

Water Resources Survey

STILLWATER COUNTY MONTANA

PART I

History of Land and Water Use on Irrigated Areas



Published by

STATE ENGINEER

AND

STATE WATER CONSERVATION BOARD

HELENA, MONTANA

May, 1946

MONTANA WATER RESOURCES BOARD
GROUNDWATER DIVISION

Water Resources Survey

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STATE ENGINEER'S OFFICE

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MONTANA STATE AGRICULTURAL EXPERIMENT STATION

O. W. Monson Irrigation Engineer, Consultant and Project Leader, Bozeman

May, 1946.

Hom. Sam C. Ford
Capitol Building
Helena, Montana

Dear Governor Ford:

Submitted herewith is a consolidated report on the water resources survey of Stillwater County, Montana. This work is being carried on by funds made available to the State Engineer and the State Water Conservation Board by the 29th Legislative Session, 1945.

The report is divided into two booklets—part one consisting of the history of land and water use, irrigated lands, water rights, etc., while part two contains all of the township maps showing in color the lands irrigated from each canal.

The office files contain minute descriptions and details of each individual water right, water and land use, etc., which are too voluminous to be included herein. These office files are available for inspection to those who are interested.

Mr. Gerald J. Oravetz, Assistant State Engineer, has directed the detail office and field work of this project and is entitled to much credit for the excellent accomplishment.

Respectfully submitted,

FRED E. BUCK, State Engineer.

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Acknowledgments

Appreciation of the splendid cooperation of various agencies and individuals who gave their time and assistance in gathering data for the preparation of this report is hereby acknowledged.

Yellowstone County Agricultural Conservation Association

H. O. Beeman, Chairman L. J. Van Houten, Vice Chairman
John Folkerts, Member

Yellowstone County Officials

Charles Wicks, Commissioner Carl Yerrington, Commissioner
Bill Fenton, Commissioner

Stillwater County Agricultural Conservation Association

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Stella Berst, Clerk

Stillwater County Officials

I. A. Adams, Commissioner Webster Keller, Commissioner
A. E. Christenson, Commissioner O. C. Steinbrink, Assessor
Fred L. Fahrion, Clerk and Recorder

Bureau of Reclamation—Office of Region 6

H. D. Comstock, Director W. G. Sloan, Asst. Director

Ditch Companies and Irrigation District Secretaries, and others cooperating and the names of the Ditch Company or District they represent:

| | |
|--|-----------------------------|
| Big Ditch Company | Lloyd Lipp, Secretary |
| Butcher Creek & Rosebud Ditch Co. | Elmer Johnson, Water User |
| Columbus Water Users' Assn. | Harry Carr, Sec.-Treas. |
| Cove Irrigation Company | Lloyd Lipp, Secretary |
| Flaherty Flat Ditch Company | Chris Thompson, Secretary |
| Gilbert & Tunnel Ditch Company | Joe Toohey, Water User |
| Italian Ditch Company | Jake Frank, Secretary |
| Mendenhall Ditch Company | Albert Johnson, Acting Sec. |
| Merrill Ditch Company | J. Holmgrens, Water User |
| Old Mill Ditch Company | E. L. Fenton, Secretary |
| Phelps Ditch Company | Harry Wright, Water User |
| Reed Point Ditch Company | Peter G. McKeith, Secretary |
| Roadhouse Ditch Company | Edward Nichols, Water User |
| Shane Ditch Company | J. C. Clark, Secretary |
| West Rosebud Ditch Company | Joe Toohey, Water User |
| Yellowstone Ditch Company | Peter Yegen, Jr., President |

Foreword

In nearly all of the seventeen Western Reclamation States a water right is obtained by first making a filing with some legally designated central state agency—usually the State Engineer's Office—setting forth the amount of water desired and the area proposed to be irrigated. A study is then made of the sufficiency of the water supply and, if found adequate, a permit for use of the water is issued and recorded. If studies show that the stream is depleted, the application is denied. The procedure in Montana, however, is vastly different.

In Montana a right to the use of water from a stream not adjudicated by the courts is acquired by posting a notice on the stream and filing same in the office of the county clerk of the county wherein the appropriation is located, and by proceeding to divert and use the water. Where a person diverts and uses water from a stream without posting or filing a notice, a water right based thereon has been recognized as valid by the courts. Whenever it becomes necessary to adjudicate the stream, both methods of acquiring rights have been recognized by the courts, and the amount of water finally decreed and dates of priority in either case are determined by the evidences and proof.

Under Montana law there is no restriction as to the amount of water one may designate in his notice of appropriation. As a consequence, the amount set forth in the filing in no way indicates the amount being diverted and used, nor does it show whether or not the water was ever used at all to perfect the right. Nor is there any relation whatsoever between the amount filed on and the normal flow of the stream. To further complicate this matter, our courts have made it almost impossible to prove abandonment of a water right.

There is no central office in the State where recordings are filed, or any supervision over the distribution of water from unadjudicated streams. One wishing to study the validity of a water right must make a search of the county records wherein the stream is located and perhaps two, three, or more counties if the stream courses through them. About the only result one will accomplish by such a research will be a tabulation of the dates of filing. The amounts of water filed on will be of no consequence; there is no conclusive evidence that the recorded appropriations have been perfected, and there is no record of the rights which are being used but never recorded. Therefore, a purchaser of ranch property, where he has to depend upon irrigation from a stream that is not adjudicated, has no way of determining the validity or priority of his water right. He has no assurance of the value of the right until the stream is adjudicated by the court, when each claimant must prove his claim by material witnesses.

The pioneers who are able to offer direct testimony in adjudication suits are rapidly passing on. One phase of this water resources survey is to obtain all of the first-hand information possible on water and land use from the "old-timers" who are left, before it is too late. These data will include every known water right up to the time of completing the work in the respective counties, and the information will be on file for inspection in the State Engineer's office. A prospective land purchaser, after studying the record, may have a good idea of the sufficiency and priority of the right appurtenant to the land in question.

In this and succeeding volumes of the data compiled by this water resources survey, it is the intention to provide as much information as is possible relative to the water right records of the various counties, as well as to assemble such other information as may be available from all sources having knowledge of these various water rights. Every precaution is being taken to avoid errors in the compilation of these data.

The value of this work has been well substantiated in negotiating the Yellowstone River Compact between the states of Wyoming, North Dakota, and Montana. In arriving at an equitable division of the waters between the states, it was necessary for Montana to have a catalog of its land and water use. This same question may arise in other river basins. Again, it is highly important that Montana gather such data and thereby be able to defend its water rights in the development of the great river basins of the Missouri and Columbia Rivers.

Project History

As the result of a proposal made by the Montana State College and the State Engineer on August 9, 1939, to the Works Project Administration, an authorization for the expenditure of \$176,195 of Federal funds was secured for the purpose of making a comprehensive study of Montana's water resources. The two state agencies, acting as co-sponsors with WPA, pledged additional funds in the amount of \$41,930, making a total of \$218,125.

Work began on the study in February, 1940, after formal approval by the Washington Office of the Works Projects Administration; but before approval could be secured the sponsors were required to submit satisfactory evidence of the usefulness of the study, and proof that it would not duplicate work already being done by other agencies.

Statements were obtained from all the Federal Departments that were likely to be interested in the study, in answer to inquiries as to (1) whether the proposed study would duplicate or overlap studies already in progress and (2) whether the study, when completed, would be useful to these agencies.

Excerpts from the replies received from several agencies are given below.

U. S. Army Engineers—The following is from a letter dated Sept. 11, 1939, signed by Col. C. L. Sturdevant, Corps of Engineers:

"The scope of the proposed project appears to be quite comprehensive, and the results of a study such as you have outlined would be of value to this office. The proposed studies would be of particular value to this office, and also to the Missouri Headwaters and Yellowstone Drainage Basin Committees of the National Resources Planning Board, if they were to include estimates for both existing and potential individual projects of water shortage, available water supply, gross duty and ultimate return flow (for determining consumptive use and stream flow depletion.)"

U. S. Geological Survey—From a letter dated August 16, 1939, signed by A. H. Tuttle, District Engineer:

"Receipt is acknowledged of your letter of August 10, in regard to compilations of factual data concerning water supply and irrigable lands of Montana. I believe the purposes as presented in your letter cover the field very adequately.

"Your attention is called to the first of these purposes which has to deal with summaries of stream flow records for the principal water sheds of Montana. The Geological Survey is compiling summaries for all stations, and this information may be of considerable assistance to you in making up your report."

U. S. Bureau of Reclamation—The following paragraph is from a letter dated November 21, 1939, signed by then acting Commissioner H. W. Bashore:

"It appears to this office that the data you propose to obtain will be of considerable value, particularly in the preliminary planning of our investigations of potential irrigation projects. The value, of course, will be measured by both the authenticity and the completeness of the basic data and the accuracy of the proposed study. It is not believed that this survey will duplicate any activity of this agency."

U. S. Forest Service—From a letter by Evan Kelly, Regional Forester:

"Though unable to make detailed evaluation of the project in our work, we have recognized an increasing need for complete, readily available data on water resources, water use and water needs in our lines of endeavor. Such information, compiled in usable form, is essential for adequate multi-use resource planning and management on national forest lands from which comes a large part of Montana's usable water. In more specific fields, such as flood control studies, the granting of permits for the occupancy of national forest lands involving water use, the redemption of responsibility vested in us in cooperation with the Federal Power Commission, etc., the need for such data is apparent to us. I have only commendation for the project and again express hope that it can be successfully consummated."

Farm Security Administration—From a letter by C. H. Willson, Regional Director:

"The comprehensive study of Montana's water resources to be conducted by the Montana Agricultural Experiment Station, State Water Conservation Board, and WPA, as indicated in your letter, will in no way duplicate work done by Farm Security. I sincerely hope that this project may be expedited to the greatest extent possible, as no doubt Farm Security will be one of the principal agencies making use of the information you contemplate obtaining and cataloging. Lack of such information has been a severe handicap to Farm Security Administration in the rehabilitation and water facilities program in Montana."

U. S. Indian Service—Statement by W. S. Hanna, Supervising Engineer:

"I am of the opinion that studies such as you describe would be useful to this service. As you are aware, there are a number of Indian Irrigation Service Projects in Montana and we have more or less complete data regarding the greatest number of such projects, and a considerable volume of information has already been submitted to the National Resources Committee."

"For the purpose of study it would be advantageous to us to have rather complete information as to the use already being made of the available waters in any particular watershed in which we might contemplate further development."

The statements received from all Federal Agencies showed not only that the work proposed under this project was not a duplication of something already being done, but that the work when completed would be useful in various development programs.

As soon as authorization was received from the Washington Office of WPA, the co-sponsors activated the project as a "Study of water rights and water use in Montana."

The broad scope of this study made it advisable to divide the study into four phases as follows:

1. Summary and tabulation of stream flow data.
2. Ownership and use of water—cataloging of water rights.
3. Mapping of lands now under irrigation, and use of water on these lands.
4. Potential irrigable lands.

The first phase of the study was quickly accomplished by assigning several W. P. A. workers to the District Office of the U. S. Geological Survey at Helena, where all the stream flow measurements were summarized in preparation for publication. Pending its official publication as a water supply paper by the U. S. Government Printing Office, these data were made available in mimeograph form as special reports:

Little Missouri River

Special Report No. 10.

Special Report No. 11, Water Resources of Montana, Missouri River above Fort Benton.

Special Report No. 12, Water Resources of Montana, Missouri River below Fort Benton.

Special Report No. 13, Water Resources of Montana, Clarks Fork, Kootenai and St. Marys Rivers.

The data contained in these reports have since been published by the U. S. Printing Office and are available as Water Supply Paper No. 917, "Summary of Records of Surface Waters of Missouri and St. Mary River Basins in Montana, 1881-1938."

The second phase of the study, which covers the ownership and use of water and recording of water rights, is well under way, but it will require several years to complete the work for all counties in the State. Transcribing existing records of appropriations and decrees was the first step and is now complete in all counties. The cataloging and indexing of water rights is a highly technical procedure requiring constant and professional supervision. It involves a careful examination and verification of each recorded appropriation, and a field check to determine location and extent of use.

As the work is completed in each county, a report will be prepared which will become a permanent record for the benefit of all persons concerned with the use of water. This report is being prepared in two parts—the first of which consists of a history of each ditch, company, association, irrigation district, etc., beginning with the original filing of the water right, the construction of the diversion dam and canal system, the names of persons connected with the organization, and a county summary. Part two consists of a set of township maps, showing the location of all canals and ditches, the boundaries of irrigated land, and the potential irrigable lands. Lands now irrigated under the several canals are shown on the maps in different colors.

Records of appropriations, together with a plat of each farm, are cross-indexed for easy accessibility and kept as a permanent record in the State Engineer's Office.

Method of Survey

Data incorporated in this report were largely obtained by the field survey method. Each water user was contacted and asked specific questions about his respective irrigated and irrigable land. Data for the individual project reports were obtained from project managers or secretaries, water users and old-timers in the area. Data for land ownership and recorded water rights were obtained from county records. To obtain the location of irrigated lands, irrigation ditches, streams, and other data, aerial photographs, ditch company records, plain table maps, county land classification maps and Bureau of Reclamation maps were used in conjunction with a field check. This information was then mapped by farm units, showing the farm boundary, the location of ditches and irrigated land, and sent to each water user for his verification.

Information was also asked as to source of water, present acreage irrigated, potential irrigable acreage under existing works, seeped acreage, condition of irrigating systems, water supply, dates of priority, and the amount of water appropriated or decreed. Upon return of those forms, copies of the original water filings decreed and appropriated rights were attached, thus tying the water rights to the land.

Two sets of township maps were made on 2-inch-to-the-mile scale. The first set shows land ownership, location of irrigated land, irrigation ditches, pumping plants, etc. Each tract or farm has been given a code number which, when referred to the county summary, gives the name of the water user, section, township and range in which the land is located, source of water, acres irrigated from each source, potential irrigable acres, maximum irrigable acres, and seeped acres per farm unit. The second set of maps shows by colors the location of all the land irrigated under the various ditch companies, private users and pumping plants, so that land under each system or water right is distinguished from the other systems. In addition, location of all main canals, pumping plants, main highways, railroads, towns, rivers, and streams are shown.

Each township also has a summary, which shows the name of the water user, code number (code numbers when referred to the ownership maps show the location of the irrigated land and the farm boundary), section, township, range, source of water, whether a user has a private irrigation system or is under a ditch company or irrigation district, number of shares held in ditch company, acres irrigated from each source, present irrigated acres, potential irrigable acres under existing facilities, maximum irrigable acres and seeped acres. The summary given in this report was tabulated from these township summaries to show the totals for the county.

New lands to be developed by State and Federal constructing agencies are not within the scope of this report. No effort has been made to analyze economic feasibilities, or the problems of the irrigated projects, or to make recommendations as to their future development. The facts presented are as found and provide the items and figures from which a detailed analysis can be made.

General Information About Stillwater County

Stillwater, one of Montana's newer counties, is located in south-central Montana. The county was created from the west portion of Yellowstone County, the north portion of Carbon County, and the east portion of Sweet Grass County, on March 24, 1913. The County took its name from the Stillwater River that was named by the Indians long before white men entered the area. As this region was part of the ancestral home of the Crow tribe, many names in the County trace back to Indian origin. Some of the first permanent settlers in the area, who did much toward its present development, were Horace Countryman, C. H. Countryman, and W. H. Norman, who in 1873 opened a trading post near the confluence of the Stillwater and Yellowstone Rivers. Here they carried on trade with the Indians, trappers, frontiersmen and early agriculturists. In 1877 this trading post became known all over the area; was used as a stage station and post office; and was given the name of Stillwater. As Horace Countryman was one of the founders of the trading post, he was named the first postmaster. With the construction of the Northern Pacific Railway track on the opposite side of the Yellowstone River in 1882, Horace Countryman and his partners moved to the present site of Columbus and plotted a new village that also was given the name of Stillwater. Some years later, as mail began to move on the Northern Pacific, this name was changed to Columbus to avoid postal confusion between Stillwater, Minnesota, and Stillwater, Montana, as the abbreviations of Minnesota and Montana were confusing to mail clerks. When Stillwater County was formed, Columbus was named the County Seat and has since remained so. Columbus, as of the 1940 census, had a population of 962 citizens. The town is located immediately north of the Yellowstone River in the Yellowstone River Valley approximately in the center of Stillwater County.

The area now embraced within the boundaries of Stillwater County was traversed successively in the early period of explorations by Lewis and Clark journeying up the Yellowstone River in 1806, by John Colter scouting for furs in 1807, and by Captain Bonneville in 1830. The trails blazed by Jim Bridger, who passed through this region in 1860, and by John Bozeman in 1863, brought many whites into the area.

Climate

Stillwater County has an invigorating climate which is characteristic of the Yellowstone River Basin. A large percentage of the days have sunshine with cool nights. Spring frost may be expected up to May 25 and fall frosts September 5, making a rather short frost-free period. Summer storms occur occasionally of cloudburst intensity, sometimes with hail doing damage to crops. Winds are common in the spring and fall, but attain high velocity only at short intervals. The rainfall of the mountainous areas of the southern part of the county is much more plentiful than that along the Yellowstone River Valley and the dry land area in the northern part of the county. Weather records at representative stations in the county are summarized as follows:

At Columbus, with an elevation of 3,624 feet, the annual precipitation averages about 14 inches.

At Absarokee, with an elevation of 4,000 feet, a broken record from 1905 to 1914 shows an average annual precipitation of 21.13 inches with 13.79 inches falling in the May-September period. Absarokee is located about 14 miles southwest of Columbus near the confluence of the Rosebud and Stillwater Rivers.

At Busted, with an elevation of 4,050 feet, a record from 1908 to 1930 shows an average annual precipitation of 14.86 inches with 9.19 falling in the May-September period. Busted is located in the northern portion of the county.

At Mystic Lake, with an elevation of 6,545 feet, a record from 1924 to 1930 shows an average annual precipitation of 24.63 inches with 11.92 inches falling in the May-September period. Mystic Lake is located in a mountainous country on the upper West Rosebud River.

At Nye, with an elevation of 4,845 feet, a broken record from 1905 to 1925 shows an average annual precipitation of 21.55 inches with 13.10 inches falling in the May-September period. Nye is located on the Stillwater River approximately 20 miles west of Absarokee.

The Stillwater area surrounding Nye to the west and south is comprised of the precipitous Beartooth range which rises in elevation up to 12,000 feet with the Stillwater Plateau rising from 9,500 to 11,000 feet.

Natural Resources

Natural resources in the county have been but partially developed. Mineral, including gold, silver, copper, chromite and coal have been found in the county, and some development work has been done. There are some producing oil wells in the Lake Basin field in the northern part of the county. Some oil development work has been done in the southern part near Limestone. Many public buildings have been constructed from building stone taken from a sandstone quarry a half mile north of Columbus. At Nye may be seen the remains of one of the early copper mine developments of the State. Here in the early days grew up a large town around a producing copper mine and smelter. With the discovery of other richer copper deposits in the State, this location was abandoned and today only a few rotting foundations of the log buildings of the once prosperous town may be seen.

"The most important of these minerals at present is chromite, which occurs in lenticular deposits along the north face of the Beartooth Plateau between the Clarks Fork and Boulder Rivers. The existence of chromite in this area has long been known. It is of low grade, and it was not until the overseas sources formerly utilized were made inaccessible by war that extensive development was undertaken. A war expenditure of \$14,000,000 has been made to develop the chromite deposits, only to have the entire works shut down after shipment of chromite ore from North Africa was resumed."* Two mines, known as the Benbow and Mouat, were completely developed including a concentration mill, hospital, recreation center and housing facilities. A paved road was also constructed from Columbus to the two mines that are located in the southern part of the county on the upper Stillwater River drainage.

In addition to minerals, there is a large timber acreage suitable for lumber, located in the Custer National Forest in the southern part of the county.

*Report from Bureau of Reclamation's Plan for Basin Development

Soils

"Preliminary examination of the soils of the Yellowstone River Basin has resulted in their classification, on the basis of physiographic features, into four groups as follows:

- 1—Soils of the valley bottoms.
- 2—Soils of the valley benches and terraces.
- 3—Soils of the bordering slopes and uplands.
- 4—Miscellaneous soils and land types.

The valley bottom soils, deposited by flowing water, are highly irregular, varying in texture from clay to sandy loam. They are generally fertile and well-drained. Much of the present irrigated land in the Yellowstone River Basin includes this soil group.

"The second soils group occupies the terraces and benches bordering the stream valleys, rising 25 to 200 feet above the valley floors. They are alluvial soils, but more mature and uniform than those of the valley bottoms. They are fertile, medium textured, and commonly friable and free working. Under proper management, with an adequate water supply, they are capable of sustaining production of all of the crops grown in this region.

"The last two soils groups named above are not generally irrigable. Because of rough topography, thin soil, or isolated positions with respect to an adequate water supply, their agricultural usefulness is limited to dry land farming or grazing.

"The soils of the Yellowstone River Basin have developed under semi-arid climatic conditions, which results in the formation of little organic material and the retention of a large proportion of soluble mineral salts. The successful irrigation of such soils, therefore, required adequate drainage, natural or artificial, to assure removal of excess water that might otherwise be evaporated from the soil surface and leave a concentration of salts. Needed fertilization is generally limited to supplemental nitrogen and phosphate, in both of which the soils are deficient. The amounts of each needed depend on the crops grown. Deficiency of phosphorous in Yellowstone Basin soils causes the so-called phosphorous disease in range livestock. It is successfully controlled by feeding bone meal or salt containing phosphates.

"Certain residual soils developed from shale contain sufficient solenium to produce injurious effects in livestock. The affected areas are limited in extent."**

**Report from Bureau of Reclamation's Plan for Basin Development.

Principal Crops

In Stillwater County the principal crops on irrigated lands are alfalfa, sugar beets, beans, and small grains. The acreage of beets and beans is concentrated along the Yellowstone River in the vicinity of Park City and Columbus. Livestock feeding is practiced in these areas where beet tops, beet pulp, and bean straw are used as a feed. In the higher areas near the mountains, alfalfa and mixed native hay are considered the leading crops. Dry land farming is extensive in the northern part of the county, with wheat considered the leading crop. Oats and barley are also raised extensively. Since the earliest settlement, livestock raising has been a major industry in the county, with sheep leading all other livestock. Columbus dur-

ing the 1920's was considered one of the largest wool marketing centers in the world, having shipped approximately a million pounds of wool in a year. Turkeys are also raised in large numbers, with from 6 to 8 carloads being shipped from the county each year. The county is also one of the leading areas in the production of honey.

Water Supply

The principal streams in Stillwater County, from which water for irrigation is diverted, are the Yellowstone River, Stillwater River, Rosebud River, and their tributaries. The Yellowstone, with its source in Yellowstone National Park and northern Wyoming, flows eastward across the county and is joined at Columbus by the Stillwater River which flows from the southwest. The East and West Rosebud Rivers join about 3 miles south of Absarokee to form the Rosebud River that enters the Stillwater about a mile north of Absarokee. These streams originated in the rugged Beartooth Mountains, which appeared to an early-day writer like "majestic regiments of warriors armored, and wearing helmets of snow and breastplates of shimmering green." Many of the mountain peaks in this range attain an elevation of over 12,000 feet. Granite Peak, the highest mountain in Montana, with an elevation of 12,850 feet, is located near the Stillwater-Park County boundary. These mountains are well-timbered and contain many glaciers. The largest, Grasshopper Glacier—so named because of the frozen grasshoppers contained in it, is located on the headwaters of the Stillwater River in Park County. Because of these conditions and the abundance of winter snows, the water supply is considered adequate in this area, although some shortages occur in extremely dry years on Fishtail Creek, a tributary to the West Rosebud River.

The Montana Power Company has a hydro-electric power plant located on the West Rosebud River approximately 20 miles south of the town of Fishtail, which regulates the flow of that River. The water users in this area say that they have only been short of water once since the project has been in operation, and for the losses they sustained they were completely reimbursed. On the whole, they believe that this regulated flow has been a benefit to them, as it has done away with high water that used to flood their low lands and now enables them to use stored water during dry years.

Transportation

The main line of the Northern Pacific Railway traverses the county, following the Yellowstone River. Four passenger trains, consisting of 2 eastbound and 2 westbound, serve daily. U. S. Highway No. 10 follows the same route. A branch line of the Northern Pacific Railway in the northern portion of the county serves Molt, Wheat Basin, and Rapelje. The county is also served by the Greyhound Bus Line and the cross-state busses of the Northern Pacific Railway. A daily bus service is operated between Columbus and Absarokee. Airline service may be had at Billings, 42 miles to the east, which is served by the Western Airlines, Inc., and the Northwest Airlines, Inc.

STILLWATER COUNTY

Irrigation Summary of Stillwater County by River Basins

Musselshell Basin

| Name of Ditch | Source | Present Irrigated Acres | Potential Irrigable Acres | Maximum Acres | Seeped Acres |
|---------------|---------------------|----------------------------|------------------------------|------------------|-----------------|
| Private..... | Big Coulee Cr. | 0.00 | 26.00 | 26.00 | 0.00 |
| Private..... | Cottonwood Cr. | 0.00 | 110.00 | 110.00 | 0.00 |
| Private..... | Long Gulch Cr. | 0.00 | 40.00 | 40.00 | 0.00 |
| Totals | | 0.00 | 176.00 | 176.00 | 0.00 |

Rosebud Basin

| | | | | | |
|--------------------|--|----------|---------|----------|--------|
| Ross-Flanagan..... | West Rosebud Cr. | 516.00 | 20.00 | 536.00 | 0.00 |
| Private..... | Antelope Cr. | 30.00 | 20.00 | 50.00 | 0.00 |
| Private..... | Butcher Cr. | 197.00 | 5.00 | 202.00 | 0.00 |
| Private..... | E. Fk. Fishtail Cr. | 110.00 | 80.00 | 190.00 | 0.00 |
| Private..... | E. Rosebud R. | 1549.00 | 706.00 | 2255.00 | 6.00 |
| Private..... | E. Rosebud, Butcher, Chimney Cr. | 130.00 | 10.00 | 140.00 | 0.00 |
| Private..... | E. Rosebud via Antelope Cr. | 222.00 | 120.00 | 342.00 | 0.00 |
| Private..... | Fiddler Cr. | 583.00 | 300.00 | 883.00 | 50.00 |
| Private..... | Fishtail Cr. | 2412.50 | 550.00 | 2962.50 | 68.00 |
| Private..... | Fishtail & Box Canyon Cr. | 28.00 | 0.00 | 28.00 | 0.00 |
| Private..... | Meadow Cr. | 150.50 | 50.00 | 200.50 | 5.00 |
| Private..... | Rosebud River | 699.80 | 135.00 | 834.80 | 0.00 |
| Private..... | Sheep Cr. | 24.00 | 30.00 | 54.00 | 0.00 |
| Private..... | Springs | 0.00 | 120.00 | 120.00 | 0.00 |
| Private..... | W. Fk. Fishtail Cr. | 127.00 | 25.00 | 152.00 | 0.00 |
| Private..... | W. Fk. Fishtail & Twin Butte Cr. | 120.00 | 267.00 | 387.00 | 0.00 |
| Private..... | West Rosebud River | 4241.70 | 1311.00 | 5552.70 | 57.00 |
| Private..... | W. Rosebud & Twin Butte Cr. | 100.00 | 100.00 | 200.00 | 0.00 |
| Totals | | 11240.50 | 3849.00 | 15089.50 | 186.00 |

Stillwater Basin

| Name of Ditch | Source | Present Irrigated Acres | Potential Irrigable Acres | Maximum Acres | Seeped Acres |
|-----------------------------|--------------------------------------|----------------------------|------------------------------|------------------|-----------------|
| Garrigus | Stillwater R. | 1134.00 | 98.00 | 1232.00 | 0.00 |
| Larson & Johnson | Stillwater R. | 306.00 | 50.00 | 356.00 | 0.00 |
| Mendenhall | Stillwater R. | 1015.70 | 40.00 | 1055.70 | 0.00 |
| Phelps | Stillwater R. | 684.00 | 20.00 | 704.00 | 0.00 |
| Riddle | Stillwater R. | 587.00 | 5.00 | 592.00 | 0.00 |
| Scott or Lower Whitebird | Stillwater R. | 503.00 | 116.00 | 619.00 | 9.00 |
| Shane | Stillwater R. | 1593.00 | 186.00 | 1779.00 | 94.00 |
| Stillwater Ditch | Stillwater R. | 458.00 | 250.00 | 708.00 | 0.00 |
| Tintinger | Stillwater R. | 217.00 | 5.00 | 222.00 | 0.00 |
| Private | Bad Canyon Cr. | 53.00 | 20.00 | 73.00 | 0.00 |
| Private | Buck Creek | 5.00 | 50.00 | 55.00 | 0.00 |
| Private | Canyon Creek | 25.00 | 0.00 | 25.00 | 0.00 |
| Private | Castle Cr. | 200.00 | 23.00 | 223.00 | 0.00 |
| Private | Castle & Picket Pin Cr. | 105.00 | 0.00 | 105.00 | 0.00 |
| Private | Castle & W. Fork Stillwater R. | 72.00 | 158.00 | 230.00 | 0.00 |
| Private | Gordon Cr. | 90.00 | 0.00 | 90.00 | 0.00 |
| Private | Gordon, Rocky Cr. & Stillwater R. | 200.00 | 60.00 | 260.00 | 40.00 |
| Private | Grove Cr. | 313.00 | 160.00 | 473.00 | 0.00 |
| Private | Hughes Cr. | 10.00 | 200.00 | 210.00 | 0.00 |
| Private | Limestone Cr. | 100.00 | 0.00 | 100.00 | 0.00 |
| Private | Little Rocky Cr. | 227.00 | 105.00 | 332.00 | 20.00 |
| Private | Lodgepole Cr. | 75.00 | 55.00 | 130.00 | 0.00 |
| Private | Lodgepole Cr. & Limestone Spring | 0.00 | 22.00 | 22.00 | 0.00 |
| Private | Meyers Cr. | 32.00 | 0.00 | 32.00 | 0.00 |
| Private | Midnight Canyon Cr. | 25.00 | 0.00 | 25.00 | 0.00 |
| Private | Patton Cr. | 40.00 | 60.00 | 100.00 | 0.00 |
| Private | Picket Pin Cr. | 119.00 | 6.00 | 125.00 | 0.00 |
| Private | Pole Cr. | 0.00 | 35.00 | 35.00 | 0.00 |
| Private | Prairie Cr. | 0.00 | 7.00 | 7.00 | 0.00 |
| Private | Prairie Dog Cr. | 0.00 | 20.00 | 20.00 | 0.00 |
| Private | Rock Cr. | 334.00 | 185.00 | 519.00 | 10.00 |
| Private | Shane Cr. | 8.00 | 0.00 | 8.00 | 0.00 |
| Private | Spring | 20.00 | 0.00 | 20.00 | 0.00 |
| Private | Spring Cr. | 225.00 | 120.00 | 345.00 | 5.00 |
| Private | Stillwater River | 2645.50 | 857.00 | 3502.50 | 22.00 |
| Private | Stillwater R. & Bad Canyon Cr. | 15.00 | 20.00 | 35.00 | 0.00 |
| Private | W. Fk. Stillwater R. | 225.00 | 470.00 | 695.00 | 9.00 |
| Private | Whitebird Cr. | 0.00 | 55.50 | 55.50 | 0.00 |
| Totals | | 11661.20 | 3458.50 | 15119.70 | 209.00 |

(m)

Yellowstone Basin

| Name of Ditch | Source | Present Irrigated Acres | | Potential Irrigable Acres | | Maximum Acres | | Seeped Acres | |
|--------------------|---------------------------|-------------------------|----------|---------------------------|---------|---------------|----------|--------------|---------|
| | | Sub. Totals | Totals | Sub. Totals | Totals | Sub. Totals | Totals | Sub. Totals | Totals |
| Big..... | Yellowstone R. | | 2846.45 | | 153.50 | | 2999.95 | | 113.00 |
| Columbus..... | Yellowstone R. | 1138.00} | | 351.00} | | 1489.00} | | 100.00} | |
| Merrill..... | Yellowstone R. | 1170.00} | 2308.00 | 225.00} | 576.00 | 1395.00} | 2884.00 | 55.00} | 155.00 |
| Cove..... | Yellowstone R. | 510.60} | | 34.00} | | 544.60} | | 0.00} | |
| Yellowstone..... | Yellowstone R. | 2295.00} | 2805.60 | 268.00} | 302.00 | 2563.00} | 3107.60 | 8.00} | 8.00 |
| Flaherty Flat..... | Yellowstone R. | | 386.00 | | 178.00 | | 564.00 | | 174.00 |
| Italian..... | Yellowstone R. | | 1764.50 | | 749.00 | | 2513.50 | | 702.00 |
| Old Mill..... | Yellowstone R. | | 982.00 | | 233.00 | | 1215.00 | | 135.00 |
| Reed Point..... | Yellowstone R. | | 415.00 | | 137.00 | | 552.00 | | 3.00 |
| Private..... | Cedar Cr. | | 45.00 | | 15.00 | | 60.00 | | 2.00 |
| Private..... | Cottonwood Cr. | | 0.00 | | 3.00 | | 3.00 | | 0.00 |
| Private..... | Greenwood Cr. | | 0.00 | | 160.00 | | 160.00 | | 0.00 |
| Private..... | Keyser Cr. | | 45.00 | | 110.00 | | 155.00 | | 0.00 |
| Private..... | Struck Cr. | | 0.00 | | 40.00 | | 40.00 | | 0.00 |
| Private..... | Tolle Cr. | | 10.00 | | 25.00 | | 35.00 | | 0.00 |
| Private..... | Valley Cr. | | 80.00 | | 50.00 | | 130.00 | | 0.00 |
| Private..... | W. White Beaver Cr. | | 0.00 | | 155.00 | | 155.00 | | 0.00 |
| Private..... | White Beaver Cr. | | 100.00 | | 215.00 | | 315.00 | | 0.00 |
| Private..... | White Beaver & Spring Cr. | | 0.00 | | 100.00 | | 100.00 | | 0.00 |
| Private..... | Yellowstone R. | | 32.00 | | 617.00 | | 649.00 | | 0.00 |
| Totals | | | 11819.55 | | 3818.50 | | 15638.05 | | 1292.00 |

Summary:

| | | | | |
|-------------------------------|----------|----------|----------|----------|
| Musselshell River Basin | 0.00 | 176.00 | 176.00 | 0.00 |
| Rosebud River Basin | 11240.50 | 3849.00 | 15089.50 | 186.00 |
| Stillwater River Basin | 11661.20 | 3458.50 | 15119.70 | 209.00 |
| Yellowstone River Basin | 11819.55 | 3818.50 | 15638.05 | 1292.00 |
| Totals | | 34721.25 | 11302.00 | 46023.25 |
| | | | | 1687.00 |

BIG DITCH COMPANY

The Big Ditch Company diverts water by gravity from the Yellowstone River in the northwest quarter of the southeast quarter of section 12, township 3 south, range 21 east, on the north bank. As the headgate is located on a secondary channel of the river a wing dam has been constructed to insure ample water during dry years.

The Big Ditch Company's canal, which was called from the first "The Big Ditch," was started in 1882 and completed in 1883. The first water was turned into the canal on July 30, 1883 and did not reach the end of the canal until September 14, 1883. There was no water filing made on "The Big Ditch." This canal was constructed by the Minnesota and Montana Land and Improvement Company, with H. W. Rowley as engineer and I. D. O'Donnell in charge of construction. It was to have a capacity of 20,000 miner's inches or 500 second feet. The company sold water at the rate of 75c per inch up to August 15th and \$1.00 per inch for the entire season.

The original construction required a great many structures, all built of wood, including the headgate and nine flumes, one of which was north of Laurel and contained over 100,000 feet of lumber. These wooden flumes soon rotted out and were rebuilt in 1888 and 1889. The second flumes lasted about ten years and in the rebuilding seven were replaced by the construction of large dirt fills. Drops were built at four different points, the heights of same being 20 feet, 30 feet, 15 feet and 10 feet respectively. The idea was to develop power at each of these drops for summer use, but this idea has never been put into effect.

The farmers under this canal took over the system on May 15, 1900. They organized a new company called "The Big Ditch Company," with a capital stock of 6,500 shares of a par value of \$10.00 each or \$64,000.00; the plan being that each quarter section of land would have 32 shares or one share to each five acres of land. This represented 32,000 acres of land at a cost to the farmer of \$2.00 per acre. The corporation formed in 1900 was to exist for a term of 40 years, and at the annual and special stockholders meeting held on February 14, 1939, the corporate existence was extended for another 40 years from May 15, 1940.

The first headgate into the Yellowstone River was built in 1882 at a cost of about \$2,000. It was rebuilt in 1887 and again 1898 and in October 1937 this headgate was removed and a new modern concrete and steel headgate was installed at a cost of \$19,500. This headgate was designed to carry 24,000 miner's inches or 600 second feet of water. The canal is about 40 miles long, has approximately 350 lateral headgates or turn-out boxes and over 400 stockholders.

The entire system is gravity which helps to make it comparatively inexpensive to operate. Assessments are 50c per share and on the original plan of 32 shares for a quarter section of land each assessment is \$16 and the average number of assessments per year has been about five; so on that basis it costs a farmer \$80.000 to irrigate his quarter section of land or 50c per acre. This charge includes the operation and maintenance of the canal, repairs, interest and the repayment of borrowed money.

As large improvements have been necessary they have been built with reinforced concrete on a permanent grade. It is estimated that since the canal was started a total of \$200,000.00 has been spent on these permanent improvements and all paid for out of the yearly assessment. As of May 25, 1945, the company had no indebtedness.

"The Big Ditch Company" also supplies water to the High Line Ditch Company that was organized in 1895 and The Snow Ditch Company that was organized in 1907. In 1942 we found 4,722.90 acres being irrigated under the High Line Ditch with a potential acreage under existing works of 379.44 acres or a maximum acreage of 5,102.34 acres. For the same year under the Snow Ditch there were 2,879.90 acres being irrigated with 26.90 potential acres or a maximum acreage of 2,906.80 acres, making 7,602.80 acres irrigated under the two systems with a maximum acreage under existing works of 8,009.14 acres. Under the Big Ditch we found 17,486.22 acres being irrigated in Yellowstone County and 2,846.45 acres in Stillwater making a total acreage in the two counties of 20,332.67. Adding the Snow and High Ditches we have 27,935.47 acres under the Big Ditch system. Below is a tabulation showing the present acres, potential irrigable acres under existing works and the maximum and seeped acreage under the Big Ditch System and the lateral ditch companies served by the Big Ditch.

| | Present | Potential | Maximum | Seeped |
|--------------------------|------------------|------------------|------------------|-----------------|
| BIG DITCH | | | | |
| Stillwater County | 2,846.45 | 153.50 | 2999.95 | 113.00 |
| Yellowstone County | 17,486.22 | 817.46 | 18303.68 | 652.70 |
| HIGH DITCH | | | | |
| Yellowstone County | 4,722.90 | 379.44 | 5102.34 | 333.00 |
| SNOW DITCH | | | | |
| Yellowstone County | 2,879.90 | 26.90 | 2906.80 | 0.00 |
| Totals | 27,935.47 | 1,376.80 | 29,312.77 | 1,098.70 |

For the most part the soils under the three projects are the same. The soils run from a silt loam to a heavy clay loam with occasional areas of lighter soils of the sandy type and some which might be classed as gumbo. Seepage has occurred on all three projects. The least under the High and the greatest under the Snow Ditch which has not only the problem of it's own sub-surface water, but also that of the High and Big Ditches above it. Many private drains have been constructed which have reclaimed most of the area affected by seepage.

Agriculture is highly developed and as these are among the oldest irrigation projects in Montana, farming is well established. Sugar beets and beans are the leading cash crops. Considerable feeding of beef and sheep is carried on to utilize farm grown feed crops, beet tops and beet by-products which are readily obtainable from the sugar beet factory in Billings.

The project is served by the Northern Pacific Railroad and U. S. Highway 10 which traverse the entire project. Along the railroad there are frequent sidings and beet dumps. U. S. Highway No. 10 is connected by a good system of gravel roads which bring the shipping points of Laurel and Billings close to all farms. A branch line of the Great Northern Railroad enters the center of the project from the north.

BUTCHER CREEK AND ROSEBUD DITCH COMPANY

The Butcher Creek and Rosebud Ditch Company diverts water by gravity from the East Rosebud River in the southwest quarter of the northeast quarter of section 2, township 5 south, range 18 east. In the southeast quarter of section 35, township 4 south, range 18 east, the ditch divides. One fork running about 2¼ miles north and the other running about 1¼

miles east terminating at Butcher Creek. Three farms are served by this system. On June 16, 1905, the company was incorporated for \$20,000, which was divided into 800 shares having a par value of \$25.00 each. Although the company is incorporated it is operated as a private ditch with each user sharing equally the cost of operation and maintenance. The company does not have a secretary. The first appropriators were Martin Arthun, Magnus Johnson, L. C. Piper and Jacob T. Lande. The old L. C. Piper ranch and the Jacob T. Lande ranch is now owned by Osmond Herem. The Martin Arthun ranch is now owned by C. D. Scovill and the Magnus Johnson ranch is now owned by his son, Elmer Johnson.

On June 1, 1893, the Butcher Creek and Rosebud Ditch Company appropriated 1,000 miner's inches of water to be diverted from the East Rosebud River at a point in the southwest quarter of the northeast quarter in section 2, township 5 south, range 18 east, on the east bank of the stream. The notice of appropriation was filed Nov. 25, 1914. The purpose was for irrigation and other uses on parts of sections 24, 25, 35 and 36 in township 4 south, range 18 east and section 1, township 5 south, range 18 east. The system was described as a ditch 36 inches by 72 inches in size which carries and conducts 1,000 miner's inches of water from said river. The notice of appropriation is on file in the Stillwater county Courthouse in book 1, page 382 of miscellaneous records.

COLUMBUS IRRIGATION PROJECT

The Columbus Land and Water Company was formed on Nov. 9, 1906, by W. W. Clarke, M. A. Arnold and W. T. Clarke. The Company was incorporated for a period of 20 years and issued 500 shares of stock of a par value of \$100 per share, or a total of \$50,000.00. The Company was authorized to sell electricity for lighting purposes; to acquire, own, lease and sell real estate, and to acquire, operate and maintain telephone lines and manufacture and supply gas for heating.

On May 14, 1907, the Company was re-incorporated as "The Stillwater Irrigation Company." Stock in the amount of 2,000 shares was issued, having a par value of \$30 per share, or a total of \$60,000.

Old-timers in the vicinity estimate that about 600 acres of land are irrigated by the system. Water for the project was diverted from the Stillwater River and conveyed through the Shane Ditch to a point about 1,000 feet east from the northwest corner of section 22, opposite the town of Columbus. From there it was carried across the Yellowstone River through a wood stave syphon 4 feet in diameter to the north side of the River. During the flood of June, 1918, the syphon was washed out and never reconstructed.

In 1919 the "Columbus Irrigation District was created under Montana State Law. A canal was then constructed to divert water from the north bank of the Yellowstone River to irrigate a maximum of 1,300 acres in the vicinity of Columbus. A few years after the canal had been in use, seepage developed which endangered the roadbed of the Northern Pacific Railway. As a result, the Railway Company obtained an injunction against the District and use of the canal was discontinued.

The District had issued \$101,000 in bonds, which were thereafter defaulted in both principal and interest, and all lands became tax delinquent, which resulted in the County taking

tax title to the property. A case was filed in the District Court and appealed to the State Supreme Court, which held that the land taken by the County would be free from all obligations held against it by the District. After the District became defunct some work was done by private individuals in extending the Merrill Ditch to cover the lands previously irrigated by the District, but as there was no co-ordinated effort the undertaking was not a success.

On Jan. 26, 1938, an agreement was made between the Merrill Ditch Company and the State Water Conservation Board to enlarge and extend the said ditch to cover lands in the vicinity of Columbus, originally irrigated by the Columbus Canal. (See State Water Conservation Board for additional data.)

COVE IRRIGATION COMPANY

The Cove Irrigation Company was organized Jan. 14, 1941, to succeed the Cove Irrigation District which was organized in 1922 to succeed the Cove Ditch Company which was organized May 8, 1909.

Water is taken by gravity from the Yellowstone River in the southwest quarter of the northeast quarter of section 5, township 3 south, range 21 east, on the north bank of the river in Stillwater County. From this point the canal extends eastward into Yellowstone County to a point approximately 2½ miles west of Billings. The total length of the main canal is nearly fifty miles, with a carrying capacity of 300 cubic feet per second at the headgate. The present headgate was built in 1923 and is rather unusual in construction as it extends, tubular in design, some fifty feet from the intake down the main ditch, allowing Hensley Creek, a tributary to the Yellowstone River, to pass over this portion of the structure which eliminates the danger from washouts from high water in the creek and debris from accumulating in the ditch. The headgate is so constructed that water can be diverted from the Yellowstone River in dry years or when the river is at a low stage. Other works along the main ditch are about 2 miles of concrete lining along the rimrocks west of Park City, a concrete flume over Allen Creek and a steel flume across Canyon Creek, which, along with the main canal represents about \$100,000.00 in construction cost.

The first twelve miles of the ditch carry water for the company plus an additional thirty-one hundred miner's inches that must be delivered free to the farmers of the Yellowstone Ditch Company who formerly owned and operated this part of the Cove Irrigation Company Canal. The Yellowstone Ditch Company did not relinquish its water right and still operates as a separate company. The obligation to deliver free this 3100 miner's inches of water plus the length of the canal makes the cost per acre of water rather high. The assessments under the Cove Irrigation Company average \$4.00 an acre and have been so since 1934. There are 3,888 outstanding shares on a basis of one share for one acre. The par value of these shares is \$20.00. The company was incorporated for 7,500 shares with a capital stock of \$150,000.00. The company was incorporated for this amount to take care of additional land above the ditch which sometime in the future may be utilized by pumping. This land is located between the main canal and the rimrocks and does not include land lying on the rimrocks. It was estimated that there are about 2400 acres of this land that could be irrigated by pumping. This project is said to be feasible and with electric power now available the necessary construction to place this acreage under irrigation could be accomplished whenever the Cove Irri-

gation Company may desire to do so. For assessments from one to fifteen inclusive, assessment one was made Sept. 1, 1941, and assessment fifteen was made Jan. 15, 1945. These assessments were assessed \$1.00 per share. Of this amount fifty per cent was for operation and maintenance, 42.5% for bonded interest, 7.5% for reserve fund. Assessment number 16 made April 1, 1945, is divided 42.5% for operation and maintenance, 50% for bond and interest and 7.5% for reserve fund. The increase in the amount for bond and interest charges was made in order to build up this fund. The company is now a year ahead on payments and wants to remain so. The Cove Irrigation Company as of April 1, 1941, had an indebtedness of \$142,000.00 and as of May 18, 1945, \$7,500.00 of this amount had been paid. For the first three years the company paid the interest only which is 4% semi-annually due April 1st and October 1st. From 1946 payments are to be made at a rate of \$3,000.00 a year for four years; \$3,500.00 a year for three years; \$4,000.00 a year for four years; \$4,500.00 a year for two years; \$5,000.00 a year for three years; \$5,500.00 a year for two years; \$6,000.00 a year for three years; \$6,500.00 a year for two years; \$7,000.00 for one year and in 1971, \$7,500.00. If the foregoing payments are made as scheduled all indebtedness will be paid up at that time.

Water under the Cove Irrigation System can only be used on lands described on the stock certificate thus making it appertinent to the land.

There are approximately 1,550 acres which have a high water table. Seepage is a problem of real importance and will not be solved until a co-ordinated drainage system covering the entire area is constructed. The water logged area is steadily increasing and a large portion of the project area is threatened. Local efforts to install drainage has met with some success but a co-ordinated plan has not been developed. Lining the main canal where it passes over gravel, shale and other formations causing ditch leakage would also help alleviate the seepage problem.

The topography is favorable for irrigation. The elevation of the project varies from 3,400 feet at the west end to 3,100 feet at the lower or east end. The annual precipitation averages from 13 to 14 inches. The frost-free period averages about 131 days with the last killing frost occurring about the middle of May. The soils vary from a river silt to a clay loam with some heavy soil with strong alkali content. The project is a long narrow strip of land having the Big and High ditches for its southern boundary and the Cove Ditch for its northern boundary. It varies in width from a quarter of a mile to two miles at its widest point which is where Canyon Creek crosses the project.

Sugar beets and beans are the leading cash crops on the project while alfalfa and small grains are grown for feed crops as there are considerable livestock on the project. These feed crops are used with by-products from the sugar beet factory for fattening sheep and cattle during the winter months for market. Cattle from near-by ranges are also taken to the project for winter feeding. The project is served by the Northern Pacific Railway, which follows the entire length of the project and brings shipping points close to all farms as there are frequent sidings and beet dumps. The Great Northern Railway cuts across the lower end of the project. U. S. Highway No. 10, and several good gravel roads bring the shipping points of Laurel and Billings within easy reach of all farms on the project.

In 1944 there were 510.60 acres being irrigated under the Cove Ditch in Stillwater County with a potential acreage under existing works of 34 acres or a maximum irrigable acreage

of 544.60 acres with 8 acres of seeped land. Under the Yellowstone Ditch Company commonly known as the Upper Cove there were 2,295.00 acres being irrigated with a potential acreage under existing works of 268.00 acres or a maximum irrigable acreage of 2,563.00 acres making a total of 2,805.60 acres being irrigated under the Cove system in Stillwater County with a potential acreage under existing works of 302.00 acres or a maximum irrigable acreage of 3,107.60 acres. In Yellowstone county there were 3,965.37 acres being irrigated under the Cove ditch in 1942 with a potential acreage under existing works of 1,079.09 acres or a maximum irrigable acreage of 5,044.46 acres with 385.10 acres being seeped, making a total figure under the Cove System of 6,770.97 acres being irrigated, with a potential acreage of 1,381.09 acres or a maximum acreage of 8,152.06 acres.

COVE DITCH COMPANY

On May 8, 1909, the Cove Ditch Company filed on 500 cubic feet per second of water to be taken by gravity from the Yellowstone River, the water to be diverted at a point where the notice was posted which was a point 150 yards west from the residence of J. L. Montgomery in section 5, township 3 south, range 21 east. The purpose was for irrigating 10,000 acres of land in the Yellowstone Valley in Yellowstone County and other useful and beneficial purposes. Water was to be carried by a ditch running in a northeast direction above land of stockholders and other lands to be irrigated by or through said ditch terminating in the south half of section 30, township 1 north, range 25 east. The appropriation was filed for record in Yellowstone County on May 12, 1909 in Book F, Page 330, Miscellaneous records. No description of place of intended use was given.

YELLOWSTONE DITCH COMPANY

On July 17, 1893, Charles Temple, Charles R. Watkins, Andrew E. Parker, George R. Cummins, John W. Cummins, Stephen E. Wimsett, Sarah E. Wimsett, William W. Palmer, John Walsh and George C. Tilden, associated themselves together for the purpose of forming the Yellowstone Ditch Company. The purpose of the company was to supply farmers, farming communities and especially the stockholders, waters from the Yellowstone River for irrigation and other purposes, to purchase right of ways and construct necessary canals and appropriate 5,000 inches of water to be used by said company. The company was incorporated for forty years with 500 shares of stock having a par value of \$50.00 each making a capital stock of \$25,000.00. On July 18, 1933, the corporate existence of said company was extended for forty years.

Charles Temple et al, on Nov. 23, 1891, appropriated 3,000 miner's inches of water from the Yellowstone River to be diverted from a point on its north bank about 230 feet from the center of the main track of the Northern Pacific Railway Company's track and about 300 feet southwesterly from the residence of E. S. Tutt, situated on lot 5, section 5, township 3 south, range 21 east and running thence in a generally easterly direction to and upon described lands. The filing was made Nov. 24, 1891. The purpose was for irrigation, domestic and other beneficial purposes. The system was described as a dam and ditch, the ditch being 108 inches wide on the bottom and 156 inches across the top by 24 inches deep. The place of intended use was described as north half of the northwest quarter, northeast quarter, lots 4

and 5 in section 10 and the west half of the northwest quarter, the northwest quarter of the southwest quarter, the northeast quarter, the north half of the southeast quarter, the northeast quarter of the southwest quarter, the east half of the northwest quarter in section 11 and the northwest quarter of the northeast quarter, the northeast quarter of the northeast quarter, the east half of the northwest quarter, the southwest quarter of the northwest quarter in section 12. All lands described were in township 3 south, range 21 east. The appropriation is filed in Stillwater County Courthouse in Columbus, Montana, in Book 2, Page 18 of Miscellaneous records.

OLD TUTT DITCH
(Predecessor of the Yellowstone Ditch Company)

Edward S. Tutt on May 12, 1890, appropriated and filed on 1500 miner's inches of water to be taken by gravity from the Yellowstone River. The point of diversion being in the northeast quarter of the northeast quarter of section 5, township 3 south, range 21 east. The purpose was for irrigation, watering stock and other purposes. The ditch was to be 24 inches by 60 inches. The appropriation is filed in Stillwater County, Book 2, Page 238 of Miscellaneous Records.

COURT DECREE CASE NO. 1920
Cove Ditch Company
vs.
Yellowstone Ditch Company
Decree Dated Jan. 9, 1930

In accordance with the terms of this agreement Cove Ditch Company took possession of the ditch, enlarged it, reconstructed the headgate and extended it about twenty miles. After the execution of the aforesaid contract, the Cove Ditch Company complied in every way with the requirements thereof and used all reasonable effort to repair all breaks and damages to the canal and to keep the requisite amount of water flowing in it during the irrigating season of each year.

After the Cove Ditch Company took over the control and possession of the canal; particularly in 1918, a bar formed in the Yellowstone River by the gradual deposit of said gravel and silt at a point opposite the intake of the canal and the main current of the river receded to the south and the main current deepened its bed to such an extent that the water could only be diverted into the ditch in the spring and early summer during the high water period; that because of these facts it became necessary to change the point of diversion to a point on the main channel of the river one-quarter mile west and upstream, and to build 4,300 feet of new canal and this being done in the years of 1923-1924 at a cost of \$45,565.96 and by reason of said construction the canal now carries at all periods of the irrigating season ample water for the irrigation of all lands under the entire system.

It is alleged the defendants are entitled to take water from the aforesaid ditch during the irrigating season only when it would be possible to get water into the canal by means of a headgate as originally constructed and maintained by the plaintiff and its predecessor, but that defendants claim the right to use water from the ditch as reconstructed at all times of the irrigating season.

It is provided that the Cove Ditch Company should not be required to furnish the Yellowstone Ditch Company its full amount of water when on account of extreme low water it is impossible to carry the requisite amount of water therefore in said canal or when on account of unavoidable accident it is impossible to operate said ditch for the time being.

It is provided that none of the ditch below the terminal of the Yellowstone Ditch Company shall in any event revert to the first party. The plaintiff seems to restrain the defendants from diverting water from the canal as improved and extended by them except during high water period of each year, which it alleges terminates on or about the July fifteenth of each year.

The plaintiff contends that the parties at the time of entering into the contract knew of and contracted with reference to the vagaries of the Yellowstone River, that the contract was confined to the particular canal—that the change in course of the river and the building by it of a gravel bar in front of the intake was of such a nature as to render the repair of the ditch originally constructed physically impossible, to carry sufficient water for any purpose except during high water.

Plaintiff offers to permit defendants to divert the full amount of their water upon defendants contributing their proportionate share to the cost of the new intake and extension.

Decree:

As the court interprets the complaint, the question in dispute and sought to be determined is the period of time during each irrigating season that the defendants are entitled to divert water from the ditch and not the quantity of water they may divert.

The court concludes that the rights reserved by the defendant in the contract and grant is an easement in the canal in question in which the canal is the servient estate and the lands to be irrigated are the dominant estate; that the agreement of the plaintiffs predecessor in interest to continue to supply the defendants with the full amount of their water at all times of the irrigating season in each year is a covenant running with the easement; that the defendants, so long as the plaintiff conveys water through the canal conveyed by the Yellowstone Ditch Company to the plaintiff, may divert their full quota of water at all times of the irrigating season as they may need or require it without compensating the plaintiff for any work they may have done in perfecting the means of diverting such water from the Yellowstone River.

Wherefore, by reason of the law and the premises aforesaid, it is ordered, adjudged and decreed, that the plaintiff take nothing by reason of the matters alleged in the complaint, and that said bill is dismissed and that the defendants, Yellowstone Ditch Company, A. P. Wilson, J. B. Annin, Douglas H. Annin, Gilford Railsback, Jacob Henry, Sr., Frank Peterson, Cecilia Wimsett, Herman Wolt, Emil Kober as administrator of the estate of Edward Shmidt, deceased, Lou Chapple as executor of the last will and testament of Stephen Wimsett, deceased; Solomon Kober, H. A. Appleby, Philip Frickel, Lewin Kober, Ed Kober, Emma Geharz and Margaret Yegen and each of them be and are hereby dismissed and that they further have and recover of the plaintiff, Cove Irrigation District their costs and disbursements.

Decree of Supreme Court:

In the Supreme Court of the State of Montana from the Chief Justice of the Supreme Court to the honorable Judge of the district court for Stillwater County; whereas, in the said District

court in cause between Cove Irrigation district plaintiff and Yellowstone Ditch Company et al—defendants and respondents where in the judgment of said district court, entered in said cause on the 9th of January 1930 was in favor of the defendants and against the said plaintiff as by the inspection of the transcript record of said court in said cause which was brought into the Supreme Court of said state by virtue of an appeal, agreeably to the statute of said state and rules of said Supreme Court in such case made and provided fully and at large appears.

And whereas in the June term of this court in 1931 said cause came on to be heard before said Supreme Court and was argued by council.

Whereupon, on consideration it is now here ordered and adjudged by this court that the judgement of the court below entered in this cause on Jan. 9, 1930, and the same is hereby affirmed at the cost of the appellants.

Said judgment to be carried into execution according to the terms thereof, by the Honorable Lewellyn L. Callaway, Chief Justice of the Supreme Court of the State of Montana.

AGREEMENT AND CONTRACT BETWEEN THE YELLOWSTONE DITCH COMPANY AND THE COVE DITCH COMPANY

As recorded in the County Courthouse in Stillwater County:

On January 25, 1906, the Yellowstone Ditch Company sold its ditch or canal to the Cove Ditch Company with a right of way with the width of 66 feet. The agreement written and signed by both parties hereby follows:

This indenture entered into by both parties, The Yellowstone Ditch Company and The Cove Ditch Company and existing under and by virtue of the laws of the State of Montana and doing business in Yellowstone County, Montana, Yellowstone Ditch Company party of the first part and The Cove Ditch Company party of the second part witnesseth.

That whereas the party of the first part is now the owner of a certain water right taken out of the Yellowstone River and is also the owner of that certain canal taken out of the Yellowstone River near Rapids in said Yellowstone County, the same being an enlargement of what was formerly known as the Old Tutt Ditch and which said canal carries to the Stockholders of the said party of the first part an amount of water variously estimated from 1,000 to 3,000 inches statutory measurement, said quantity of water, however, to be measured and determined as is hereinafter provided.

And whereas, the ranches of the Stockholders of the party of the second part are so situated that by extending the canal of the party of the first part water can be conducted through said ditch to and upon all of their ranches so that they can have an adequate supply of water for the necessary irrigation thereof.

And whereas, the most feasible and cheapest method of carrying water to the lands of the Stockholders of the party of the second part is by enlarging and extending the canal of the party of the first part.

And whereas, such an enlargement will require a right-of-way throughout the entire length of the original canal of the party of the first part of the width of sixty-six feet, which said width

of right-of-way throughout the length of said ditch passes through and over the lands belonging to the stockholders of the party of the first part, who have each and everyone of them agreed to convey to the party of the first part a right-of-way of the extent hereinbefore mentioned along the line of said canal at all places where said canal passes through the said lands of the stockholders of the party of the first part.

And whereas, the parties have, after due consideration, concluded and agreed among themselves that it is for the mutual benefit and advantage of themselves and all the stockholders of each of them that the party of the first part grant and convey to the party of the second part upon the conditions hereinafter named, the said canal with all its appurtenances, including the right-of-way therefor, to the extent of sixty-six feet throughout the entire length thereof, where it runs through and over the lands of the stockholders, of the party of the first part, for and upon the consideration that the party of the second part shall enlarge the said canal and shall at all times after the completion of said enlargement furnish to the party of the first part or its several stockholders in proportion to their respective interest in the stock of said company such an amount of water as the said canal now carries, the amount of said water to be determined by a measurement hereafter to be made and in the manner hereinafter stated; provided, however, that nothing herein contained shall be construed as a conveyance of the water right of the party of the first part; and provided further that the said party of the second part shall only be required to furnish such water during the irrigating season of each and every year hereafter; and provided also that nothing herein contained shall be considered as requiring the party of the second part to furnish the party of the first part the full amount of water herein contracted to be delivered to it when on account of extreme low water in the river it is impossible to carry the requisite amount of water therefor in said canal or when on account of unavoidable accident it is impossible to operate said ditch for the time being. The party of the second part, however, is to use all proper diligence and reasonable care to keep the requisite amount of water flowing in said canal to provide the party of the first part with water at all times and to repair any and all breaks or damages which may be done to said ditch by unavoidable accident or otherwise. The party of the second part is to enlarge said canal and the headgate thereof at its own proper expense during such season of the year as will not in any manner interfere with the use of the water thereof by the party of the second part at any time during the irrigating season, and further agrees at all times to do and perform all necessary work and furnish all necessary materials in the repair of said ditch from year to year.

It is further understood and agreed between the parties, that the party of the second part shall, subject to the conditions of this agreement, have at all times the full and complete control of said canal after it shall have enlarged the same and shall at its own expense keep a ditch walker on said ditch whose duty it shall be to see that the water agreed to be furnished to the party of the first part shall be turned out to the stockholders thereof in such quantities as the stockholders shall be entitled respectively, and according to their respective shares of stock in the party of the first part. The said party of the second part also agrees to reconstruct and to operate said canal so that the level of the water therein shall at its normal height rise to the same elevation in said canal as it rises at the present time and so that it will flow through the headgates of the stockholders of the party of the first part as now located or as they may be located at any time prior to the time the party of the second part may commence

the enlargement of said ditch or as may at any time hereafter be constructed by the mutual consent of the parties hereto. The party of the second part also agrees that in case earth or material shall be deposited in the parallel laterals running near said canal or any of the stockholders of the party of the first part by the party of the second part in the enlargement of said ditch, then the party of the second part shall either remove such earth or material and restore the said lateral or shall construct immediately below the same another parallel lateral on the same grade and of the same capacity of the lateral so obstructed by earth and material.

It is further mutually agreed that the ditch walkers of the party of the second part shall at all times when advised by any of the stockholders of the party of the first part that such stockholders do not wish to use the whole or any part of the water coming to them to close down the headgate of such stockholders and to allow said water to flow on down the canal. The party of the second part also agrees to carry out the contract of the party of the first part with James L. Montgomery as to furnishing him water out of the said canal.

It is further mutually agreed between the parties hereto that the actual amount of water to which the party of the first part is entitled under this contract shall be hereafter determined by the measurement of the present carrying capacity of said canal in the following manner. The party of the first part shall select a Civil Engineer and the party of the second part shall also select a Civil Engineer, who together shall proceed to measure the capacity of said canal by computing the number of inches which shall be actually flowing through the same by means of the W. & L. E. Gurley Electric Motor, and in the event that said Civil Engineers shall disagree as to the amount of water flowing through said canal they two shall select a third Civil Engineer and a decision of a majority of said Civil Engineers shall be binding upon the parties hereto and conclusive as to the carrying capacity of said canal. Said measurement shall be made as early in the spring of 1906 as it is practical to make the same, and provided that the party of the first part shall have the privilege of cleaning out the said canal, but in no event shall the party of the first part or any other party make an enlargement of said canal or remove at any point therein earth or rock in a place which has not heretofore been removed in the construction thereof.

It is further mutually agreed that the party of the second part shall have the right to begin forthwith the enlargement of the canal of the party of the first part at the lower end thereof and to extend such enlargement to within one-half mile of the headgate of said canal prior to the measurement hereinbefore provided for, and after such measurement shall have been made to continue the work on to the headgate of said canal and to prosecute work thereon until such a time as the irrigation season shall begin in the year 1906; provided, however, that the party of the second part in the prosecution of said work of enlargement shall in no manner delay or prevent the stockholders of the party of the first part from irrigating their lands under said canal nor so as to prevent water flowing through the said canal to their respective headgates as hereinbefore provided.

And whereas, at a meeting of the stockholders of the party of the first part duly held on the 25th of January 1906, at which said meeting all of the stockholders of said party of the first part gave their written consent endorsed upon the records of said company to allow the transactions to be had at such a meeting by signing their names thereto and upon the records of said company as before stated, the following resolution was passed by a unanimous vote in its favor:

Be it resolved, that it is for the best interest of the Yellowstone Ditch Company and of each and everyone of the stockholders thereof that the said company convey to the Cove Ditch Company by good and sufficient deed the canal of this company, together with the appurtenances thereof, and together with the right-of-way over the lands of the stockholders of this company of the width of sixty-six feet throughout the entire length of said canal where it passes over the lands of such stockholders upon the said Cove Ditch Company and its stockholders agreeable to contract and agreement this day entered into between this company and said Cove Ditch Company, and which said agreement shall be fully set forth and declared in the conveyance hereafter to be made in pursuance of this resolution.

Be it further resolved, that the board of directors of this company be directed and required to carry out these resolutions and to cause to be executed the necessary deeds and writings therefor;

And whereas, thereafter the board of directors of the party of the first part at a meeting called therefor and at which said meeting all of the directors of said company were present, and having under consideration the resolution of the stockholders meeting above referred to, duly passed the following resolution, to-wit:

Be it resolved by the Board of Directors of the Yellowstone Ditch Company that in conformity with the resolutions of the stockholders of this company this day made, it is for the best interest of this company and of all and everyone of the stockholders thereof that the said company convey to the Cove Ditch Company a good and sufficient deed the canal of this company, together with the appurtenances thereto, and together with a right-of-way of the width of sixty-six feet along the entire length of the canal of this company where the same passes through or over the lands of the stockholders of this company for the consideration set forth in the resolutions made at said stockholders meeting hereinafter referred to.

Be it further resolved that the president and the secretary of this company execute to the Cove Ditch Company a conveyance in conformity with these resolutions and to the resolutions of the stockholders of this company heretofore referred to and deliver the same to the said Cove Ditch Company upon its acceptance thereof in due form and subject to the conditions thereof.

Now, therefore, in pursuance of said resolutions and in consideration of the premises and of the fact that the party of the second part has by resolutions of its Board of Directors accepted of the conditions and terms mentioned in said resolution and agreement above set forth as made by the stockholders and directors of the parties hereto and of the sum of \$1.00 to it in hand, paid by the party of the second part, the receipt of which is hereby acknowledged, the said party of the first part doth by these presents grant, bargain, sell, convey and confirm unto the said party of the second part and its successors and assigns forever the following real estate situated in the County of Yellowstone and State of Montana, to-wit: All of its right, title and interest in and to the canal or ditch known as the canal of the Yellowstone Ditch Company, beginning at a point on the north bank of the Yellowstone River in the County of Yellowstone, in the State of Montana, in lot nine in section five, in township three south, range twenty-one east, Montana Meridian, running thence in a general easterly direction through sections five, four, nine, ten, eleven, twelve, three and one, in township three south,

range twenty-one east aforesaid and passing through in the same general direction through sections six, seven and five in township three south, of range twenty-two east, Montana Meridian and ending near the south line of section thirty-two in township two south of range twenty-three east, Montana Meridian. Also the right-of-way for said canal and the easement therefor where the said canal passes through, over or upon the lands of the stockholders of the party of the first part the same being of the width of sixty-six feet. Nothing in this conveyance shall be construed as a transfer of the water right and appropriation of the waters of the Yellowstone River as heretofore acquired by the party of the first part. Together with all and singular the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining, reserving, however, at all times and perpetually the right of the party of the first part and of its stockholders to receive from said canal the amount of water belonging to them as hereinbefore stated in this conveyance whenever they shall need or require the same during the irrigating season.

It is mutually understood and agreed between the parties to this conveyance that the consideration hereof is the continual supply from year to year to the party of the first part by the party of the second part of the amount of water hereinbefore mentioned, and that this conveyance shall be valid only so long as the party of the second part shall substantially comply with its agreement and with the conditions of this conveyance. And upon the failure of the party of the second part to supply said amount of water herein provided for at the time and in the manner provided for herein, the property hereby granted in whatever condition the same may be at the time of such failure as aforesaid shall, together with all the additions, accretions and improvements then revert to and become the property of the party of the first part or of its successors and assigns. Nothing herein, however, shall be construed as giving the party of the first part by reversion or otherwise any interest whatever in the ditch or canal which shall hereafter be constructed by the party of the second part below the terminus of the canal of the party of the first part.

The party of the second part agrees that it will replace all bridges which it may remove from the ditch of the party of the first part with bridges equally as good as the bridges now spanning said ditch.

The party of the first part agrees that water shall cease to flow in its canal on and after October 1, 1906, and until the next ensuing irrigating season in order to allow the party of the second part to begin work or to complete the enlargement of said canal.

It is further agreed that water shall not be turned into said canal in the spring of 1906 until May 1, 1906, except for the purpose of measuring its capacity and further agree that they will select their Civil Engineer and have him assist in measuring the capacity of the ditch at the earliest date at which water can be made to run through said canal for the purpose of measuring same, upon being notified by the party of the second part that they are ready to measure the said canal. The party of the second part agrees to pay the expenses of measuring said canal. The measurement of the carrying capacity of said canal shall not include the water to which the said James L. Montgomery is entitled. When the party of the first part is ready to begin cleaning said canal in the spring of 1906 as hereinbefore provided, it shall so notify the president of the party of the second part so that the party of the second part may have its agent upon the ground while said work is being done if it so desires.

In witness whereof, the party of the first part has by the resolution of its Board of Directors caused these presents to be signed by its president and secretary and has affixed hereunto its corporate name and seal.

S E A L

By C. A. Railsback,
Secretary

THE YELLOWSTONE DITCH COMPANY

By (Signed)

JOHN C. HOLDANE,
President

STATE OF MONTANA }
COUNTY OF YELLOWSTONE } ss.

On this 25th day of January A. D. 1906, before me, W. M. Johnston, a Notary Public in and for said county of Yellowstone, personally appeared John C. Holdane and C. A. Railsback, known to me to be respectively the President and Secretary of the Yellowstone Ditch Company, the Corporation that executed the foregoing instrument and acknowledged to me that such Corporation executed the same.

Witness my hand and Notarial Seal the day and year in which this certificate was written.

NOTARIAL SEAL

W. M. JOHNSTON
Notary Public in and for Yellowstone County, Montana

STATE OF MONTANA }
COUNTY OF YELLOWSTONE } ss.

The Cove Ditch Company, the grantee in the foregoing conveyance, in pursuance of a resolution duly passed upon this day by its Board of Directors, acting under authority of its stockholders, hereby accepts the foregoing conveyance with all its conditions and limitations and agree to faithfully carry out all of the conditions and obligations therein stated.

In witness whereof the Cove Ditch Company by resolution of its Board of Directors has caused these presents to be signed by its President and Secretary and its corporate name and seal to be hereunto attached this 25th day of January 1906.

COVE DITCH COMPANY

By F. W. SCHAUER,
Secretary

By W. R. WESTBROOK,
President

FLAHERTY FLAT DITCH COMPANY

The Flaherty Flat Ditch Company was first incorporated January 10, 1898. On March 14, 1925, the company was reincorporated for forty years with a capital stock of \$7,500 divided into 150 shares at a par value of \$50.00 each. All stock was subscribed to. Under the terms of the incorporation capital stock is and shall be assessible. The company has three directors. Under the original incorporation the first subscribers were Joseph Pope, Daniel J. Welton, Thomas Shane, Thomas Doyle, Edward Burke and Thomas Farland.

Water is diverted by gravity from the Yellowstone River in the northwest quarter of the northeast quarter of section 34, township 2 south, range 20 east. The project is located south of the Yellowstone River, southeast of Columbus on what is locally known as Flaherty Flat. The main canal is about 4½ miles long and supplies water to six water users who represent 150 shares of stock. As of February 1, 1945, the company had no indebtedness. No record has been kept of the cost of water per irrigated acre as the water users maintain and repair the ditch. On the east end of the project considerable seepage has developed and in places because of the presence of alkali the ground is bare of vegetation. Several private drains have been installed helping the land on which they are located. This seeped condition is caused from the waters of the Flaherty Flat Ditch and the Shane Ditch.

The principal crops are sugar beets, beans, small grains and alfalfa. Livestock is diversified with some beef, dairy cattle, sheep and hogs on most farms. The topography is rolling river bottom land. The soils are river bottom with sandy loam predominating. The project elevation is 3,600 feet with an average precipitation of about 14 inches.

In 1944 there were 386.00 acres being irrigated under the Flaherty Flat Ditch, with a potential acreage under existing work of 178.00 acres or a maximum acreage of 564.00 acres with 174.00 acres classified as seeped.

GARRIGUS DITCH

The Garrigus Ditch with a maximum capacity of 50 cubic feet per second diverts water from the Stillwater River by gravity in the northeast quarter of the southwest quarter of section 35, township 3 south, range 18 east. From this point, water is carried 5½ miles in a northeasterly direction, following the course of the Stillwater River. The Garrigus Ditch is not incorporated and supplies water to thirteen users. The project is located on the north side of the Stillwater River in the vicinity of Absarokee. At the point of diversion, the ditch has a concrete headgate 6'x10'x12' and a rock diversion wing dam.

In 1944 there were 1,134.00 acres being irrigated under the Garrigus Ditch with a potential acreage under existing works of 98.00 acres or a maximum irrigable acreage of 1,232.00 acres.

As a result of the dispute about ditch waters in 1911, the court decreed 285 miner's inches to Margaret E. Garrigus, 130 miner's inches to M. Francis Garrigus, 105 miner's inches to M. J. Littler, 200 miner's inches to J. T. Cooke jointly with Anna C. Cooke.

In the original complaint it was brought out that J. E. Orson possessed and seized the following described land in 1898. Lots 1, 2, 3, and 4, the northeast quarter of the southwest quarter of section 21 in township 3 south, range 19 east containing 163.80 acres and that on the 1st of April 1898 he obtained by enlargement or purchase an interest in said ditch and began to divert water to the extent of 100 miner's inches. That in the final decree J. E. Orson was not decreed any interest whatsoever in the water appropriations divided amongst the several parties in this action.

The premises of the plaintiffs, J. T. Cook, Anna C. Cook and M. J. Littler lie below those of the defendants, therefore their lands are further down the ditch than those lands of the defendants.

John Hufford, Thomas Hufford, Oscar Goodrich and David Crawford, the defendants, are now the owners of the lands formerly owned by Jessie Erb and L. E. Stone.

That J. W. Kempf, a defendant in this case, occupied the lands of M. T. Garrigus and M. F. Garrigus as a tenant but was not decreed any right, interest, or water in the decree.

The Court Decree.

It is further hereby decreed that each of the parties are the legal owners of said ditch and that the interest of these parties of said ditch is in direct proportion to the amount of water decreed herein to each party bears to the whole amount decreed to all parties of this action. That during high water season each of said parties should receive so much surplus water according to the interests in said ditch.

It is further decreed that each of parties shall prior to August first, nineteen hundred and twelve construct measuring boxes at the heads of their respective ditches or laterals where they take water from main ditch; and to maintain the same at all times. Also that none of parties shall be permitted to use main ditch as a lateral for irrigating his land, and to tap the same at any more places or points than is absolutely necessary.

The cause of this complaint filed by the plaintiffs in this action was: Defendants took all of said waters from ditch to irrigate their lands leaving none to flow down the course of said ditch to the lands of the plaintiffs thereby ruining and damaging the crops of the plaintiffs for two years which were 1910 and 1911. This case was brought into court in the sixth judicial district Sweet Grass County, State of Montana, No. of this case at this court was 530.

On August 1, 1893, M. E. Garrigus, M. F. Garrigus, L. E. Stone, Paul Berg, G. D. Erb and Jessie Erb appropriated 2,000 miner's inches of water to be diverted from the Stillwater River on the north bank at a point about one mile above the mouth of the Rosebud River. The notice of appropriation was filed August 3, 1893. The purpose was for irrigation. The system was described as a dam and ditch, said ditch being 96 inches across the bottom, 120 inches across the top and 12 inches deep. The land description of intended place of use was given as lands lying on the west side of said river above and below the mouth of the Rosebud River. The notice of appropriation is on file in Carbon County courthouse in Book 1, Page 18 of Water Right Location Records; in the Stillwater County courthouse in Book 2, Page 242 of Miscellaneous Records.

GILBERT AND TUNNEL DITCH COMPANY

On April 8, 1920, the Gilbert and Tunnel Ditch Company was incorporated for forty years with a capital stock of \$10,000.00 which was divided into 100 shares of a par value of \$100.00 each. William Davis, M. E. Toohey, Ira Gilbert and G. Zugarmurdi were the incorporators. This system is now operated as a private ditch. The company makes no assessments and each user works out his portion of the ditch cost. The water is diverted by gravity from Fish-tail Creek in the southeast quarter of the southwest quarter in section 31, township 4 south, range 18 east. From this point, the ditch runs north for about two miles, immediately below the West Rosebud Ditch Company canal.

On June 25, 1898, W. H. Gilbert et al appropriated 600 miner's inches to be diverted from Fishtail Creek. The notice of appropriation was filed September 15, 1899. The point of diversion was described as a point upon its west bank. The system was described as a ditch and dam, said ditch being 72 inches by 6 inches in size and carried 600 inches of water to the D. W. Bigelow ranch thence through Woodson Hodges's ranch then the ditch forks, one ditch going to the W. H. Gilbert's ranch, the other to E. W. Gibbs's ranch thence running or to run to and upon said described land and through said land if we so desire to any requisite point of final discharge. The purpose was for irrigation and other uses. The place of intended use was described as lands in township 4 south, range 18 east on ranches of claimants. W. H. Gilbert, Woodson Hodges, E. W. Gibbs and D. W. Bigelow of Fishtail are the appropriators of the water right. The above appropriation is on file in Stillwater County Courthouse, Columbus, Montana, in Book 3, Page 673 of Miscellaneous records.

ITALIAN DITCH COMPANY

The Italian Ditch Company project is located on the north side of the Yellowstone River in Stillwater and Yellowstone counties. Water is diverted by gravity from the Yellowstone River in the south half of the southeast quarter of section 34, township 2 south, range 22 east. From this point, the main canal extends some 7½ miles in a northeasterly direction to near the center of section 13, township 2 south, range 23 east at which point the ditch divides. One lateral runs northeast about a mile and one half to the quarter corner between sections 8 and 9, township 2 south, range 24 east. The other lateral runs due east for a mile and one half, then northeast to the city of Laurel and then southeast to a point in the northeast quarter of the northwest quarter of section 15, township 2 south, range 24 east. When the river is high, water is diverted from headgate located on a secondary channel in the southeast quarter of the northeast quarter of section 35, township 2 south, range 22 east which was the original point of diversion.

In 1933 the Yellowstone River changed its course and left the original headgate high and dry. This being an unusually dry year and with very little water available the company was faced with the problem of supplying water to its users. Plans were made to install an electrically operated pumping plant. While these plans were being negotiated an agreement was reached with the Canyon Creek Ditch Company giving the Italian Ditch Company permission to purchase water from them. As a result the plans for a pumping plant never materialized.

During this same time the Old Mill Ditch Company was also having trouble supplying water to its users, its headgate being located on the same channel just below the Italian headgate. The two companies decided to construct a new intake and a headgate about 1½ miles upstream on the main channel of the Yellowstone River and divert water into the old channel of the river or the channel on which their headgates were located. This plan called for the abandonment of the Old Mill headgate using only the Italian headgate on the old channel which is used to divert water for both the Italian and Old Mill Ditches. The water for the Old Mill Ditch is carried to Valley Creek where it is spilled and then diverted into the main canal of the Old Mill Ditch Company. Construction and maintenance charges for this new portion of ditch were divided between the two companies, each paying 50% of the cost. This portion of the ditch is still operated under this agreement. The two companies also jointly employ one ditch rider.

The Italian Ditch Company was first organized in 1893 and its first set of by-laws adopted. In 1913 the company was incorporated for a period of 20 years. On March 7, 1942, the company reincorporated for 40 years with a capital stock of \$40,000.00 divided into 4,000 shares having a par value of \$10 per share. Under the terms of this incorporation the company had five directors who were John Harding, John Sitzman, D. F. Cunningham, Wm. Schulz and Mike Bexlanowitch. Water is supplied to 69 users who represent 1,707.50 shares. The average cost of water is about \$1.00 per acre. The system is all gravity and has no structures of any consequence. The company has no indebtedness and has some money in reserve.

The principal crops are small grains, hay, beans and beets. Considerable livestock is kept on the project and some winter feeding is done. The topography lying in terraces, for the most part is fairly even. The soils are brown in color and run from a sandy loam to a clay loam with occasional outcrops of gravel. There is considerable seeped land on the project which for the most part is used as wet pasture. The elevation at Park City near the western end of the project is 3,410 feet and at Laurel near the eastern end the elevation is 3,311 feet. The average annual precipitation is about 14 inches with a frost free period of approximately 130 days. Park City and Laurel are the principal shipping points and also provide a local market for some products. Billings, 16 miles east of Laurel, is the principal marketing center. The project is served by the main line of the Northern Pacific Railroad and U. S. Highway No. 10 with a good system of county roads.

On March 23, 1882, the Italian Ditch and Flume Company appropriated 16,000 miner's inches of water to be taken by gravity from the Yellowstone River at a point near the southwest corner of section 31, township 2 south, range 23 east. The notice of appropriation was filed March 27, 1882. The purpose was to be for agricultural and milling purposes. The system was described as a ditch or canal with no dimensions given. Water was to be conveyed through the south half of section 31 and 32 in said township, thence through the north half of section 33, thence through the north half of section 26, thence through the south half of sections 23 and 24, township 2 south, range 23 east, thence through sections 19, 18 and 17 in township 2 south, range 24 east. The original appropriators were Venia Battista, George Geer, George Herbert and August Rodgers. The appropriation is on file in the Yellowstone County Courthouse, Billings, Montana, in book A, page 30, of Miscellaneous records.

On September 21, 1896, the Italian Ditch Company appropriated 5,000 miner's inches of water to be taken from the Yellowstone River from a point in section 35, township 2 south, range 22 east. From this point, water was to be conveyed to a point in section 7, township 2 south, range 24 east. The notice of appropriation was filed October 2, 1896. The purpose was for agriculture and other uses. The system was described as a ditch to convey water from the Yellowstone River. The appropriation is on file in the Stillwater County Courthouse, Columbus, Montana, in Book 2, page 77 of Miscellaneous records.

In Stillwater County in 1944 there were 1,764.50 acres being irrigated under the Italian Ditch with a potential irrigable acreage under existing works of 749.00 acres making a maximum acreage of 2,513.50 acres. Of the potential figure 702 acres were classified as seeped. In Yellowstone County in 1942 there were 1,588.75 acres irrigated, with a potential acreage under existing works of 447.40 acres or a maximum acreage of 2,036.15 acres. Of the potential figure 152.40 acres were classified as seeped, making the total figure, under the Italian Ditch

system, 3,353.25 acres being irrigated with a potential acreage of 1,196.40 acres or a maximum acreage of 4,549.65 acres with 854.40 acres of seeped land.

KEM-MULHERIN DITCH

The Kem-Mulherin Ditch located in the vicinity of Absarokee is about 3 miles long and diverts water from the Rosebud River in the southwest quarter of section 2, township 4 south, range 18 east. Under this system, Sheep Creek is used as a ditch from the headgate to the town of Absarokee. The ditch is not incorporated and has four users who equally share the operation and maintenance charges by work or cash.

On Dec. 31, 1914, S. A. Leverton, O. C. Kem, Adolph Rivers and O. C. Steinbrink appropriated and filed on 1200 miner's inches of water to be diverted from the West Rosebud River. The point of diversion was described as a ditch tapping said stream at a point upon its east bank a short distance southwest from the town of Absarokee. The purpose was for irrigation and other uses. The system was described as an irrigation ditch 48 inches by 36 inches in size which diverts and carries 1200 inches of water from the main Rosebud River. The intended place of use was described as: That the special purpose for which said water is intended to be used and the place of intended use is for irrigating the crops raised upon the lands owned by the above mentioned persons, located in the Stillwater River Valley north and east of Absarokee and any other lands covered by the irrigation ditch. The appropriation is on file in the Stillwater County Courthouse, Columbus, Montana, in Book 1, Page 457, in Miscellaneous records.

MENDENHALL DITCH COMPANY

According to J. R. Mendenhall the ditch now called the Mendenhall Ditch Company was constructed by him and other homesteaders in 1892. The project covers lands on the south side of the Stillwater River south of Absarokee in sections 33, 34, 35 and 36 in township 3 south, range 18 east. The construction was done by means of teams and slips and was completed in about three weeks. The first crops back in 1892 were all small grains. As water was put on the lands the homesteaders started to import cattle and seeded down much of their acreage to tame hay. The entire area now under the Mendenhall Ditch is devoted principally to livestock, alfalfa, pasture and small grains. The main canal is about four miles long and has a capacity of 2,050 inches at the headgate. At the point of diversion, the company has a rock diversion dam and a concrete headgate 8 feet by 5 feet by 14 feet in size. The water supply is considered adequate. As of February 10, 1945, the company had no indebtedness. Albert Johnson, secretary for the Mendenhall Ditch Company, estimated the value of the system at \$5,000.00. Seven farms are served by this system.

The Mendenhall Ditch Company was incorporated for 40 years on Oct. 3, 1912, with a capital stock of \$2,020.00 which is divided into 2020 shares of a par value of \$1.00 each. All of the stock has been subscribed to. Under the terms of the corporation the capital stock shall be assessable provided that no one assessment shall exceed 5% of the capital stock and that no assessment for any one year shall exceed \$300.00. Assessments may be paid in money or work. Those who prefer to work out their assessment receive two dollars per day for each man; four dollars per day for each man and team. The original incorporators were James R. Mendenhall, Frank Hart and Robert C. Tyler.

The soils are dark brown in color and are considered to be very productive. The elevation of the project is about 4,030 feet with an average annual precipitation of 21.13 inches with 13.79 inches falling in the May-September period. The project is served by a gravel road which connects with the paved highway at Absarokee. Columbus is the nearest shipping point being located 16 miles north of the project. Absarokee, an unincorporated town with a population of about 500 is the principal trading center in which are located grade and high schools.

On May 1, 1892, the Mendenhall Ditch Company appropriated 2020 miner's inches of water to be diverted from the Stillwater River at a point in the southeast quarter of the north-east quarter of section 32 in township 3 south, range 18 east. The notice of appropriation was filed December 12, 1929. The system was described as a headgate and ditch, said ditch being 120 inches wide on the bottom and 36 inches deep. The place of intended use was given as lands lying in sections 33, 34, 35 and 36 in township 3 south, range 18 east. James R. Mendenhall predecessor in interest of the appropriator, appropriated the first water on May 1, 1892. The notice of appropriation is on file in the Stillwater County Courthouse in Columbus, Montana, Book 17, Page 397 of Miscellaneous records.

In 1944 there were 1,015.70 acres being irrigated under the Mendenhall Ditch with a potential acreage under existing works of 40 acres or a maximum irrigable acreage of 1,055.70 acres.

MERRILL DITCH COMPANY

The Merrill Ditch Company was originally incorporated on January 10, 1903, for 40 years. The capitalization was \$20,000 divided into 200 shares at a par value of \$100 per share. Of this amount 100 shares were issued to: Mathew Miller, 25 shares; Ed Cardwell, 25 shares; Olaf Lafverson, 25 shares; Amy L. Irwin, 12½ shares, and Mrs. W. H. Clawson, 12½ shares.

The Company was re-incorporated on January 16, 1943, for the same capitalization as the original incorporation.

Through an agreement dated January 26, 1938, between the Merrill Ditch Company and the SWCB, said Board acquired the Merrill Ditch for the purpose of enlarging and extending it to cover lands originally irrigated from the Columbus Ditch. The original Merrill stockholders are to receive 2,000 miner's inches, and an additional 1,550 miner's inches to be conveyed through said Ditch to serve the lands under the old Columbus Canal.

The Canal, as reconstructed, has a capacity of 102 second feet at the intake, 78 second feet at the end of the Merrill Ditch, and 15 second feet at the end of the extension. Under the systems there were 2,308 acres irrigated in 1944, with an additional area of 576 acres that could have been irrigated, thus making a total of 2,884 acres. Under the Columbus Ditch there were 1,138 irrigated acres with 351 potential acres, or a maximum irrigable area of 1,489 acres. Under the Merrill Ditch there were 1,170 irrigated acres with 225 potential acres, or a maximum irrigable area of 1,395 acres. The only water charge under the Merrill Ditch Company is for operation and maintenance which averages about \$0.33 per acre.

On September 8, 1883, W. H. Clausen, Edward Cardwell, Olaf Lafverson and S. W. Porter appropriated 1400 inches of water to be taken by gravity from the Yellowstone River. Filing

was made on the same date. The point of diversion was described as a point about $\frac{1}{4}$ mile below Reed Point. Purpose was for irrigation and other useful purposes. This system was described as ditches. The land description of intended place of use was shown as unsurveyed land occupied by appropriators. This filing for the Merrill Ditch Company is on record in the Stillwater County Courthouse, Columbus, Montana, on Page 271 in Book 4, of Miscellaneous Records.

(See SWCB for additional data.)

OLD MILL DITCH COMPANY

The Old Mill Ditch Company project is located on the north side of the Yellowstone River in Stillwater and Yellowstone Counties. The project extends from about $1\frac{1}{2}$ miles west from Park City to the vicinity of Laurel.

The topography lying in terraces, for the most part is fairly even. The soils are brown in color and run from a sandy loam to a clay loam with occasional outcrops of gravel. The entire system is gravity with no structures of any consequence. The capacity of the ditch is estimated to be about 3,000 miner's inches. There is considerable seepage on the project. A large percentage of the seeped land is now used for pasture and the farmers in the area claim that unless a master drainage system is installed they would rather operate under the present conditions than have a partial drainage system constructed. The elevation at Park City near the western end of the project is 3,410 feet and at Laurel near the eastern end the elevation is 3,311 feet. The average annual precipitation is about 14 inches with a frost free period of approximately 130 days. Park City and Laurel are the principal shipping points and also provide a local market for some products. Billings, 16 miles east of Laurel, is the principal marketing center. The project is served by the main line of the Northern Pacific Railway and U. S. Highway No. 10. The principal crops are sugar beets, beans, alfalfa and small grains. Considerable livestock is kept on the project and some winter feeding done. Agriculture is highly developed.

Water is taken by gravity from the Yellowstone River and diverted through the same headgates as those used by the Italian Ditch Company. In 1933 the Yellowstone River changed its course and left the original headgate high and dry. This being an unusually dry year and with very little water available the company was faced with the problem of supplying water to its users. During this same time, the Italian Ditch Company was also having trouble supplying water to its users, as the Italian headgate was located on the same channel just above the Old Mill headgate. The two companies decided to construct a new intake and headgate about one and one half miles upstream, on the main channel of the Yellowstone River and divert water into the old channel of the river on which their headgates were located. This plan called for the abandonment of the Old Mill headgate, using only the Italian headgate on the old channel. This headgate is now used to divert water for both the Old Mill and Italian Ditches. The water for the Old Mill ditch is carried to Valley Creek at which point it is spilled and diverted into the main canal of the Old Mill Ditch Company. Construction and maintenance charges for the new portion of the ditch were divided between the two companies each paying 50% of the costs. This portion of the ditch is still operated under this agreement. The two systems also jointly employ one ditch rider. Since construction of the new headgate the supply of water is always plentiful.

The Old Mill Ditch Company was first incorporated on Feb. 20, 1893, for a period of 20 years with a capital stock of \$6,000.00 consisting of 600 shares assessable as follows: Class A—125 shares assessable for general expenses of the company and for repairs and improvements only for that portion of the ditch which lies west and above the point where the branch ditch taps the main ditch. Class B—consisting of 85 shares assessable for the general expense of the company and for repairs and improvements only which are done and made upon that portion of the company's ditch west of and above where branch ditch taps main ditch. Class C—Consisting of 390 shares assessable for all the expense of management and all expense of repairing and improving the said ditch through its entire length, thus entitling the holders to use water out of any point of its entire length. Under the terms of the original incorporation the company had five trustees who were Samuel Young, S. F. Mitchell, John J. Stoltz, E. L. Peck and Battista Succetti. The company was reincorporated for 20 years on February 21, 1913. At that time there were 600 shares of stock having a par value of \$10.00 each or a capital stock of \$6,000. In 1913 the Company made plans to extend the ditch one mile further east. In 1933 the company was reincorporated for a period of 40 years with the same amount of stock. The system of assessing stock as Class A, B and C as stated under the terms of the original incorporation was discontinued. Water charges under the present system average about \$1.00 per acre. Twenty-seven farms are served by this system. As of June 5, 1945, the company had an indebtedness of \$5,434.50.

On November 17, 1886, E. L. Peck, W. H. Bellion, Samuel F. Mitchell, E. R. Seidell, Olney Taylor, John Rehwaladt and W. P. Whitsett associated themselves together to form what is now known as the Old Mill Ditch Company and appropriated 3,000 miner's inches of water from the Yellowstone River. The notice of appropriation was filed Dec. 23, 1886. The point of diversion was described as at a point upon its north bank at the head of the Old Italian Ditch in the southeast quarter of section 36, township 2 south, range 22 east, on the north bank of the stream. The purpose was for irrigation, manufacturing, mill site and other useful purposes. The system was described as a ditch 168 inches by 48 to 60 inches in size. The land description of place of intended use was given as on ranches of claimants and at mill site of E. R. Seidell. The above appropriation is on file in the Stillwater County Courthouse, Columbus, Montana, in Book 2, Page 220, of Miscellaneous Records. The appropriation is also on file in Yellowstone County Courthouse, Billings, Montana, in Book 1, Page 21, of Miscellaneous Records.

In Stillwater County in 1944 there were 982.00 acres being irrigated under the Old Mill Ditch with a potential irrigable acreage under existing works of 233.00 acres, making a maximum acreage of 1,215.00 acres with 135 acres being classified as seeped. In Yellowstone County in 1942 there were 1,581.88 acres irrigated with a potential acreage under existing works of 138.00 acres or a maximum acreage of 1,719.88 acres with 68 acres being classified as seeped, making the total figure under the Old Mill Ditch system 2,563.88 acres being irrigated with a potential acreage of 371.00 acres or a maximum acreage of 2,934.88 acres with 203.00 acres of seeped land.

PARK CITY-LAUREL AREA

One of the largest areas of unproductiveness under existing works is the Park City-Laurel area located in Stillwater and Yellowstone Counties. This area constitutes lands traversed by the Cove, Big, Italian and Old Mill ditches. This area represents some 14,000 acres.

Drainage, ditch lining and land leveling would bring this area back into total production within a short period and restore it to the name it held in the past, "The Show Place of the Yellowstone Valley." The lands in this area accustomed to a very limited supply of water from natural precipitation have been drenched with water and subjected to additional supply by leakage from canals and ditches. Some areas have been converted into veritable swamps; others have become water logged, so that they are impassable by man or beast and are unproductive of useful vegetation; and still others have passed from a condition of high productivity to areas fit only for wet pasture. These conditions are readily recognizable, and the need for drainage is evident, and the result of seepage manifests itself in the accumulation of alkali salts on or near the ground surface. Many cottonwood trees in the area are showing signs of dying as the result of alkali salts in the soil. Farms that 20 years ago were the show places of the valley are now partly out of production or are going out as a result of seepage. From general observation I think it is safe to say that one third of the area would become productive in one or in two years after drainage has been installed. There are many small private drains in the area that are doing some good to the land that they are intended to drain, but on the other hand are injurious to the lands below them as they are dead ends and spill their waters into a depression or swamp causing seepage on other farms in the area. The seepage area is accumulative from just west of Park City to the City of Laurel, lying in the shape of a triangle with the focal point being in the Park City area.

PHELPS DITCH

The Phelps ditch, also called the Bob Price Ditch, an unincorporated ditch, diverts water by gravity from the Stillwater River in the southwest quarter of section 35, township 3 south, range 17 east. The project is located on the south side of the Stillwater River five miles west of the town of Absarokee. The principal crops are alfalfa, tame pasture and small grains with considerable livestock kept on each farm. The project elevation is about 4,285 feet. The topography is river valley land. Eight farms are served by this system which represents 720 inches of water. These farmers get together every spring, repair the ditch and turn on the water. No assessments are made. In 1944 the users had the ditch cleaned with a power shovel and each user paid his share. Shares or inches mean nothing as everyone uses the water he needs. The supply is considered adequate.

On April 1, 1891, F. W. Phelps appropriated 1200 miner's inches of water to be diverted from the Stillwater River at a point upon its southeast bank near the west line of section 36, township 3 south, range 17 east. The notice of appropriation was filed Aug. 13, 1895. The purpose was for irrigation and other uses. The system was described as a ditch 18 by 72 inches in size. The land description of intended place of use was given as lands in sections 31, 32, 33, 34, 35, and 36, in township 3 south, range 18 east, and other lands lying adjacent to the above lands. The notice of appropriation is on file in Stillwater County Courthouse in Book 3, Page 234, of Miscellaneous Records.

In 1944 there were 684.00 acres being irrigated under the Phelps ditch with a potential acreage under existing works of 20 acres or a maximum acreage of 704.00 acres.

REED POINT DITCH COMPANY

The Reed Point Ditch Company is located in the immediate vicinity of Reed Point, Montana, and takes water by gravity on the south bank of the Yellowstone River in Sweet Grass County. At one time, water was diverted from the main channel of the Yellowstone River. In 1918 the river flooded and changed its channel washing out about one quarter of a mile of the ditch thus necessitating a new headgate which is located on a secondary channel. Since the construction of the new headgate sufficient water for irrigation can only be had during high water periods. To enable the water users under the ditch to irrigate fully a wing dam needs to be constructed in this channel. There are five users under this system, one of which is in Sweet Grass County. The company is not incorporated. There are no regular assessments and the work that is done on the ditch not requiring outside help is done by the users. If outside help has to be employed the cost is equally divided among the five users. The company also supplies water to the town of Reed Point and an assessment of fifty cents per lot is levied.

The altitude at Reed Point is 3,762 feet. The average annual precipitation is about 14 inches. The soil types are river bottom with sandy loam and a light colored heavy clay predominant. The topography is rolling land with a gentle slope towards the Yellowstone River. Alfalfa hay is the principal crop which is mostly fed on the project. Beef cattle outnumber all other livestock with some dairy cattle and sheep kept. The project is served by the main line of the Northern Pacific Railway and U. S. Highway No. 10. Reed Point is the principal shipping point and has both grade and high school accommodations.

The project was first started by W. F. Hodkins et al, who on October 23, 1893, filed on 1,000 miner's inches of water to be taken from the Yellowstone River. Since then the ditch has been enlarged to carry 1,500 miner's inches. Mr. Peter McKeith, secretary of the ditch, said he did not know if an additional filing was made when the ditch was enlarged or not. We could not find any record of an additional filing.

On October 23, 1893, W. F. Hodkins, Hans P. Nelson and L. E. Thompson appropriated 1,000 miner's inches of water to be taken from the Yellowstone River at a point about 2,000 feet north, 60° west from the Northern Pacific Railroad milepost L. 56 and about 500 feet west of John Daugherty's cabin. The point of diversion is located on the south bank of the river. The filing was made on November 10, 1893. The purpose was for irrigation, stock water, domestic and other legal purposes. The system was described as a ditch 48 inches wide on the bottom, 84 inches across the top by 18 inches deep running east to land. The land description of place of intended use was given as unsurveyed land in the ceded portion of the Crow Indian Reservation located in township 1 south, range 18 east. Notice of appropriation is on file in the Sweet Grass County courthouse, Book 22, Page 4, in the Yellowstone County courthouse, Book 2, Page 50, and in Stillwater County courthouse in Columbus, Montana, in Book 4, Page 193. All preceding books are under Miscellaneous Records.

In 1944 there were 415.00 acres being irrigated under the Reed Point Ditch with a potential acreage under existing works of 137.00 acres or a maximum acreage of 552.00 acres.

ROADHOUSE DITCH COMPANY

The Roadhouse Ditch Company diverts water by gravity from the Stillwater River in the northeast quarter of the northwest quarter of section 31, township 3 south, range 19 east. From

this point water is carried about five miles. The company maintains a wood flume over Beaver Creek and a metal flume over a small coulee in section 27. These two structures are the only works of any size. The project is located on the south side of the Stillwater River and commences about a mile and a quarter northeast of Absarokee.

Herman Weppler, John Nichols, James Herrington and Victor Herrington on June 4, 1912, associated themselves together to form the Roadhouse Ditch Company. The company was incorporated for 40 years with a capital stock of 5,000 shares having a par value of \$1.00 each. Two thousand, two hundred and fifty shares of stock were actually subscribed to. Under the terms of the incorporation it was stipulated that no assessment shall exceed \$1,000.00 a year. Five farms are served by this system.

On April 24, 1893, James Herrington and Joseph B. Hundley appropriated 1,000 miner's inches to be diverted from the Stillwater River at a point on its right bank about ½ mile above the mouth of Beaver Creek. The filing was made April 26, 1893. The purpose was for irrigation and other useful and beneficial purposes. The system was described as a dam and ditch, the ditch being 60 inches wide on the bottom and 80 inches across the top and 18 inches deep. The land description of intended place of use was given as lands on the recently ceded portion of the Crow Indian Reservation, being unsurveyed and being situated as follows: Having the homestead of Dan Wood on the west, the Stillwater River on the north, the Herman Wolf homestead on the east and the recently surveyed county road up the Stillwater River on the south. The notice of appropriation is on file in the Stillwater County Courthouse in Columbus, Montana, Book 2, Page 243 of Miscellaneous Records.

SHANE DITCH COMPANY

O. L. Heckenlively, one of the original appropriators on the Shane Ditch, said when he first came to the Stillwater Valley in 1895 the only fence between Columbus and Red Lodge was on his ranch and the Shane ranch. The country was all open and the grass on the hills reminded him of a large never-ending wheat field. In most places it was knee high in mid-summer and wild game was abundant. All of the grazing was free and people did not have to worry about permits or crossing other people's property. In those days there were very few cattle and the predominating stock was sheep. Mr. Shane, after whom is named the present Shane Ditch Company, was a squaw man married to Sarah Shane, a full blooded Crow Indian. Sarah and her daughters after spending many years in this area took their blankets and went back to the Indian reservation as the part of the reservation where they first settled was now open to white settlers and was no longer a part of the Crow Indian Reservation. The first ditch of what is now known as the Shane ditch was constructed by Squaw Man Shane about 1898 and carried water to the Shane ranch and the Heckenlively ranch which was part of the original Shane ranch.

According to the ditch company records held by J. C. Clark, secretary and treasurer, the Shane Ditch Company on September 15, 1902, filed on 3,000 miner's inches of water to be diverted by gravity from the Stillwater River in the northwest quarter of the southeast quarter of section 12, township 3 south, range 19 east. On March 5, 1902, the company was incorporated for twenty years with a capital stock of \$4,500.00 which was divided into 30 shares having a par value of \$150.00 each. J. M. Burton, Arthur Campbell and D. W. Pearson were

elected trustees at the first meeting. Later J. M. Burton was elected president and D. W. Pearson vice president and Arthur Campbell secretary and treasurer. The purpose of the incorporation was to secure funds to rebuild and lengthen the Old Shane Ditch. After organization, the company borrowed \$2,500.00 from the Yellowstone National Bank at Billings.

This note marked paid is now in the custody of J. C. Clark and is proudly displayed in the front of the Ditch Company ledger. After securing this money a contract was let to H. Keiser of Crow Agency who was to construct only the ditch with no flumes or other structures to be built by him. His bid was for \$.10 per cubic yard. The work was done with teams and slips. Oliver Kem, a water user, said that one user gets more water under this new ditch than was supplied to all of the users under the first ditch. On December 22, 1922, the company was reincorporated for 40 years.

In the past few years the company has spent about \$1,500.00 a year enlarging and improving the ditch system. In addition to the main canal the company maintains all turn-out boxes, six large flumes and a one hundred foot drop and stilling box. Four of these flumes are above the drop and two below. For the last few years, annual assessments have been \$50.00 a share. There are years however when the assessments are less or there are no assessments at all, as they are made only when there is work to be done on the ditch system. With the \$50.00 assessment the average cost of water would be \$.65 an acre. This charge includes operation and maintenance charges, the salaries of the secretary and treasurer and the ditch rider. The company has no indebtedness and has some money in reserve.

The main canal is about 13 miles in length. The topography is river bottom land lying in the Stillwater River and Yellowstone River Valleys. As this is all river bottom land the soils vary greatly as to type. Water is proportioned out to the users by a percentage method depending on the number of shares held by each user. No measurement has been made of the size and capacity of the ditch or as to the amount of water delivered to each user. Water is delivered to 11 farms which represent 25 shares and to several small users that have fractions of shares that total 5 shares.

Farming is highly diversified with hay and small grains the leading cash crops. Some sugar beets and beans are raised on the project. Each farmer has some livestock with no great number kept on any farm. The elevation of the project is about 3,650 feet. The frost free period is about 121 days and the average annual precipitation is about 15 inches. Columbus is the nearest shipping point being only a few miles from the project. The project is served by a paved road between Columbus and Absarokee which connects with U. S. Highway No. 10 at Columbus which makes local markets and shipping facilities accessible to all farms throughout the year.

Prior to 1918 the Shane Ditch Company supplied water to the Columbus area by means of a siphon across the Yellowstone River. This ditch was called the Dan Nice Ditch. The siphon went out in the June flood of 1918 and was never reconstructed. The siphon was a wood stave pipe reported to be about four feet in diameter. Old timers say that about 600 acres were irrigated from this system. The land that was served by the siphon was later irrigated by the Columbus Irrigation District which pumped water from the Yellowstone River. The canal was located above the Northern Pacific Railway tracks and because seepage en-

dangered the railroad bed, the railway company got out an injunction against the ditch company and made them discontinue this system. This land is now served by the Columbus Water Users' Association Project.

On September 15, 1902, the Shane Ditch Company appropriated 3,000 miner's inches of water to be taken by gravity from the Stillwater River. The filing was made April 3, 1915. The point of diversion was described as a point 1,740 feet in a northwest direction from the southeast corner of the northeast quarter of the southeast quarter of section 12, township 3 south, range 19 east. The purpose was for domestic use, irrigation and other useful purposes. The system was described as a ditch 8 feet wide on the bottom, 18 feet wide on the top and 3 feet deep. The land description of intended place of use was, south half of the southeast quarter of section 29, south half of the southwest quarter, northeast quarter of the southwest quarter, northwest quarter of the southeast quarter, southeast quarter of the northwest quarter, southwest quarter of the northeast quarter, north half of the northeast quarter of section 32, the northwest quarter of the northwest quarter, east half of the northeast quarter of section 33, the north half of the northwest quarter, lots 3 and 4, north half of the southeast quarter of section 34, southeast quarter of the northwest quarter, south half of the northeast quarter, east half of the southwest quarter of the southeast quarter of section 34, southeast quarter of the northwest quarter, south half of the northeast quarter, east half of the southwest quarter of the southeast quarter of section 34, southwest quarter of the northwest quarter, the southwest quarter, west half of the southeast quarter, southeast quarter of the southeast quarter of section 36 in township 2 south, range 20 east and north half, northeast quarter of the southeast quarter of section 1, the northeast quarter of the northwest quarter, the northeast quarter, the northwest quarter of section 5, the southwest quarter of the northwest quarter and fraction of the northeast quarter of the northeast quarter east of the river, fraction of southwest quarter of the northeast quarter in section 6, township 3 south, range 20 east. The notice of appropriation is on file in Stillwater County Courthouse in Columbus, Montana, in Book 1, Page 530, of Miscellaneous Records.

In 1944 there were 1,593.00 acres being irrigated under the Shane Ditch with a potential acreage under existing works of 186.00 acres or a maximum acreage of 1,799.00 acres. We also found 94 acres of seeped land.

STATE WATER CONSERVATION BOARD

Following is the agreement referred to under the descriptions of the Columbus Irrigation Project and the Merrill Ditch Company:

THIS AGREEMENT, made and entered into this 26th day of January, 1938, by and between the Merrill Ditch Company, a corporation, with its principal place of business at Columbus, Montana, as party of the first part, and the State Water Conservation Board, a body politic, duly recognized and existing under the Laws of the State of Montana, as party of the second part, and hereinafter referred to as the "Board":

WITNESSETH

THAT, WHEREAS the party of the first part is the owner of and entitled to the use of 2,000 miner's inches, equivalent to 50 cubic feet of water per second of the Yellowstone River, in Still-

water County, Montana, said water being used for the purpose of irrigating approximately 2,000 acres in section 6, township 2 south, range 19 east; sections 32, 33, 34, township 1 south, range 19 east, and sections 5, 3, 2, 11, 14, 13 and 24, township 2 south, range 19 east, and section 19, township 2 south, range 20 east, all in Stillwater County, Montana, together with the ditch and right-of-way thru which the said waters are being conveyed and distributed to and upon the lands above referred to; that said ditch is approximately 9 miles in length and more particularly described as follows:

"Beginning at a point on the north bank of the Yellowstone River from which the west $\frac{1}{4}$ corner of sections 6, T. 2 S., R. 19 E. bears N. $32^{\circ} 04' W.$ and running thence in an easterly direction to the east line of said section 6, thence northeasterly thru the NW $\frac{1}{4}$ of section 5, T. 2 S., R. 19 E. to the north line of said section 5, thence northeasterly thru the S $\frac{1}{2}$ section 32, T. 1 S., R. 19 E. to the east line of said section 32, thence southeasterly thru the S $\frac{1}{2}$ section 33, T. 1 S., R. 19 E., to the east line of said section 33, thence southeasterly thru the SW $\frac{1}{4}$ section 34, T. 1 S., R. 19 E., to the south line of said section 34, thence southeasterly thru section 3, T. 2 S., R. 19 E. to the east line of said section 3; thence southerly thru the SW $\frac{1}{4}$ of section 2, T. 2 S., R. 19 E. to the east line of said section 3; thence southerly thru the SW $\frac{1}{4}$ of section 2, T. 2 S., R. 19 E. to the south line of said section 2; thence southeasterly thru section 11, T. 2 S., R. 19 E. to the south line of said section 11; thence southeasterly thru the NE $\frac{1}{4}$, section 14, T. 2 S., R. 19 E. to the east line of said section 14; thence southeasterly thru the W $\frac{1}{2}$ section 13, T. 2 S., R. 19 E. to the south line of said section 13; thence southeasterly thru section 24, T. 2 S., R. 19 E. to the east line of said section 24; thence easterly thru section 19, T. 2 S., R. 20 E. to a point on the east line of said section 19, T. 2 S., R. 20 E. approximately 1628.0 feet south of the east $\frac{1}{4}$ corner thereof."

WHEREAS, the said party of the first part has enjoyed and has had the prior right to the use of said water, right of way and easement for approximately 40 years; and

WHEREAS, the Board has, under the Laws of the State of Montana, organized an irrigation project known as the Columbus Irrigation Project for the purpose of irrigating and reclaiming lands in sections 16, 20, 21, 22, 26, 27 in T. 2 S., R. 20 E., all in Stillwater County, Montana, and in order to affectuate the purpose of said project, the Board has appropriated all of the unappropriated waters of the Yellowstone River to be conveyed and used for the irrigation of said lands and for other beneficial purposes; and

WHEREAS, the lands to be irrigated by means of said project are so situated that it is feasible, economical, and desirable that the waters so used by the Board be conveyed through the said Merrill Ditch to the extension ditch to be constructed by the Board to and upon the lands available for irrigation and herein referred to; and

WHEREAS, it is the desire of the Board to secure a perpetual right to convey the necessary water by it appropriated, through the said Merrill Ditch; and

WHEREAS, the said party of the first part, in consideration of the mutual benefits to accrue to the parties hereto and upon the terms and conditions herein stated, is willing to grant to the Board a perpetual right to convey the waters necessary to irrigate the above described lands and for other beneficial purposes;

NOW, THEREFORE, in consideration of One Dollar (\$1.00) lawful money of the United States, in hand paid by the Board to the party of the first part, receipt of which is hereby

acknowledged, and for other valuable considerations of mutual benefit to the parties hereto, it is covenanted and agreed as follows:

I. That the said party of the first part does hereby grant, bargain and sell to the Board, its successors and assigns, the perpetual right and privilege to flow and convey through the said Merrill Ditch an amount of water from the Yellowstone River necessary to reclaim the irrigable lands herein described and for other beneficial uses in accordance with the terms and conditions herein stated; also the right and privilege of the Board, its agents, representatives and employees, to go upon the easement and right of way of said Merrill Ditch for the purpose of enlarging said ditch and to make such improvements and alterations as are herein referred to and that may be needful in the future.

II. That the Board hereby agrees to enlarge and increase the capacity of said Merrill Ditch; to install a siphon or such other equipment as engineers may approve at Berry Creek, and to make such other improvements as are necessary to carry and convey such waters appropriated by the Board, in addition to the water that is being carried and owned by the Merrill Ditch Company, party of the first part herein, the cost of said enlargement and improvements to be borne entirely by the Board.

III. That notwithstanding this contract, the party of the first part is to retain all of its rights and privileges heretofore and now enjoyed; to convey through the said Merrill Ditch not more than 2,000 miner's inches of water for use upon the lands hereinabove referred to for the benefit of its stockholders and water users, and the Board is not to interfere with nor prejudice the party of the first part in any manner in its prior right to convey said water through the Merrill Ditch as it has heretofore enjoyed.

IV. The Board shall install headgates necessary for the use of the several water users of the said Merrill Ditch at such places and such points on said ditch as said water users may designate, provided that the selection of said points for said headgates shall be by the respective water users and reported to the Board or the contractors on said work prior to the commencement of enlarging said ditch, and provided further that the said Board shall not be under any obligations to construct more headgates than are now in use by the water users of the said Merrill Ditch; and provided further that such headgates shall be constructed in accordance with specifications provided by engineers; and provided further that the headgates now used by the water users of said ditch may be used whenever suitable and practical and shall not be reconstructed by the Board.

V. It is further covenanted and agreed that the party of the second part shall have jurisdiction for the purposes of operating said ditch at all times, and it shall, during the irrigation season of each year, provide a ditch rider whose duty it shall be to see that the water users of the party of the first part receive their pro rata share of water the first party is entitled to hereunder; that the salary paid to such a ditch rider shall be a part of costs of maintenance; that it shall be the duty of the water users, when more or less water is by them needed, to notify the ditch rider of their needs and said rider shall distribute the water as the needs of the users shall appear within the limits of their rights.

VI. It is mutually understood and agreed that the consideration hereof for the enlarging of the Merrill Ditch is the continuous supply of water from year to year, and the main-

tenance of the ditch as herein provided, and that this agreement shall be valid and binding upon the first party only to long as said second party shall substantially comply with its agreements and with the conditions herein stated; that upon the failure of said second party to comply with any or all of the covenants on its part to be performed at the times and in the manner herein provided, and in the further event that the Board shall abandon its project and cease to operate the same, then and in that event the party of the first part shall resume and shall retain the exclusive right to said easement, right of way and ditch, and shall have the right to distribute to its stockholders and water users the waters for irrigation purposes in the same manner and to the same extent as it did previous to the execution of this contract, without loss or prejudice in any way on account of said abandonment and default of the Board; and shall have and enjoy all the rights and privileges of said water rihgt, ditch and easement, as it did prior to the execution of this contract.

It is further understood and agreed that the party of the first part shall pay three-sevenths of the actual costs of maintenance, upkeep and repair of said Merrill Ditch, and that the second party shall bear the costs of the balance, to-wit: Four-sevenths thereof.

The covenants and agreements herein set forth shall extend to and be binding upon the successors or assigns of the parties hereto, the same as if they were specifically herein mentioned.

IN WITNESS WHEREOF, the Merrill Ditch Company, pursuant to authority from its Board of Directors, has caused this agreement to be executed in its corporate name by its President and attested by its Secretary, and the State Water Conservation Board has caused this agreement to be executed in its corporate name by the Governor of the State of Montana and Ex-Officio Chairman of said Board, and attested by its Secretary, and the parties hereto have caused their respective corporate seals to be attached hereto, all as of the day and year first above written.

Signed Jan. 26, 1938.

The SWCB received a loan and grant offer from the Federal Government, dated October 1, 1937, which was accepted on October 6, 1937. This offer called for the construction of the project at an estimated cost of \$56,364.00 of which \$25,364.00 was to be a grant and \$31,000.00 a loan, evidenced by Water Conservation Revenue Bonds. It required the formation of the Columbus Water Users' Association and the sale of 1,550 miner's inches of water, under contracts satisfactory to the Finance Division of the P. W. A.

The Columbus Water Users' Association was incorporated under the Laws of Montana on January 1, 1938. Water purchase contracts for 1,550 miner's inches of water with purchasers satisfactory to the P. W. A. were secured and approved by the Association on April 18, 1938, and by the Board on April 20, 1938. The Bond Transcript was completed and the Bonds were sold to the Government on August 2, 1938.

Bids for the construction of the project were receiveod on February 16, 1938. The low bidder was Barnard-Curtiss Company, Minneapolis, Minnesota. The contract was awarded on March 10, 1938, subject to approval by the P. W. A., which approval was received on April 2, 1938.

Work was commenced on April 4, 1938, and completed on September 21, 1938. Owing to the necessity of changing the type of construction around the hill about one mile west of Columbus, in order to protect the N. P. Railway Company tracks in a manner satisfactory to it (the canal is on its right-of-way) the construction cost was increased a considerable amount.

To secure the funds to construct the project, the Board issued its Water Conservation Revenue Bonds, Series "P," dated May 1, 1938, in the amount of \$31,000 secured by a Trust Indenture of the same date, executed by the Board and the Montana National Bank of Billings as trustee. This Indenture provides that all of the revenue of the project are pledged for the payment of the interest on, and principal of, the Bonds. These bonds bear interest at the rate of 4% per annum, payable May 1, 1939, with the first bond principal in the amount of \$600 due May 1, 1941, and increasing annual payments to the sum of \$1,800 due May 1, 1968.

The security mentioned consists of a Water Marketing Contract between the Association and the Board, and Water Purchase Contracts entered into between each individual water purchaser, the Association, and the Board. The original list consists of 35 contracts, totaling 1,550 miner's inches of water, at \$1.56 per miner's inch per year, commencing with the year 1939, to and including 1967. The total sums due under these contracts are sufficient to pay all interest and bond principal, and provide a reserve of approximately 30%.

Under the terms of the Water Marketing Contract between the Columbus Water Users' Association and the Board, the Association agrees to pay the Board the sum of \$2,418 on November 1st of each year, beginning with the year 1939 and to and including 1967.

On September 1, 1937, the SWCB appropriated all of the unappropriated waters of the Yellowstone River and recorded the filing in Stillwater County on September 7, 1937.

The work of reconstructing the system does not include a diversion dam across the river at the canal intake. A headgate and two 4'x4' slide gates comprise the intake. The extension of the Merrill Ditch required 1,676 feet of metal flume, 5 feet in diameter, to transport water around rock bluffs just west of Columbus which overcame the obstacle that previously caused the discontinuance of the Columbus Irrigation District on account of the injunction granted to the Northern Pacific Railway Company. A concrete syphon, 70 feet long and 60 inches in diameter, provides the crossing at Berry Creek. The total excavation to reconstruct the system required the removal of 62,500 cu. yds. of common and 3,800 cu. yds. of rock, or a total of 66,300 cu. yds.

WEST ROSEBUD DITCH COMPANY

The West Rosebud Ditch Company project is located about 7 miles west of Absarokee on Fishtail Creek. Water is taken by gravity from Fishtail Creek on the southwest quarter of section 31, township 4 south, range 18 east, on the north bank. The main ditch is about 3 feet wide on the bottom, 1 foot deep and is about 4 miles long.

The West Rosebud Ditch Company was incorporated June 8, 1903, with a capital stock of \$10,000.00 which was divided into 10,000 shares of a par value of \$1.00 each. Five thousand shares were issued. John Flanagan, E. B. Thayer, R. C. Howard, Ben Hall and M. O. Magge were the first directors. Waters that were to be appropriated were to come from the West Rosebud River and Fishtail Creek. Under this original plan the water from the West Rose-

bud River was to be diverted on the west bank in section 18, township 5 south, range 18 east. Water from this point was to be carried about 8 miles to Fishtail Creek at a point in the southeast quarter of section 31, township 4 south, range 18 east, and turned into the main ditch and mingled with the waters from Fishtail Creek. This plan never materialized and water is only diverted from Fishtail Creek. Water users say they are short of water under the present system unless it is an extremely wet year or if there is an above average snow cover in the mountains.

The topography is rolling, hilly land making irrigation rather difficult. Soils are dark brown in color and are of a sandy loam nature. There are four ranches served by the company. On the lower end of the main ditch about 3 miles of the ditch have been abandoned because it did not pay to try to maintain this part of the ditch with the limited supply of water available. If additional water could be obtained, 1,200 to 1,500 acres of new land could be irrigated under this system.

The principal crops are small grains and alfalfa hay. During an average year the grain crops are not irrigated. According to Joe Toohey, the company now operates as a private ditch, has no secretary and makes no assessments. If any work needs to be done, the users get together and do an equal amount. Mr. Toohey also said that water was first used under this system by J. W. Toohey and Cris Carstens in 1898.

On September 23, 1903, the West Rosebud Ditch Company filed a notice of appropriation for 5,000 miner's inches of water to be diverted from the West Rosebud River. The point of diversion was described as a point upon its west bank and running thence in a northwest direction and flumed across Fishtail Creek thence over said land. The system was described as a ditch 120 inches by 24 inches in size with the capacity to carry 5,000 inches of water from said river. The purpose was for irrigation and other uses. The place of intended use was described as parts of sections 8, 17, 18, 19, 20, 21, 22, 23 and 24, all in township 4 south, range 18 east. The above appropriation is on file in Stillwater County courthouse, Book 3, Page 728 of Miscellaneous Records. On September 5, 1903, the West Rosebud Ditch Company appropriated 1,000 miner's inches of water to be diverted from Fishtail Creek. The filing was made September 10, 1903. The point of diversion was described as at a point upon the south bank running thence to a main ditch at which point it is mingled with the waters from the West Rosebud River thence over and upon said land. The purpose was for irrigation and other uses. The system was described as a ditch 48 inches by 24 inches in size which carries 1,000 inches of water from said stream. The land description of the intended place of use was given as parts of sections 8, 17, 18, 19, 20, 21 and 22 and the ranch of John Flanagan all in township 4 south, range 18 east. The above appropriation is on file in the Stillwater County courthouse in Book 3, Page 727 of Miscellaneous Records.