<td>2,944.47</td>
</tr>
<tr>
<td>Improvements (buildings, etc.)</td>
<td>270,708.10</td>
<td>37.69</td>
<td>3,708.33</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>631,472.53</strong></td>
<td><strong>37.92</strong></td>
<td><strong>8,650.31</strong></td>
</tr>
</tbody>
</table>

Number of units.....73
Total acreage.....7,131.6 A
Average size of unit.....93.4 acres

a/ Data taken from Summary in Farm Security Administration office at Malta
### TABLE XIV

**DEVELOPMENT COSTS ON MILK RIVER RESETTLEMENT PROJECT**

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>COST</th>
<th>% of TOTAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burden</td>
<td>$162,080.78</td>
<td>27.38</td>
</tr>
<tr>
<td>Ditches</td>
<td>133,234.89</td>
<td>22.50</td>
</tr>
<tr>
<td>Drains</td>
<td>100,634.07</td>
<td>17.00</td>
</tr>
<tr>
<td>Leveling</td>
<td>62,948.06</td>
<td>10.63</td>
</tr>
<tr>
<td>Fences</td>
<td>33,633.02</td>
<td>6.52</td>
</tr>
<tr>
<td>Construction</td>
<td>35,947.92</td>
<td>6.07</td>
</tr>
<tr>
<td>Roads</td>
<td>16,179.23</td>
<td>2.73</td>
</tr>
<tr>
<td>Clearing</td>
<td>15,928.92</td>
<td>2.69</td>
</tr>
<tr>
<td>Landscaping</td>
<td>10,375.61</td>
<td>1.75</td>
</tr>
<tr>
<td>Flumes</td>
<td>6,974.29</td>
<td>1.13</td>
</tr>
<tr>
<td>Pumping Stations</td>
<td>3,760.49</td>
<td>.64</td>
</tr>
<tr>
<td>Culverts</td>
<td>3,679.91</td>
<td>.62</td>
</tr>
<tr>
<td>Bridges</td>
<td>1,695.60</td>
<td>.29</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>592,062.34</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

\[a/\] Data taken from Farm Security Administration office in Malta
### TABLE XV a/  
**BREAKDOWN OF "BURDEN" COSTS, MILK RIVER RESETTLEMENT PROJECT**

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>BURDEN COST</th>
<th>% of TOTAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect Labor</td>
<td>$79,747.28</td>
<td>49.2</td>
</tr>
<tr>
<td>Salaries</td>
<td>$45,299.57</td>
<td>27.9</td>
</tr>
<tr>
<td>Material &amp; supplies</td>
<td>$23,697.60</td>
<td>14.7</td>
</tr>
<tr>
<td>Equipment</td>
<td>$9,196.75</td>
<td>5.7</td>
</tr>
<tr>
<td>Contracted Services</td>
<td>$4,139.53</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>$162,080.78</strong></td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Data from Farm Security Administration office, Malta*
like. In such a program the individual is given an opportunity to develop his own unit and when he finishes he will not be burdened by an oppressively large debt. Even if the farmer is not a competent craftsman, in which case little actual savings could be made, this at least would, psychologically, be a better method of subsidy than writing off the charges later, which will have to be done in the Milk River project.

Until 1940 it was expected that the clients would repay all costs. They were given "Lease and Purchase" contracts by which they were to make a given annual payment covering a payment on the capital, interest at three percent, and the current costs: payment in lieu of taxes, water charges, and maintenance costs. These amounts were determined for the forty years over which these payments were to take place. They were found to be too high in most cases. It was not possible to decrease the amount to be paid under the purchase contract. During the last year, therefore, all but nine clients have been transferred to a simple lease contract. Under this contract the client pays the cash value of one-fifth of the sugar beet crop, one-half of the hay crop, one-third of the grain, and one-fourth of the potatoes sold. This share must at least equal a maintenance charge of $60.00, insurance, and payment in lieu of taxes. It is now expected that a Homestead Corporation or Association will be formed which will handle the leases and sales. In this transaction the government will be able to write off some of these high costs which the client is unable to pay.

Until that time the present leases will continue in effect. Any excess of the share rent over the minimum rental (insurance, taxes, etc.) will be
credited to the client until he is able to start buying his unit.

There seems to have been a certain amount of official misrepresentation on the project. A typical example is a farmer who was promised that his unit would be leveled in time for spring planting. The leveling was not done until midsummer. This nonfulfillment of promises has led to some dissatisfaction and distrust.

When the land purchase began, there were 901 families classed as resident operators on the purchased land. 29/ The "families" varied from bachelors to parents with many children. Their equity in the land purchased varied from full ownership to pure tenancy. Their experience varied from having farmed twenty years to having farmed only part of one year. Most of them lived all year round on their farms, but many were suitcase farmers, living in towns within the project area, perhaps operating a business in the town, and spending just enough time on their land to plant and reap a crop of wheat.

Of the 901 "displaced" operators, 406 had moved from the project area by February 15, 1938. Three of these were accepted by the Resettlement Administration in Washington and Idaho. The other 403 made their own adjustments, either returning to their previous occupations if they had had one, or starting to farm again in a more humid region. There is no evidence to indicate whether or not they have made good adjustments.

Another 321 families had moved into other parts of the project area.

29/ Data on displaced families are taken from Reed, David: Displaced Families, MS, Feb., 1938.
by the spring of 1938. One hundred fifty-four moved into towns in the area
to try their hands at occupations other than agriculture. In this group
are those who had previously lived in the towns and only farmed part-time.
Also in this group are those who had been farming only a short time.

Thirty-eight families, most of whom were ineligible for resettlement
for one reason or another, a few who declined a Farm Security Administra-
tion offer of resettlement, had relocated themselves in the Milk River
Valley entirely on their own resources. These families usually have not
been very successful. They did not exercise too good judgment in the selec-
tion of their new land. Often they did not have sufficient assets to ac-
quire a unit, develop it, and operate it on a sound basis. Of necessity
they were forced to attend first to putting their units in operation, only
later to raising their living conditions to a decent level.

Seven families, displaced by purchase, were given limited aid. The
Farm Security Administration helped them in the selection of their units or
gave them loans through the Rural Rehabilitation division, or both.

Thirty-two families, displaced by purchase, were helped by other
forms of aid. Twenty-two families, for instance, received old age pensions;
the other 10 received other forms of relief.

Ninety families who had sold land to the government were, in February
1938, taken care of on the resettlement project. Five were on the little
labor units; 35 were on or had been promised farm units. Only a few of
these had cropped their units in 1937. Most of them expected to get a
crop in 1938.
At this time there were a number of families still living on purchased or optioned land who would be forced to move. There were 44 on dry land who would move on their own resources. More than half (27) were single men who could move easily. Some had turned down offers of Farm Security Administration units. In addition there were nine families who needed help but could not be aided by the Farm Security Administration. Finally, there were 26 families being considered by the Farm Security Administration for farm or labor units.

The last group of families who sold land to the government under the purchase program consist of those who planned to remain on dry land and who sold only part of their land. Fifty-one were operating sheep or cattle ranches in satisfactory condition. Thirty-four families, half of whom (17) were single men, planned to continue wheat farming supplemented by a few livestock. Ten families, two operating ranches and eight operating farms, needed help if they were to continue, as they desired, on dry land. It was felt at that time that some of these families would have to move, that the rest could succeed with help from Rehabilitation loans. These data on displaced families are summarized in Table XVI.

Families who had been displaced by the land purchase were given first preference for resettlement if they fulfilled certain qualifications which were divided into two groups. General qualifications were:

1. Experience in farming.
2. Low income, or degree of need.
3. In some cases, receipt of loans or other aid from federal or state relief agencies.

### TABLE XVI a/

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FAMILIES SELLING LAND TO THE GOVERNMENT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td>901</td>
<td></td>
</tr>
<tr>
<td>1. Families moving on own resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Families who had moved from area by Feb., 1938</td>
<td>406</td>
<td></td>
</tr>
<tr>
<td>Families who had moved to towns in area</td>
<td>154</td>
<td></td>
</tr>
<tr>
<td>Families who had moved to irrigated tracts in Milk River Valley without aid</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Families who would move on own resources</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>2. Families aided by other agencies than F.S.A.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Families receiving old age pensions</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Families receiving other aids</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Families needing other aids</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>3. Families under F.S.A. care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Families under F.S.A. Resettlement</td>
<td>116</td>
<td></td>
</tr>
<tr>
<td>Those on promised farm units</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>Those on promised labor units</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Those under consideration</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Families under F.S.A. Rehabilitation</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Families helped in moving by Rehabilitation</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Those who need rehabilitation in place</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>4. Families who will remain on dry land</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Families operating ranches</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Families operating wheat or combined units</td>
<td>34</td>
<td></td>
</tr>
</tbody>
</table>

a/ From Reed, David: Displaced Families, op. cit.
Specific qualifications required of prospective clients were:

1. Desire of whole family to enter the resettlement project.
2. Sufficient initiative and resourcefulness.
3. Potential ability to enter community life and take advice and instruction.
4. Ability to become stable enough to warrant assuming large loans.
5. A certain stability of residence.
6. Freedom from infectious diseases and physical handicaps which might interfere with ability to carry on farming operations.
7. Family head had to be at least 21. Preference given to those under 55.
8. Families must consist of married parents and one or more dependents. (Some exceptions as to dependents were made.)

In addition there were other factors which were considered as assets but not required of applicants:

1. A rudimentary education at least.
2. Cooperative and harmonious family life.
3. A size and age-sex composition of the family such as to provide family labor for farm operations.
4. Intelligence, alertness, resourcefulness, and judgment.
5. Religiosity.

The method of selection was first to have Family Selection Committees in various parts of the three counties go over lists of applicants. Those families not eliminated by the committees were interviewed by the Family Selection specialists of the Farm Security Administration.

A majority of the clients had had no experience on irrigated farms when they entered the resettlement project. Many had homesteaded between 1910 and 1917 and were still living on their original farms. Thus, they were well acquainted with the climatic conditions of the area; they had persistence at least if they had managed to stay on the dry land that long. Many people acquainted with the project feel that these dry land farmers have done better than farmers experienced in irrigation in other areas would have done.
The Farm Security Administration resettlement units can be classed as general, diversified irrigated farms. Sugar beets, alfalfa, small grains and garden produce make up the bulk of the production. Sugar beets are the major cash crop. In 1939 eighty-one clients harvested 11,890 tons of beets with an average yield per acre of 10.6 tons. Some clients who have been able to secure summer grazing rights on dry land are engaged in livestock production. Others have started fattening lambs. Some have small dairy herds while others devote their energies to the production of truck crops. In general, the clients have not reached a final adjustment, but are still trying to find what enterprise best fits their abilities and resources. During the last year or two there has been a widespread feeling that more livestock would be advantageous. This feeling arises in part from the present high prices of livestock. But undoubtedly part is based on a very real need. The difficulty of obtaining summer rights has been explained above. Not until some arrangement is made whereby the client can obtain summer range will any expansion in year-round livestock production be possible. Fattening has been very profitable under recent conditions and welcomed by the ranchers of the area. There is some doubt, however, whether fattening is satisfactory as a permanent enterprise.

The Farm Security Administration through its resettlement program has contributed to the security of the area by developing irrigated units, and has concentrated settlement resulting in greater ease in supplying public services.

In review it is noted: that the Grazing Districts have established
control over range, but have rigidified the pattern of use; that the County Commissioners are contributing to the maladjustments rather than to the solution of the problems; that the administration of State lands is satisfactory; that the policies of both the Indian Service and the Grazing Service are in a state of flux; that the Bureau of Reclamation will have to reconsider its repayment policy; that the Agricultural Adjustment Administration is helping to counteract the tendency toward exploitation of agricultural resources, but is maintaining the submarginal farmers on the land through subsidy; that the Soil Conservation Service has caused farmers to move off the dry land, and has restored the grass cover of considerable farm land, but could have done much more if it had followed local rather than national objectives; that the Farm Security Administration has made some units more secure and more easily reached by public services.

PART IV: CONCLUSION

Stages Of A Resettlement Project

In the light of the study of the Milk River resettlement project some broad generalizations about agricultural resettlement projects as a whole can now be made. Such a project naturally falls into four stages: (1) conception; (2) proposal and research; (3) development; and (4) financial adjustment.

Conception

The need for a resettlement project is recognized by the local
people because of an existing maladjustment between the population and resources. This maladjustment shows up as a realization of hardship;—hardship not measured in absolute terms but rather compared to that of the areas within the view of the local people. The people who will first realize a need are not necessarily those who are undergoing the hardship and whose view is limited, but will be those who are at least a step removed from this hardship and who have no vested interest in the maladjustment. Thus in Phillips County the need was recognized by H. L. Lantz, the County Agent. The idea will not spread, however, unless it is likely to contribute to the prosperity of those people generally considered the leaders in the community.

Proposal and Research

In a few cases local people may attempt to tackle the problem and carry on the projects themselves. More often, however, outside help is required. Enabling legislation may be all that is needed. Financial help may be necessary. In many cases an outside authority, far enough removed so that it can withstand the barrage of local criticism, may have to be brought in to administer the project. In these cases there is a period of agitation, during which the local leaders set out to convince outsiders of their needs. Usually during this period considerable research of a more or less scientific nature is carried on in order to prove the need for the resettlement, the feasibility, and the benefits to be derived. Unless this is done impartially and scientifically the justification of the project
can be determined only by the amount of political pressure exerted by the local people. Frequently disinterested research is not carried on until after the project is well under way. Such is the situation in the Grand Coulee project where researchers now realize that perhaps the project is not justified but are trying to make the best of a difficult situation.

Development

The third phase of the resettlement project, the development, comes after the project has been accepted and approved by whatever agencies are in a position of such authority. The development itself is divided into two parts: that of the physical development and that of the economic and social adjustments. The physical development may be carried on by the agency in charge or by the individual being resettled or both. Until recently it has been the policy of the Resettlement Division of the Farm Security Administration to complete the physical development before the resettlee moved onto his new unit. This has placed upon the client an excessively heavy burden, psychological as well as financial. In some projects at least the policy is now to subsidize the individual while he develops his own unit and have him repay only the cost of the materials. Insofar as the individuals who are resettled are destitute and unable to take care of themselves, original costs should be kept at a minimum and the resettlee should be given as much opportunity as possible to contribute his own labor to the development of his unit.

After the physical plant is developed the resettlee must then transform it into a working farm and a living community. Only in rare
cases will the resettlee have the capital to start operations without some financial aid. If he is not burdened by too high an original cost there is no reason why he could not in time repay even a large operating loan. In the process of this transformation the resettlee must learn new farming methods, adjust himself to a new routine of work, and fit himself into a new community. At this critical time education and expert assistance in farming methods and community life are indispensable. Such assistance has been given to the clients of the Farm Security Administration in the Milk River Valley.

Financial Adjustment

The fourth period is one of financial adjustment. The longer the period the less the farmer will have to bleed his soil to meet the payments. The repayment is only a temporary phase of the total life of the farm and therefore its effect upon the permanent organization of the units should be kept below the significant level by putting payments on a long-time basis.

The financial repayment possibilities have always been one measure of the justification of resettlement projects. This measurement arises from our concentration upon money economy and the resulting folkway: that any enterprise which is sound will at least pay its own way, if not make a profit. In recent years people have begun to realize that social costs and benefits are not always identical with financial costs and returns. Now it must be realized that the benefits derived from adjusting the settlement pattern are enjoyed not only by the individuals actually undergoing the change, but also by the whole community, and, to a certain
extent, by the entire nation. The fact that there is no ready system of social cost accounting should not prevent charging some of the cost of resettlement against the indirect beneficiaries.

The Mature Landscape

The concept of the "mature landscape" has been used by geographers to describe areas in which the people and the culture are in adjustment with the natural environment; in which the economy is in perfect balance with the natural resources. It infers that there are no major land-use problems. Heretofore it has been used as a static concept. The following paragraphs try to forecast a dynamically mature landscape for the project area. This demands not only that there be an equilibrium between the changing population and resources but also that the culture and land use be adjustable to potential problems. There will be no treatment here of the method or feasibility of bringing about the change from the present to the future landscape, but only in describing the mature landscape. A discussion of the meaning of this description to the present action program follows.

There are certain general requirements which must be fulfilled if a landscape is to achieve dynamic maturity. It must offer security to the individual as well as opportunity and incentive for the ambitious. It must be flexible enough to deal with all potential problems. It must counteract the tendency toward expansion and over-use. It must give the individual the opportunity to maintain the "American standard of living" without subsidy.
A mature landscape in the Great Plains implies certain particular elements. It is the opinion of the author that these are: concentrated as against scattered settlement; community control over land use; diversification of individual units; and financial arrangements in accordance with climatic conditions.

Concentrated Settlement

Concentrated settlement is implied in maturity in the Great Plains. People must live in groups and not scattered out over the range. In irrigated areas this can take the form of small units close together. This grouping will make it possible to have primary groups and the consequent social controls. It will enable good school facilities to be maintained at not too great a cost. It will require both adults and children to learn to get along in a genuine community. It will accelerate the exchange of ideas and result in a greater interest in participant recreation, politics, planning, and public policy. It will encourage the formation of cooperatives and the joint use of expensive machinery. It will increase the possibility of mutual assistance within groups in time of stress.

Concentrated settlement, then, will help to satisfy the requirement of security through the possibility of mutual assistance. It will help to satisfy the flexibility requirement through the increased flow of ideas and greater interest in politics and planning. It will contribute to the resistance to expansion through the growth of social controls. It will help maintain the standard of living insofar as services, both public and private, are maintained at lower cost where population is concentrated.
Community Control

In a mature landscape in the Great Plains each community will accept responsibility for land-use controls that will provide for social as well as individual values and costs. Either public ownership of land, the use of which is controlled by the community, or the formation of some governmental unit such as a soil conservation district which could regulate the land use, would make this community-social control possible. The control is necessary since the individual operator, even if he realizes that his interest is identical with that of the community, cannot afford to base his operations on social values and costs unless everyone else does likewise. The success of these controls, however, lies in education of the individuals and in the full participation of all members in the planning and development of these controls.

One of these controls would be zoning, already employed in cities and some rural areas. Year-round residence, for instance, might be zoned out of the dry-land areas, thus enforcing concentrated settlement and its associated benefits. Wheat farming could be limited by zoning to the better farm land as set up by a detailed soil classification, thus helping to counteract the tendency toward over-expansion and over-use. In order to maintain flexibility some provision should be made for periodic revision of the zoning ordinances in the light of changing conditions and problems.

These controls could also be used for the enforcement of conservation practices such as strip farming, contour plowing and the use of summer fallow.
Diversification

Maturity involves diversification of individual units. Neither straight ranching nor straight dry-land farming yields a steady income or a rounded work pattern for the farmer. Even a combination is not satisfactory, for long periods of drought affect the production of both grass and dry-land crops. Therefore irrigation should, if possible, be the basis of the individual unit. It should be realized that the type of irrigation practiced on many ranches at the present, that of flood irrigation from small upland streams, is also impossible during severe droughts. Although this is the cheapest short-time method of producing hay, in the long run it leaves the unit insecure. An irrigated farm alone is impractical since sugar beets is the only crop which yields enough cash income to pay for the high investment and operating expenses involved in irrigation. Sugar beets yields this high cash income only under the present high subsidy. Without subsidy the comparative advantage of the Milk River Valley lies almost wholly in the production of hay. Therefore the individual unit must contain both ranching and irrigated farming. This combination will guarantee a certain amount of security.

The question arises as to whether the dry land is within reach of the irrigated land. Figure 20 shows the irrigated land of the area, the major wheat regions, and the areas thirty miles or more away from the irrigated land. All the wheat areas are close to the irrigated land except two which are from twenty-five to thirty miles away. These can be easily reached from headquarters on irrigated land. For grazing purposes
Figure 20.—Distribution of the Dry Land in Reference to the Irrigated Land; Blaine, Phillips and Valley Counties
all the land is within reach for there is no limit to the distance sheep and cattle can be sent if they are in large enough herds to support a herder or rider. Under the cooperative institutions which would naturally grow up with concentrated settlement there would be no difficulty in combining herds or flocks into large enough herds for this purpose.

There is some doubt whether or not dry-land wheat farming should be practiced in the area at all. The individuals depending upon wheat for their income have received large amounts of subsidy in the form of seed loans at first and later in the form of wheat allotment payments. If it is to be practiced it certainly must be restricted to only the best grades of land. It has been estimated that in order to raise wheat a gross income of $8.00 to $10.00 per acre must be forthcoming. This would involve, on second grade farm land (see figure 12) yielding an average of about seventeen bushels per acre, a price of between 50 cents and 55 cents per bushel. To farm third grade lands yielding twelve to fifteen bushels per acre a price between 60 cents and 65 cents is necessary. These estimates are based on average yields. But even the best farm land yields no crop during some drought years. Therefore, the individual must not depend upon the income from wheat farming. In the mature landscape the wheat enterprise might well be left as incentive to those individuals who wish to rise above the general plane of living in the area. Even so, production should be limited to those lands which the community feels can be farmed profitably.

Financial Arrangements

A thorough financial reform is not presented here. Only those financial arrangements which involve payments over a period of years are
discussed, for it is only this aspect which is affected uniquely by the Great Plains environment. At present the payments, of taxes or on loans, are set up on a fixed yearly basis. This arrangement is quite satisfactory in humid areas where ability to pay is determined more by the individual's efforts than by the climate. In the Great Plains, however, the climatic variations play such an important part in the prosperity of the individual and even of the community that some financial adjustability must be arranged. Perhaps an index of productivity based on somewhat lower than average yields could be worked out, and yearly payments adjusted by this index. Such a scheme would have to be recognized nationally, however, as many financial obligations cross regional boundaries.

Some such financial adjustability would help to maintain a normal standard of living as well as contribute greatly to the individual's and the community's security.

Agencies and the Mature Landscape

What are the implications of a mature landscape to the people and agencies of the area? What is being done toward the establishment of this mature landscape? What more should be done and by whom? Before any real adjustment can be achieved there must be agreement at least among the leaders of the community as to what form the mature landscape will take and by what methods it is to be reached. The final and refined form cannot be imposed from the outside but must arise from discussion and thought within the area.

The Extension Service and the Planning Groups realize the need for
a different pattern of occupance, but they have as yet made no recommenda-
tions which would change the pattern significantly. They have suggested
only superficial changes in the present pattern. In large part it is the
responsibility of these groups to lay the groundwork, through education,
for the superstructure of action which might lead to a mature landscape.

The work of the Grazing Districts has been described above and was
shown not only to establish the necessary control over range, but to main-
tain ranchers on the uplands, to attach grazing rights to land whose pro-
ductivity is insecure, and to make the pattern inordinately rigid. The
control of range must continue but others besides ranchers must have a
voice in this control. Some provision must be made whereby revision of
grazing allotments can be made from time to time.

The Agricultural Adjustment Administration, although it is succeed-
ing in maintaining the productivity of land in the area, is keeping the
submarginal farmer on the land through its subsidy. Although it is exerting
some control in counteracting the tendency toward expansion in wheat pro-
duction, it does not restrict production to that land which can be most
successfully farmed in the long run. The subsidy of the Agricultural Ad-
justment Administration should be considered as only temporary. It could
be very useful in helping to bring about adjustments rather than in trying
to maintain the status quo.

Most of the work of the Bureau of Reclamation is completed. There
is comparatively little more irrigation development needed. The question
of repayment costs, however, should be reconsidered, taking social values
into account. It is the feeling of the author that some of the cost should
be written off.
The County Commissioners, as has been pointed out above, administer lands for the greatest short-run money income for the county. This tends to increase the maladjustments. The County Commissioners must change their philosophy and devote their influence toward the achievement of the mature landscape.

The Soil Conservation Service through the land purchase program contributed to the adjustment of the area in taking low-grade farm land out of production, in moving low-income families off the dry land, in developing water facilities on the land they had purchased, and, to a certain extent, in simplifying tenure relationships. As was pointed out above, however, they could have contributed much more to the adjustment of the area had they understood precisely what they were to do. This program has been superseded by one of education for conservation through demonstration projects, which has a comparatively minor function in the development of the mature landscape.

The Farm Security Administration through the resettlement program has come closer to contributing to a real adjustment than any of the above agencies. It has not, however, made any tie-up between irrigated farms and the dry land. Their units, dependent upon hay, small grains and truck crops, will yield only a low income unless they either depend upon sugar beets with a subsidy, or can develop some livestock enterprise. If range lands can be procured for the clients they will have units which really fit into the concept of a mature landscape. The Rehabilitation Division of the Farm Security Administration, however, has no plan for a long-run adjustment but is merely helping low-income farmers to develop better units. If it is
to contribute its maximum to the mature landscape it should determine
where settlement should be located and what form units should take, and
should then help to develop such units.

SUMMARY

A review shows that the problems which arise from a maladjustment
between human and natural resources are: insecurity, over-specialization,
exploitation of agricultural resources, and inability of the sparsely
populated upland to support the expected services.

Further, the agencies working in the area are not making any real
attempt to solve these problems but for the most part are acting as
palliatives to maintain the status quo.

In order to reach a dynamically mature landscape everybody in the
area must work toward concentrated settlement, community controls of land
use, diversification of individual units, and financial adaptability to
climatic variations. The attainment of these goals would in turn yield
security for the individual and opportunity for the ambitious, flexibility
in meeting potential problems, resistance to expansion, and an American
standard of living, all of which are fundamental in the concept of a
mature landscape.
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