

AN ABSTRACT OF THE THESIS OF

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Title THE WARNER VALLEY STOCK COMPANY--A GEOGRAPHIC
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This thesis is a case study of the Warner Valley Stock Company, a large eastern Oregon Stock Ranch, which utilizes over 680,000 acres of government grazing land. The purpose is to examine the background, growth, and forces affecting the ranch. The relationship of man to land can be understood by presenting an organized view of the resources available and how he has utilized them.

The ranch is located in South Warner Valley, 35 miles east of Lakeview, Oregon. The valley, a graben 4400 to 4500 feet above sea level, is surrounded by a higher, rolling plateau with elevations ranging from 5000 to 7000 feet. The high desert rangeland has a sparse sagebrush-bunch grass vegetation. Warner Valley is an interior drainage basin which accumulates water for irrigation on valley fields. The natural vegetation of the valley floor consists of tules, willows, and native grasses which supply hay.

Early settlers arrived in the late 1860's and by the late 1870's a

a number of people settled and an estimated 7000 to 8000 head of cattle were present, grazing on the range in the summer and wintering in the valley.

The present ranch lands are owned largely as a result of land granted by Oregon through Swamp Land Laws. A controversy raged between homesteading settlers and the company for years, but was finally settled in favor of the company.

Immediately after buying the company in 1936, William Kittridge began reclamation by constructing dikes and canals to control the water. Cultivating and irrigating fields to grow grain was also initiated. This reclamation program continues, with the most highly developed land now producing four tons of alfalfa annually per acre.

Grazing rights on over 680,000 acres of government grazing lands are leased by the Company and support cattle five to seven months of the year while hay and grain crops are grown on the ranch. Grazing is controlled by the BLM through issuance of permits. Increasing competition by man for other uses of the rangeland such as wildlife refuges and recreation are a source of concern for the rancher. BLM is developing the range with multiple use concept in mind to achieve the maximum use possible. More intensive management of the range is increasing the range cost to the rancher.

This is a large concern with annual operating expenses of over

one million dollars, a cattle inventory of approximately 15,000 head (including calves), and a feed mill-feed lot installation which assists in raising the animals from calves to finished market animals. The principle market is California, with transportation being a costly factor.

The ranch as it now exists is the result of many forces. The physical elements place restrictions on the land, the most important being aridity, which does not allow diversification of agricultural production. At present cattle grazing is the most efficient land use. The large meat eating public assures a continued demand, although market requirements may deviate.

THE WARNER VALLEY STOCK COMPANY
A GEOGRAPHIC STUDY

by

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CHAPTER I

INTRODUCTION

Land use east of the Cascades is closely related to grazing activities. The physical elements of the environment such as climate, landforms, vegetation, soils, and cultural elements which include history, land tenure, land use patterns, science and technology, commerce and transportation, combine and form the man-land relationships. Although the eastern Oregon area is extensive, the natural endowments of the environment are limiting more than favoring economic activity. The basis for the present development has been the restrictive characteristics of the land which for most of the area precludes diversification of use.

To closely examine man and land in eastern Oregon, the Warner Valley Stock Company was chosen as an example of one of the larger ranches of the West whose systems and practices are typical. The focus of the Company's operations is in the South Warner Valley where some 22,000 acres are used for the production of feed and forage and the marketing processes are cluminated. In addition to the ranch headquarters more than 680,000 acres of adjacent range are leased from public agencies (mostly the Bureau of Land Management), and grazed under a controlled program. In

conjunction with the nearby Coleman Valley ranch (12,000 acres), the Company also operates in three other locations; Klamath Marsh (29,000 acres), Summer Lake (1400 acres), and the Red Bluff, California ranch (12,000 acres). These holdings are used in support of the main ranch. The Warner Valley Company manages cattle through the complete cycle from birth of the calf to the sale of the finished beef.

This thesis is a resource geography study and the presentation of the interrelated forces of the resource and cultural environment affecting the Warner Valley Stock Company (the MC ranch) are made through a case study method. The purpose is to consider the background, growth, and forces to indicate the available natural resources and to consider the problem particularly from the standpoint of the MC ranch.

The research has been primarily conducted by study in the field. The author established headquarters near the ranch (Adel) and had compatible and extremely cooperative relations with all ranch personnel. Background material was researched from printed sources, but the majority of information was obtained by observations and interviews with the people who lived and worked in the ranch environment.

The normal procedure was to be at the shop or cookhouse about

seven in the morning. Contact was made with one of the responsible personnel for the purpose of visiting various parts of the ranch where operations and certain specific problems were being investigated. A thorough acquaintance was made with the ranch, its people, and the many ramifications of ranch living and working. The many questions were always considered and answered, and many out of the way trips were taken to develop an over-all comprehension of the holdings. Patience and cooperation on the part of all concerned were characteristic of the entire field research.

The office manager spent much time explaining the business, the relationship of various units, the customers, suppliers, and a myriad of other details. Exact information as to land ownership and leased land operated by the company was made available so the various holdings could be consolidated into a cohesive picture.

Many interview were made with persons and agencies not directly connected with the ranch such as the county agents office, the Watermaster, county Records Office, Sheldon Antelope refuge, the crop duster, and ranch neighbors. The Bureau of Land Management office in Lakeview was very cooperative, both in giving information and allowing the use of files on Beatties Butte, South Warner, and the MC ranch.

Publications used for general background material include

sections of Wesley Calef's "Private Grazing on Public Lands", a number of pamphlets issued by the Squaw Butte Experiment Station in regard to the problems of forage and cattle on eastern Oregon range such as "Predicting Forage", "Sagebrush or Grass", "Research in Beef Cattle Nutrition and Management", and many others. The bibliography indicates specific source material.

The thesis is a methodical study of the MC ranch, beginning with the setting of the ranch and range where the landforms, climate, and vegetation are discussed. Occupation and development of the ranch area are covered from the white man's initial appearance in Warner Valley until the present period. Ranching operations are next described in detail, including the resources, and utilization of the home ranch, other leased or owned units, and the government range. Crop production and livestock management follow the preceding sections. The part concerned with finishing enters into the utilization of the crop production in the feed mill and feed lot in preparation for marketing the cattle. Marketing (the final process in handling the beef) is discussed, covering sales methods, transportation, and customers. The economic impact of the Warner Valley Stock Company in regards to labor, purchase of supplies, capital investment, and beef contribution to the U. S. economy concludes the ranching operations. The final chapter

contains a summary and conclusion regarding the impact of forces which have combined to result in the present and possible future operations. An appendix includes a section on soils, range plants, ranch ownership, inventory of mechanical equipment, disease control, and a glossary which contains ranching colloquialisms.

CHAPTER II

SETTING

The setting of the MC ranch headquarters is in the Warner Valley located near the northern edge of the Basin and Range Physiographic province, thirty five miles east of Lakeview, Oregon. The basin is a rift valley or graben (1, p. 102) extending over 50 miles north and south, with a width of four to ten miles. The north south axis of the valley is flanked by towering basalt cliffs from the Steens mountain flow of late Miocene age. The west rim rises to over 6800 feet elevation and the dissected east wall ascends to 8000 feet. (See Figure 1 on p. 11)

Warner Valley is an interior drainage basin, with the floor 4500 feet above sea level in the south and 4400 feet in the north. The gradual flow of water is to the north, terminating in Blue Joint Lake, one of several lakes dotting the valley. Evidence of ancient shore lines indicate the floor was entirely covered with water during the pleistocene geologic period. Approximately 18 1/2 miles from the south end, the basin is separated where drainage is restricted by a huge block of basalt rising above the general level. Water is forced to the east side of the valley through a narrow channel called the "Narrows" which separates the valley into the North and South

Warner.

The home ranch of the Warner Valley Stock Company is located in South Warner, extending from the south end of the valley to Crump Lake (see Figure 1 on p. 11). There are two principle streams supplying water to South Warner; Twenty Mile Creek enters at the south end and follows the gradual slope of the valley to the north (see Figure 2 on p. 19). Deep Creek enters through a cut in the west rim by Adel and its meandering course merges with Twenty Mile Creek.

Surrounding Warner Valley is the high desert range with elevations varying from 5000 to 7000 feet. The vast expanse of dry, wind-blown land, with extensive visibility, contains a diverse topography characterized by moderately level benches, gentle rises, and occasional precipitous escarpments. One of the larger valleys, Guano, is a graben with an average floor elevation 5100 feet, however, the east wall rises over 1000 feet above the valley bottom. Beatties Butte, over 7800 feet elevation, is a cinder cone located in the north of the grazing area (see Figure 1 on p. 11).

Warner Valley and the surrounding territory is arid with an average annual precipitation below ten inches. A variation of from less than 6 to over 12 inches may normally be expected. Storms generally come from the west, and Lakeview shows consistently higher readings (two to ten inches) than Warner Valley. The

mountainous district west and southwest containing the watersheds of Deep Creek and Twenty Mile Creek collect more moisture than the valley. The majority of the moisture occurs in the fall, winter, and spring, with drought usually occurring during summer months.

The temperatures will vary throughout the summer from a high average of about 90 degrees during the day to a low of 45 to 50 degrees during the night. Studies conducted in 1921 in Warner Valley indicate the extent of moisture loss caused by high temperatures; evaporation on open water that summer measured 36.74 inches and on marshy meadows the loss was 32.82 (13, p. 7). Interior drainage areas on the high desert that contain water in the spring are usually dry during the summer. Nearly every summer evening a breeze, predominantly from the south and west aids in cooling Warner Valley. Fire hazards caused by low relative humidity (often below 20%), high temperatures, and wind, are most prevalent during the summer. Monthly temperatures during the winter will usually average from 25 to 36 degrees. Below zero temperatures occur, with minus 16 degrees officially recorded at Plush in January 1952. Local residents claim much lower temperatures have occurred. These temperatures appear to be slightly warmer than Lakeview, which seems to concur with the conviction of local residents that Warner Valley has the most moderate winters in the southeastern part of

the state. A frost free period of approximately 90 days will allow barley to be grown for feed. There appears to be an element of chance that frost could affect a barley harvest. The MC ranch, however, has not had a failure since barley production started in 1955.

Natural vegetation on the valley floor where marshy conditions exist is mainly Tules, and Sedge grass (*Carex* sp), with Willows (*Solex* sp) along the water ways. A poisonous plant, Water Hemlock (*Circuta bulbifera*) which is fatal to cattle is often found along canal banks. The drier meadows will have native grasses, predominantly perennials such as Blue Wild Rye (*Elymus glaucus*), Blue Joint (*Elymus triticoides*), Idaho Fescue (*Festuca idahoensis*), Nevada Bluegrass (*Poa nevadensis*), and June Grass (*Kohleria cristata*).

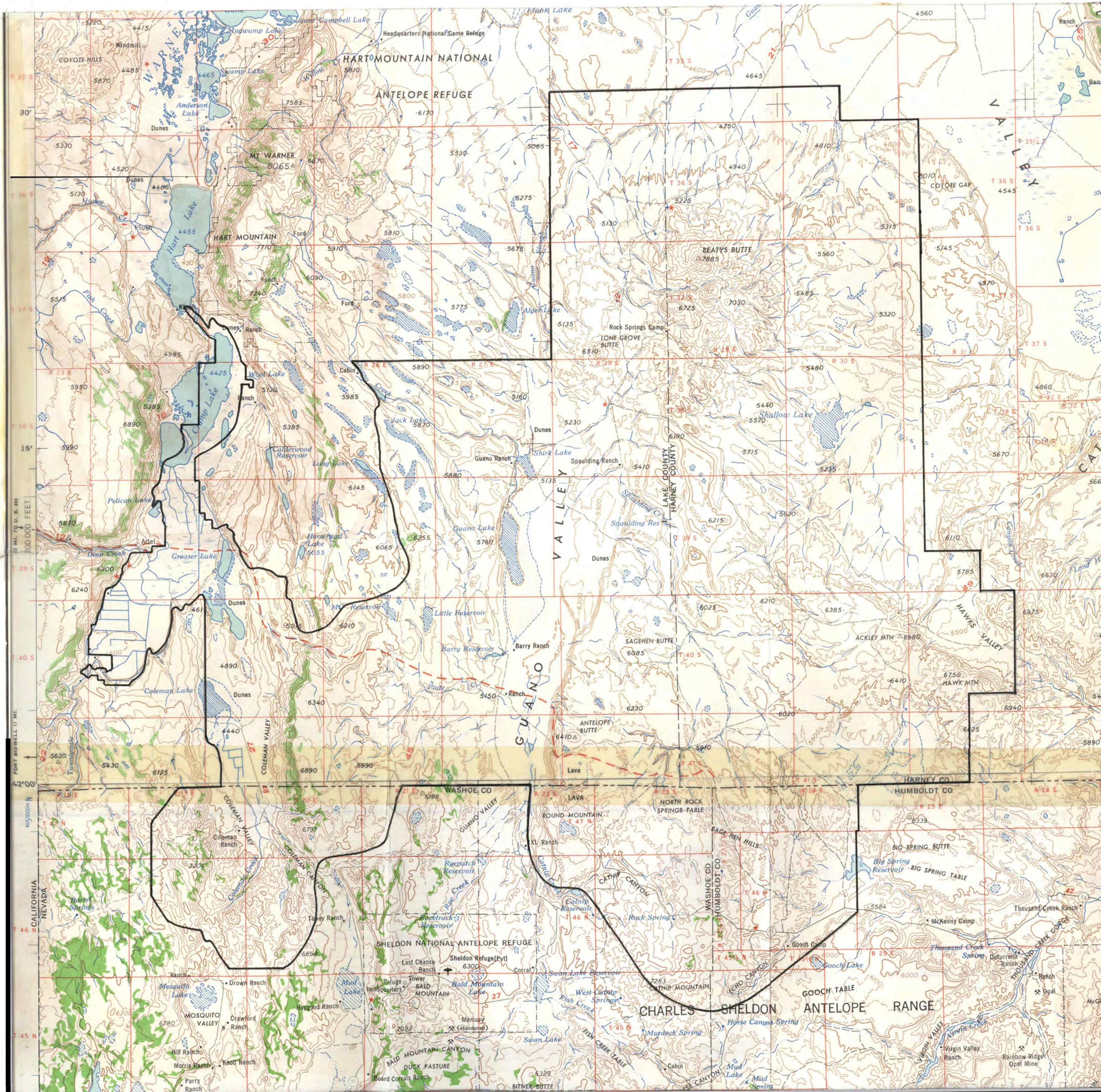
The high desert vegetation is an open sagebrush (*Artemisia tridentata*) bunch grass type that is typical of much of eastern Oregon. Silver gray in color and growing as high as six to eight feet -- sagebrush will vary in density from a few plants to thousands per acre. Other brush type vegetation present is Bitter Brush (*Purshia tridentata*), Rabbitbrush (*Chrysothamnus*), and Greasewood (*Sarcobatus vermiculatus*). Interspersed among the brush are bunch grasses, often unnoticed to the untrained eye, which supply the major range forage. Perennials similar to the ones mentioned in the preceding paragraph (see Appendix G) are among the bunch grasses.

Annuals, also present, provide a very unstable source of forage.

The major annual is Cheat Grass (*Bromus tectorum*), whose growth during dry years is very low when most of the seed is dormant. On wet years, however, (such as 1963) growth is widespread and provides excellent spring forage. There is a close relationship between precipitation and growth in all plants. The variation in growth from year to year for perennials may be about three to one while the variation of annuals may fluctuate as much as ten to one. For example, if a luxuriant growth one year were followed by a dry year, the annuals may produce only one tenth of the crop of the preceding year, while the perennial production should not be lower than one third. Perennials are much more stable producers and therefore supply the bulk of the dependable forage.

Figure 1

Relief map of MC home ranch and range, from Adel and Vya sections
USGS, Scale 1/250,000 1958



CHAPTER III

EARLY OCCUPATION AND SEQUENCE OF DEVELOPMENT

Warner Valley, before the arrival of the white man, was inhabited by the Paiute, a Snake branch of the Shoshone Indians (4, p. 805). The crafty Paiutes, well versed in warfare, controlled the neighboring tribes. Although the use of horses gave the Paiute a wide range of hunting, their main campgrounds were on the shores of Crump, Pelican, Warner, and Hart Lakes, which supplied fish, attracted game, and abounded in waterfowl. Today, these sites attract hunters of Indian relics especially during dry years when exposed lake beds reveal numerous artifacts.

The first white men were fur traders who came early in the 19th century. The initial Oregon Territory map showing Warner Lake was made under the direction of Col. A. J. Abert of the U. S. Engineers in 1838. Data was obtained from Hudson Bay trappers who had been in the area. Eleven years later, Captain William Warner, a U. S. topographical engineer for whom the valley was named, spent several weeks surveying in the Goose Lake and Warner Basin regions.

The U. S. Army entered the picture in 1866 when General George Crook was ordered to the area to subdue the Indians who were

antagonistic to the white men. The first army headquarters, Camp Warner, was built on the west side of the Narrows between Hart and Crump Lakes. Original orders had, however, called for the camp site to be on the east side. The change was difficult as a rock road had to be constructed across the marshland and waterway. Another site was chosen west of Warner Valley in 1867 and the post was maintained until 1873. The Indians were routed by General Crook's unit at the battle of Donner and Blitzen in 1868, which minimized their threat to white settlement.

The first valley settler, David Jones, followed the soldiers to Camp Warner in 1867, established a ranch near the camp and sold hay to the army. The first herd of cattle was brought to the valley in 1869 by August Miller, who later became one of the first stock raisers of the Lake county area. In the next few years several settlers trickled into the Warner region. The lowlands were considered unfit for crops because of periodic flooding and marshy conditions. During the early period of settlement stock grazing was the major agricultural adjustment. There were 7000 to 8000 head of cattle and several thousand head of hogs in the valley by 1876.

The U. S. Congress granted swamp and overflow land rights to the State of Oregon in 1860, allowing the state to dispose of these lands as desired. Ten years later the Oregon Legislature passed an act allowing citizens to buy swamp lands from the state without

a limit on acreage. Land classification became an important factor after the state began disposition of its swamp lands. Warner Lake, located in South Warner Valley, was called a lake with no mention of the lake bed classification indicated on the first survey in 1875. A designation of lake or marsh was made by another survey in 1879.

In 1870, Messrs W. A. Owen, A. P. Owen, T. Reams, C. C. Beekman, and B. Smith, made an application to buy land under the swamp laws, with Warner Valley in mind. Although this was an application only, and not completed with a purchase, it amounted to an establishment of a claim to the land. The state legislature in 1872 enacted a ruling which allowed all settlers in swamp areas with lands under homestead pre-emption or donation laws at the time of swamp land applications, to hold their lands. Quitclaim deeds were given to settlers who had established proof of settlement. Many of the settlers could have avoided future difficulty by obtaining these deeds but most did not. Public reaction to swamp land sales in other sections of the state stimulated the legislature in 1872 to enact a ruling that limited swamp land sales to 320 acres per person. A minimum of \$1.00 per acre was set on all sales and all past applications were required to submit 20% of the total price. In the years from 1872 to 1883 there were four applications tendered to buy lands in South Warner under the swamp land regulations. Only one of these, 902

acres to R. F. McConnaughty, was accepted in 1882. In 1884 however, H. C. Owen applied for 78,000 acres with an assignment from the men who made the first application in 1870 (excepting B. Smith). At this time the 20% down payment was accepted and a certificate of sale was issued. The justification was that the assignment of the rights of the first swamp land application in 1870 entitled him to 78,000 acres because an acreage limit was not established until 1872. R. F. McConnaughty bought a portion of the land one month after the sale and purchased the remaining acreage from F. N. Felton seven months later. The land was controlled by McConnaughty until 1891.

The Warner Valley Stock Company came into being when a group of stockmen (George M. Koher, W. B. Whittemore, R. F. McConnaughty, Martin McConnaughty, C. A. Cogswell, Andrew McCallen, and P. G. Crisman) formed the organization with a capitalization of \$400,000 and acquired title to all lands in Warner Valley obtained from the state. (9, p. 133)

While swamp land negotiations were occurring, there was extensive settlement in the valley by men who expected to receive title by homesteading. Friction developed and there were court contests when McConnaughty attempted to recover hay allegedly cut from his land. In time, there were 50 or more claimants living in Warner Valley under the federal settlement laws, and nearly all had

individual cases before the Land Department contesting the swamp land sales. Finally on July 17, 1899 all the cases were consolidated as far as possible and the famous case of J. L. Morrow et al versus the Warner Valley Stock Company was started in the U. S. Land Office in Lakeview. The settlers took the position that at the time of the sale, the lands were permanent lake beds, not swamp lands, and thus were classified incorrectly and should not have been sold as swamp lands. On the third of February, 1900, the local Land Office rendered a decision favorable to the settlers. The case went to the General Land Office which reversed the decision. After exhaustive reviews, the commission changed once more in favor of the settlers. Finally the case was appealed to the Secretary of Interior and the decision was reversed again and given to the Warner Valley Stock Company. There were 32 settlers who then took the case to the Oregon Judicial authorities and again the company was given a favorable decision. Litigation was actually carried into the 1920's.

The company functioned satisfactorily until the drought and depression years of the 1930's. The ranch was having financial difficulties and some of the stockholders were looking for a buyer. In this period, William Kittridge approached the stockholders with an offer to purchase the organization.

William Kittridge Acquisition

William Kittridge had been a successful stock rancher in eastern Oregon prior to his purchase of the MC ranch. His ranching career started in the Silver Lake area with his brother Walter. After selling out and going to the Willamette Valley for two years, he returned to eastern Oregon and obtained land at Summer Lake. Gradually he began expanding his holdings, acquiring hay producing land as well as range property by buying or leasing. Through the buy-lease procedure he began to concentrate on the Klamath Marsh basin, where, by the mid twenties an efficient ranch with excellent water rights was established. During the late twenties further expansion was accomplished by leasing three properties; the sod house section of the "P" ranch - an enormous ranch once operated by Peter French, extending from Hart Mountain to Riddle Mountain and from Malhuer Lake to the Steens Mountains -; a ranch in the Tule Lake district; and the Likely property near Alturas, California.

The Kittridge family control of the MC ranch was inaugurated in 1936 when William Kittridge purchased the company. The stockholders were offered par value for their shares worth \$400,000 and were allowed to keep all cash and bonds on hand at the time of sale. Kittridge immediately relinquished all interest in his leased

properties and concentrated his efforts on the Warner Valley Stock Company--to enlarge, improve, and make the ranch possible.

Enlargement of property holdings was partially accomplished when Kittridge obtained water rights held by the "P" ranch. Land containing springs was bought at Beatties Butte, Hawks, and Actey mountain. The eastern boundary of the grazing area was extended approximately 20 miles east of Guano (actually 13 to 17 miles east of the Lake-Harney County line--see Figure 1 on p. 11). Other important acquisitions consisted of the Robinson land (with a block of excellent water rights on Twenty Mile Creek), the Dugout area (South Warner), and a winter range ranch of approximately 12,000 acres south of Red Bluff, California.

Development of Drainage and Irrigation

Aside from small drainage ditches near the headquarters area, nothing had been done to improve the Warner Valley Stock Company land before the Kittridge purchase. Water control was the first important step to improve production. Two primary sources of water were available--Twenty Mile Creek, entering the valley from the south and Deep Creek from the west (see Figure 2 on p. 19). The general drainage was from south to north. A low alluvial fan centered on the Deep Creek entrance near the headquarter, however,

WARNER VALLEY STOCK CO.

Water control system

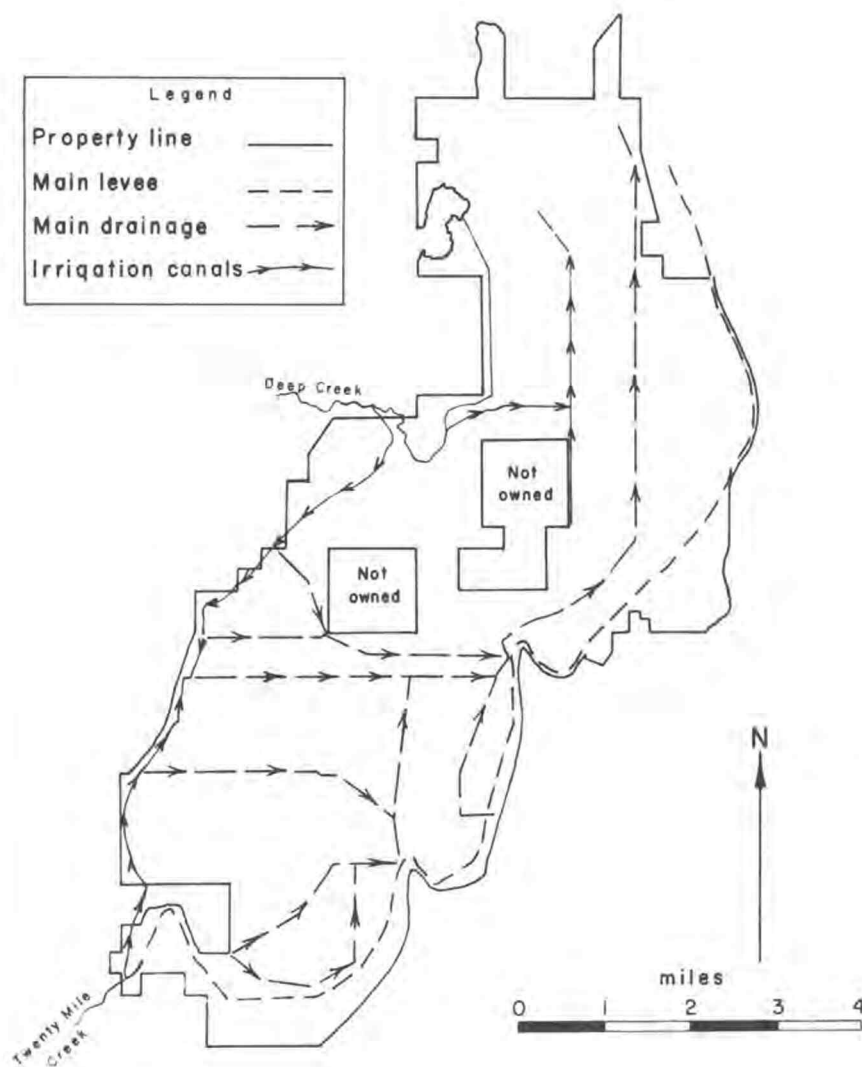


Figure 2

diverted Deep Creek south where the water merged with Twenty Mile Creek and then followed the general slope to the north.

Kittridge worked out a water development-reclamation plan and began by building a diversion dike or levee on Twenty Mile Creek, forcing the stream to the eastern side of the valley. The creek was then forced to drain north without going into the lower areas in the valley floor. Gates were left in the levees to allow water to be used on the ranch when needed. This outside levee has been lengthened and enlarged until it is now about 18 miles long, approximately 15 feet high, and presently carries flood waters to the northern portion of the ranch (see Figure 2 on p. 19). Drainage of the low areas was initiated by cutting a large canal from west to east and then extending it north along the valley floor. Low places are now drained by small canals and the water is raised to the main drain by electric pumps.

Irrigation, the final phase of water control was integrated with drainage installations. The two water sources, Deep and Twenty Mile Creeks, each have a dam and headgate for water control. The Twenty Mile water was moved in irrigation canals as much as three and one half miles north of the creek entrance (see Figure 2 on p. 19). Deep Creek irrigation water was taken south as far as the northern limit of Twenty Mile water. Canals from the two streams have been constructed and integrated into a system whereby water can be brought

Photo Number 1



Main drain canal--extends east, then turns north. Vegetation in the canal indicates the constant problem of vegetative congestion which requires spraying or occasional cleaning.

to all fields requiring irrigation. Water can be held in the canals and re-used by diverting it to another canal and then to another field. The recirculation of water through pumps and gates provides efficient water use. .

The ranch has water rights for about 20,000 acres, with the earliest dating from 1876. Sixty eight hundred acres was claimed in 1880, and most of the balance dates from 1880 to 1900 (10, p. 28-33, 25-44). The area of water rights is on a return flow basis, therefore the water may be re-circulated before sending it down stream. Labor needs are relatively low, by opening gate valves one man is able to irrigate 5000 to 6000 acres of wild hay meadows, or about 1000 to 1500 acres of tame grass or alfalfa.

A consistent program of maintenance and improvement of the ranch has been the philosophy of the company, with construction of new ditches, field leveling, and check dam installation proceeding whenever possible. A large amount of control equipment such as conduit and valves has been installed as it became necessary. There are two large electric pumps available to raise the water from one level to another, whether for drainage or to re-circulate for more irrigation.

In 1955 a disastrous flood on Twenty Mile Creek caused a halt in the reclamation expansion. A break in the main levee seriously

threatened the work that had been done. At present the major effort has been maintenance work and rebuilding the main levee. A dragline operator works on this task continuously throughout the year.

Photo Number 2



Dragline straightening Deep Creek. Hart Mountain on the right skyline and the west valley rim is to the left.

CHAPTER IV

MC RANCH PROPERTIES AND RANCHING OPERATIONS

A number of segments under the Warner Valley Stock Company management are individual in themselves, however, they are controlled in a manner which allows their most efficient producing capabilities to augment each other. This chapter consists of detailed accounts of the properties and rangeland. The crops, livestock, feeding operation and marketing are also discussed, followed by a final section on the economic impact of the company.

Ranch Headquarters Area

The MC home ranch property is from three to four miles in width and nearly 12 miles in length, totalling 22,583 acres. Headquarters is located about one mile south of Adel on the western side of the valley (see Figure 3 on p. 26 and Figure 6 on p. 47). On the right of the headquarter's entrance gate is the company airstrip located on an elevated bench. Although the company owns no planes, occasionally visitors use the strip or planes are rented for business trips. The runway is also used for airplanes engaged in spraying. Timber for bridge and other repairs plus a reserve of steel pipe and headgate valves for the irrigation system are kept near the

WARNER VALLEY STOCK CO. Headquarters area

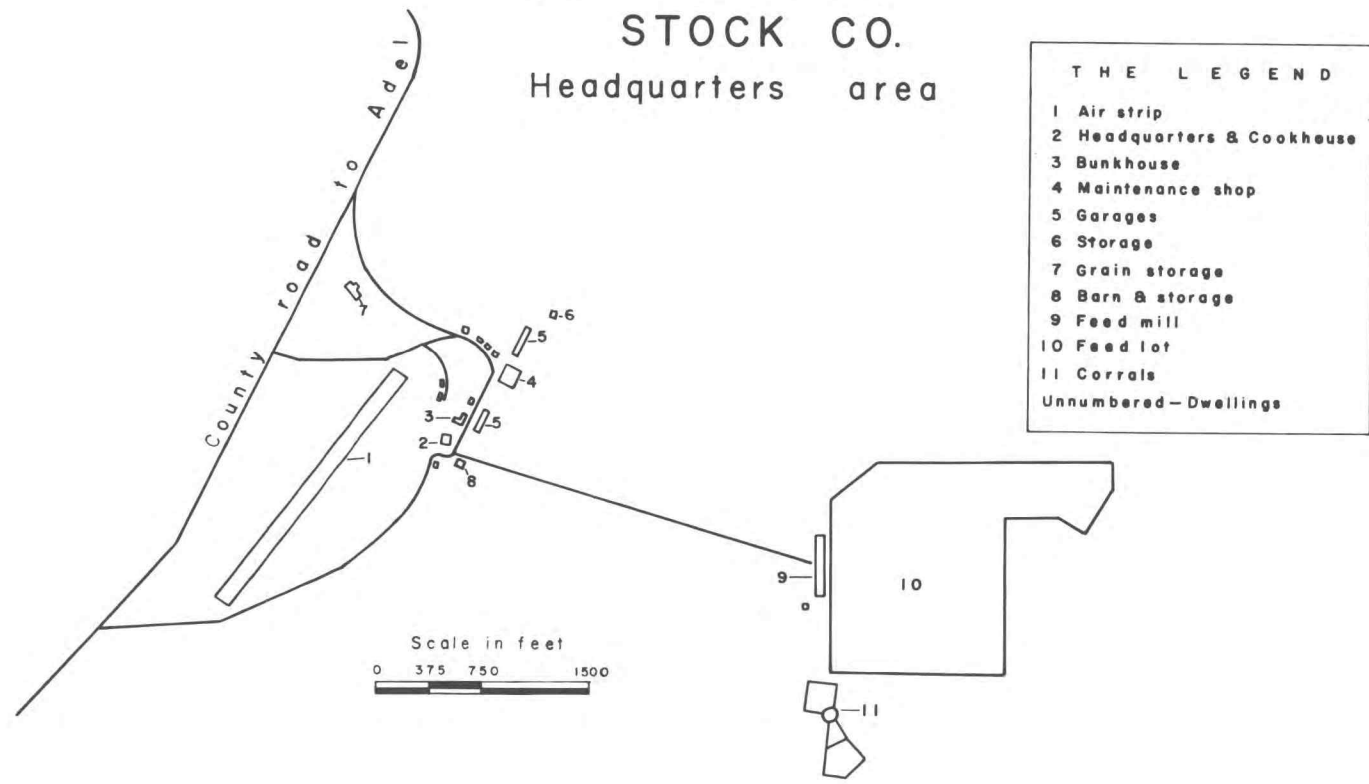


Figure 3

Jack Hunt

strip. On the left of the entrance gate is a grain storage building with a Fairbanks-Morse truck scale used to weigh grain.

Below the elevated bench area is a large maintenance shop completely equipped for all types of farm maintenance such as welding and truck repair. This building also contains a machine shop, blacksmith shop, and a section for the carpenter. Adjacent are two long narrow sheet metal buildings for tractor and truck storage. The ranch headquarters office, located in a building constructed about the turn of the century, also contains living quarters and a cookhouse that provides meals for year around as well as seasonal crews. Housing for employees consist of a bunkhouse, five houses, and three house trailers. Several storage buildings and a barn complete the building cluster. The barn is used for a few milk cows that are pastured close by for a ranch milk supply. A number of Leppie (orphan) calves are also sheltered here.

About one half mile east of the headquarters is the feed lot. Adjacent to the feed lot are corrals and chutes used for breaking (training) horses as well as dehorning, vaccinating, and spraying cattle. The dipping vat and a small slaughterhouse are nearby. A bunkhouse close to the corrals is used by the buckaroos when they are working on the home ranch.

On the county road near the ranch entrance are located three

Photo Number 3



Ranch headquarters, --Maintenance shop is to the right of center. Grain storage is directly above on the same level with the airstrip behind the evenly spaced trees. The main office and cookhouse is on the lower level in the clump of trees in the foreground--Deep Creek canyon is in the low part of the horizon.

houses used by the general manager and two foremen. Two and one half miles south on the road is the grain camp with a modern cook-house and bunkhouse for the construction and grain farming crew. Across the road is located a maintenance shop, sheds for machinery, and a large yard used for parking caterpillars, construction equipment, and grain combines. Three miles further south at the Robinson place are several houses for crew members, a barn, and shed. Equipment for handling baled hay is stored here.

Across the valley and about 20 miles south lies the company's Coleman Valley ranch, comprising about 12,000 acres. On this property is a home for the permanent caretaker, a buckaroo bunkhouse, barn, blacksmith shop, and corrals for breaking horses (see Figure 5 on p. 33).

The work staff on the home ranch consists of about 40 men the year around and 60 men during harvest. Responsibility for different functions is divided among four foremen (see Appendix B). Most of the activity is concentrated in the southern portion of the ranch because the main crop production is centered in this area. Other units are integrated in support of the home ranch.

Integrated Property

The Summer Lake property, about 75 highway miles northwest

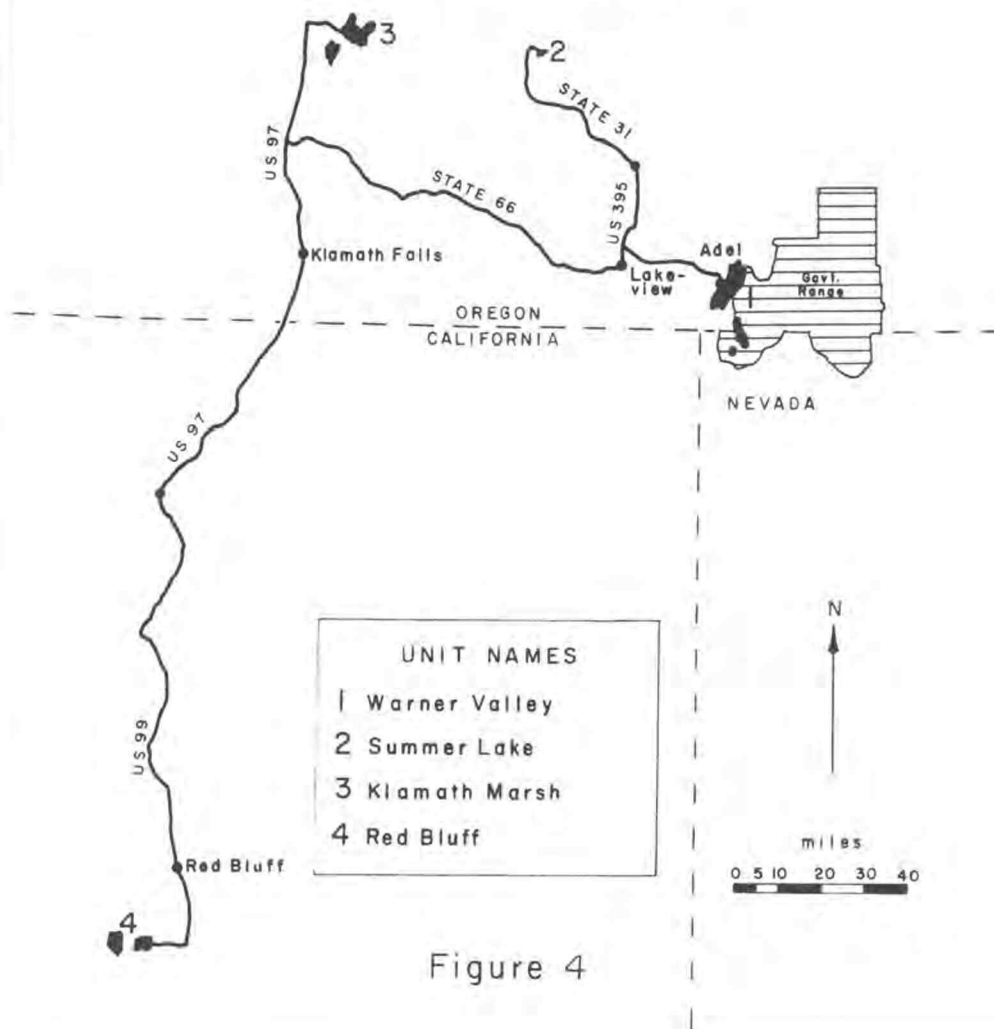
of Lakeview (see Figure 4 on p. 31), is the original Kittridge ranch. It is composed of over 1400 acres, with excellent water rights on the Ana river. The ranch is owned personally by the home ranch manager and leased to the company. One permanent employee feeds the stock and is responsible for irrigation facilities.

The Klamath Marsh ranch, about 50 miles north of Klamath Falls (see Figure 4 on p. 31), totals over 29,000 acres. The company owns 3800 acres with the balance of the acreage being leased from individual owner stockholders. This is an irrigated hay and pasture operation requiring about 15 men and a manager. During haying approximately ten extras are needed.

The California ranch is located 18 miles south of Red Bluff (see Figure 4 on p. 31.) and consists of over 12,000 acres. It is owned by individual WVSC stockholders and leased to the company. Although chiefly rangeland, the mild winters make forage possible for winter grazing. When grass growth is sufficient to graze, as many as 1600 head may be sent to this ranch. Grass production varies greatly from season to season, depending on precipitation. The range may be ready as early as late October, or as late as February. Usually the grazing season terminates about the last of June or the first of July when the grass dries and growth is stopped.

The Red Bluff cattle are either sold as feeders or are contract

WARNER VALLEY STOCK CO. UNIT LOCATIONS



W. A. R. Co.

fed by feeding lots in the area. The procedure is to weigh cattle entering the feed lot and re-weigh them when removed. The feed lot operator is paid a guaranteed price per pound for the weight gain. Normally these cattle go to California markets, although in 1962 they were sold as feeders to an organization in Seattle.

The practice of some cattlemen has been to summer their cattle in Oregon and then truck them to California grazing lands for the winter. Returning them to Oregon at the end of winter completes a yearly cycle. This method does produce cheap beef, however, when a dry year causes low grass production and the Oregon range is exhausted before the California range has enough moisture for growth to accept grazing, the rancher must have supplementary feed. If he has no hay production, it must be bought on the open market to keep cattle in good condition. Another problem when trucking bred cattle is the possibility of damage to the cow or future offspring. Kittridge had a maxim that is illustrated in one of his statements--"a breeding cow is like a woman, they should have a home where they raise their children and they should stay there"--. This policy is still followed on the MC ranch and no breeding cows are transferred to the California property.

WARNER VALLEY STOCK CO.

HOME RANCH
AND RANGE

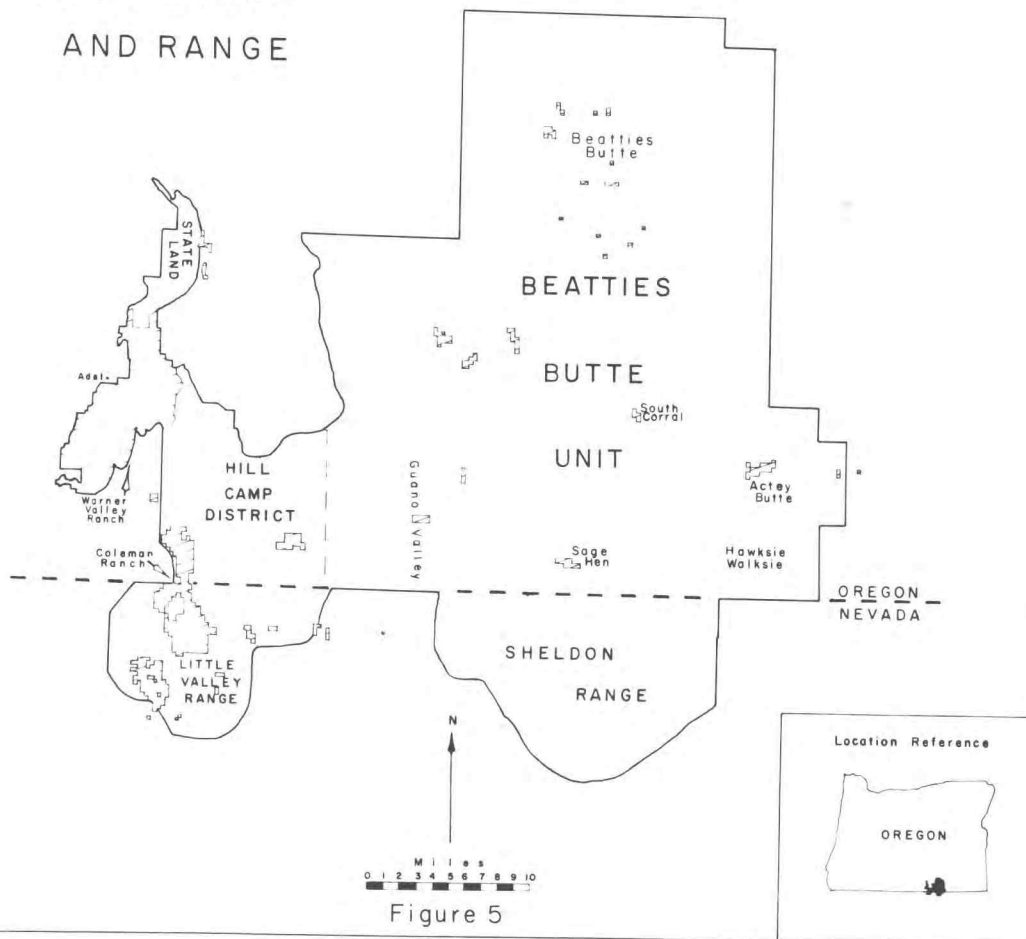


Figure 5

Table 1

Acreage Ownership

Ranch Land Owned and Leased by Warner Valley Stock Co.

Unit Names	Acres in Unit	Owned	Leased
Home ranch			
Warner Valley	22, 583	22, 583	
Coleman Valley	12, 421	12, 421	
Beatties Butte	3, 840	3, 840	
Hill Camp	1, 480	1, 480	
Summer Lake	1, 480		1, 480
Klamath Marsh	29, 375	3, 874	25, 501
Red Bluff	<u>12, 400</u>	<u> </u>	<u>12, 400</u>
Total Acreage	83, 579	44, 198	39, 381

Desert Rangeland

The major portion of the desert rangeland is controlled by the Federal government, through the Bureau of Land Management. Range use for grazing varies from five to seven months a year, depending upon capacity and BLM directions. The actual use is controlled by authorizing a certain amount of AUMs for each range unit. An AUM (Animal Unit Month) refers to the grazing use of one animal for one month. The grazing period for a particular district is also set--for example, an area with three months grazing period and authorized 300 AUMs, could graze 100 cows for three months. The rancher's

cost amounts to 30 cents per AUM.

The dominant vegetation on the desert range is a sparse, sagebrush--bunchgrass combination, with forage supplied by grass varieties such as Blue Joint (*Elymus triticoides*), Idaho Fescue (*Festuca idahoensis*), Blue Wild Rye (*Elymus glaucus*), and others (see Appendix G and Chapter II). The range has been classified by the Soil Conservation Service for use capability predominantly in Class VI, with smaller amounts in Class V and VII (13, p. 1). These categories indicate the permanent producing capability of the land. The soils require the protection of a permanent vegetative cover, and are restricted to range pasture and wildlife food and cover.

The Warner Valley Stock Company ranges its cattle on four main grazing areas. The first is Hill Camp (see Figure 5 on p. 34) where the ranch has approximately 59,000 acres or 42% of the use of this section, and owns 1480 acres. An authorization of 1535 plus an exchange of 317 AUMs brings a total of 1852 AUMs allowed for the Hill Camp section.

Beatties Butte Unit (approximately 459,000 acres) is the largest area available to the ranch. The AUMs authorized total 38,100 with an additional 2539 AUMs allowed on an exchange basis for lands owned in other areas and used with a reciprocal agreement by other operators. The company owns 3840 acres (which includes the main

natural springs and water holes) in the Beatties Butte Unit. State lands totalling 23,000 acres are also leased at additional cost. The total AUMs allotted in Oregon amount to 42,491 (see Table 2)

Table 2
Federal and State Ranges and AUMs Authorized

	Acreage	AUMs
<u>Federal</u>		
Hill Camp, South Warner	59,000	1,852
Beatties Butte	459,900	40,639
Little Valley	41,000	2,768
Sheldon Antelope Range	<u>91,500</u>	<u>5,515</u>
Total Federal	651,400	49,774
<u>State</u>		
State land leased in Beatties Butte	23,000	
State land leased in Crump Lake area (approx. 13 sections)	<u>8,300</u>	
Total State and Federal	682,700	

In Nevada, the Little Valley area south of the Coleman Valley ranch has a 2768 AUM allotment, on approximately 65 1/2 sections (41,900 acres). The Sheldon Antelope range, another Nevada range (see Figure 5 on p. 34) supplies 4515 AUMs on approximately 91,500 acres. The total AUMs authorized in Nevada are 7283.

The government has become more active in the development of these ranges. BLM has completed a recent range survey on the South Warner Administrative Unit, and AUM allotments have been adjusted to the latest findings. Using the survey for a basis, plans for greater efficiency of this section of the range are nearly completed. The planning includes water development, road construction, control of grazing, and improvement of quality and quantity of forage. A number of projects in the Hill Camp district have been initiated. Reservoirs or catch basins being constructed are to be scattered as evenly as possible through the area, contributing towards a more even forage consumption and preventing overgrazing in the vicinity of existing water holes. Difficulties were encountered when a few of the dams did not hold water; silt was expected to seal the porous dams, making them water tight. Some of the early reservoirs were too shallow, but the later reservoirs were more deeply excavated to retard evaporation. In this phase of development the MC ranch has cooperated by allowing dams to be constructed in a watershed area where they hold prior water rights for the Doherty ranch owned in Guano Valley. In a low water year, BLM will pump or cut the dams to allow the water through. If the ground is dry before releasing, however, the water will be absorbed by the ground before reaching Doherty reservoir.

Control of cattle is to be assisted by establishing grazing areas within each unit and constructing line fences on the area boundaries. The fencing of comparatively small areas presents a problem for the ranchers, for example--moving a herd of cattle from one area to another after a short period of time, possibly only 15 days, is difficult, especially if the cows are calving and forced to move. More intensive management such as this also increases the cost of ranging the animals. One term the ranchers dislike is "pasture" when referring to these areas. They believe the term pasture is misleading to the public when referring to grazing land that requires 10 to 18 acres to support an animal.

During the spring of 1963 BLM started an intensive spraying program in Hill Camp. Approximately 16 sections were aerial sprayed to eliminate sagebrush and rabbitbrush. Poisonous plants such as Larkspur were also killed. The MC portion of Hill Camp has sufficient perennial and annual grass cover so the edible grasses are expected to prosper when the weed competition is curtailed. Acreage with scanty grass cover will be seeded with perennials such as Crested Wheat Grass. Another instance of WVSC cooperation--the ranch personnel completely removed the cattle from a sprayed area when BLM asked that grazing be limited in order to allow the grass to reseed more heavily.

Rangeland fires, always a threat to the forage, are becoming a more serious problem for both the rancher and BLM. With completion of the Adel to Denio highway, the possibility of man caused fires has greatly increased. In addition, the highway augments the increasing utilization of the recreational resources of the range by allowing penetration with greater ease into the surrounding range and along range roads. During the dry summer months, this increased hazard will require more intense fire patrol activity.

BLM in managing these lands with a multiple use concept in mind, desires to develop the sustained ability of the range lands to produce forage for both livestock and wildlife. The recreational resources of this area (hunting, rock hunting, scenic beauty, etc.) are also considered. As pressures of recreational use increase, the ranchers realize and are concerned that this increasing recreational use of the range land by the public may restrict the cattle grazing in the future.

The Warner Valley Stock Company has had a vital interest in these ranges for many years. The desire to continue using the rangeland in the future has stimulated the MC management to make long range plans for development work to improve grazing conditions. Some of this work already accomplished includes 61 deep water reservoirs (called holes by the ranchers) to catch run-off water, 40

miles of roads, seven wells (some 800 feet deep) in conjunction with 20,000 gallon storage tanks, and a number of miles of drift fence. Each year the company distributes approximately 20 tons of salt on the range, which benefits the wildlife as well as the cattle.

Through the years of practical experience, valuable knowledge on development methods has been accumulated. South slopes seem best suited for water holes or reservoirs because run-off is greater than on north slopes where more vegetation retards the water. Reservoirs should be as deep as possible because evaporation is directly proportional to the area exposed to the atmosphere. A deeper reservoir presents less surface for the water volume than a shallow one, thus allows less evaporation loss. Springs are of the seepage type and developed for stock use by digging a pit to install a culvert or pipe for water collection. Draglines are superior for this work because the weight of a bulldozer may seal the seepage, causing loss of the spring. An estimate by the assistant manager indicates that \$80,000 has been spent during the past ten years for range improvements.

The rangeland is basically a hostile environment for the stock rancher, with low precipitation, high summer evaporation, and freezing winter temperatures. The meager vegetation points to one of the restrictive factors that control the volume of beef the cattlemen can produce. Man introduced this industry into a hitherto

unproductive locale, and has continued to utilize it for the last 90 years. Knowledge is increasing as a result of past experience, and some success is evident in the fight to utilize it profitably and judiciously.

Table 3

Tenure of Land Utilized by Warner Valley Stock Co.

Private land company owned	44,198
Private land leased	39,381
State land leased (grazing rights)	31,300
Federal land leased (grazing rights)	<u>651,400</u>
Total acreage	766,279

Crop Production

Farming is seldom associated with ranching activities, however, integrated operations such as the MC ranch are engaged in crop production, which is supplementary to cattle raising. Primary crops grown are barley, tame grass and alfalfa. In addition, wild grass hay is harvested. The volume and quality of crops harvested have a direct impact upon the final beef shipments.

Wild Grass Hay. Wild native grass cut for winter hay is basically an excellent, well balanced cattle feed. It is higher in food value per unit, more rugged, and able to withstand more trampling

Photo Number 4



Well, storage tank, and water troughs on the Hill Camp range--
note sagebrush, bunchgrass vegetation.

by animals and machines than tame grass. As it is native, re-seeding is not necessary. The average yield, however, is only about one ton per acre. A few of the predominant wild grass species growing in the valley are Blue Wild Rye (*Elymus glaucus*), Blue Joint (*Elymus triticoides*), Idaho Fescue (*Festuca Idahoensis*), Nevada Bluegrass (*Poa nevadensis*), and June Grass (*Kohleria cristata*).

The native grass requires more water than the tame varieties, about three acre feet for optimum growth. Irrigation is by flooding from the first of April to about the 15th of June in the Southern fields, and until the first of July in the north. The difference of flooding time controls the maturity of the hay, allowing a more efficient harvest. The best production is obtained when the cattle are taken off the meadows by the first of March to allow an uninterrupted growth, although actually most of the stock is taken off in April.

Mowing of meadows begins after the first of July and continues through the summer with completion about Labor Day in September. The machinery used for this project consists of 12 tractor mowers, seven tractors with hay rakes, one parts truck with fuel, a water truck, and a fire truck. Approximately 13,000 acres are mowed. The cutting process starts in the south end where the fields are laced with old drainage channels lined with willows. As the mowing moves north, the fields become more open.

An important aspect in harvesting is that Warner Valley is one of the few places where native grass may be bunched in the fields for later consumption. Low precipitation combined with relatively mild winters plus the hardy grass are contributing factors. Eliminating stacking of hay and tearing down of the stack provides a lower cost for this type of feed when compared with competing areas. The native grass has so far been the only type to successfully bunch for winter feeding. Occasionally when an excess crop is grown some hay is stacked to be used for emergency rations and horse feed. Although these stacks will deteriorate, a well constructed loose stack will contain useful feed for as many as ten years. In contrast baled haystacks will deteriorate much more quickly, seldom lasting more than one season. Moisture penetrates between the bales ruining both the hay and baling wire--special alloy wire is being tested in the hopes of extending the life of baled haystacks.

When the cattle come off the range, they start grazing on bunched hay in the northern fields. Progression is toward the south end of the ranch and during the severest portion of the winter the cattle are in the south where willows and dry channels offer protection from storms.

During the period of grazing on the ranch, two poisonous plants are present. The most serious, Water Hemlock (*Circuta bulbifera*)

occurs along canal banks and in swamps. Often difficult to identify from other similar appearing plants, it is fatal to cattle. The Cocklebur (*Xanthium spinosum*) is less prevalent but does occasionally occur in heavily pastured areas along streams.

An important practice in conjunction with winter pasturing especially in the dry years is the distribution of a supplementary feed. To insure health of the cattle, a mixture of one third salt and two thirds cotton meal is distributed to supply basic protein when needed. Salt limits the intake of each animal to about two pounds of the ration. This amount, with roughage will insure sufficient feed to maintain a healthy cow. When the cattle first come from the range and drink at a hot spring in the north, the supplementary ration, roughage, and warm water makes them fatten. The feed cost is approximately \$70.00 per ton.

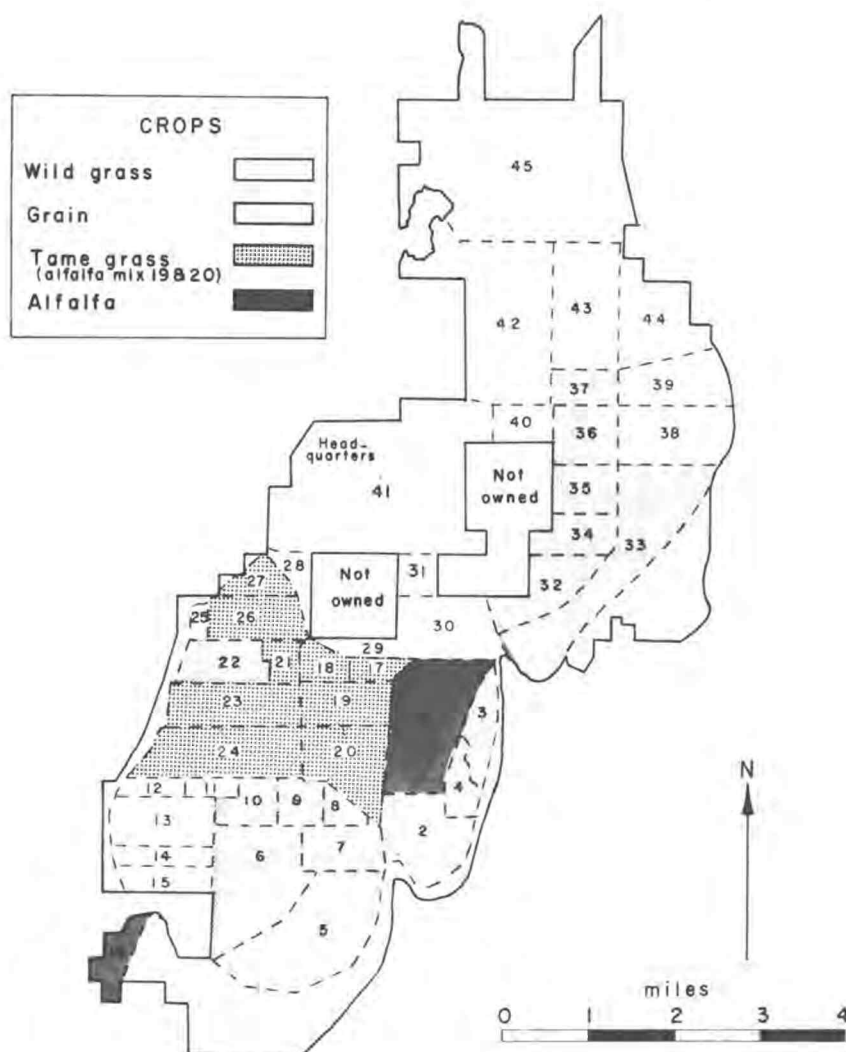
A system of identifying the various fields and locations upon the ranch is necessary because of the enormous acreage. These field names have become established through the years--some are descriptive of events or early crops. Early settlers or men who were killed during the strife between the company and the settlers have supplied some of the names. Others have been identified by size, shape, or crops that are related to a particular field. This system, which evolved as the ranch developed, is effective in the

Fields and Crops Grown on Home Ranch (Shown on Figure 6)

<u>Name</u>	<u>Crops</u>
1. Dodson Lake	Alfalfa
2. Dodson Lake Field	Barley
3. North Calahans Field	Barley
4. Calahans Combine	Barley
5. Houston Swamp	Barley
6. Dugout Field	Barley
7. Brown Field	Barley
8. Triangle Field	Barley
9. No Name	Barley
10. MC 40	Barley
11. Hay Camp Field	Barley
12. Clark Field	Wild Meadow
13. Willey Field	Wild Meadow
14. Boyd Field	Wild Meadow
15. Bennet Field	Wild Meadow
16. Twenty Mile Field	Alfalfa
17. Old 90	Tame grass
18. New 90	Tame grass
20. East Field	Tame grass
21. Meadow Foxtail Field	Tame grass
22. Potholes Field	Grain, Barley
23. Sled Field	Rye for Hay
24. Big Brome Field	Tame grass
25. Slim Poor (house & buildings)	Barley
26. 140 Field	Tame grass
27. Grain Camp Shop Field	
28. Little Thompson	Wild Meadow
29. Dunavans Corner	Wild Meadow
30. Wall Field	Wild Meadow
31. Cameron Field	Wild Meadow
32. Grain	Barley
33. Tingley Field	Barley
34. 35. 36. 37. Slim Poor Grain Fields	Barley
38. 39. Hess Fields	Wild Meadow
40. Starvout Field	Wild Meadow
41. Headquarters Area, Feed Lot, Wild Meadow, Pasture	Wild Meadow
42. West Beef Field	Wild Meadow
43. Middle Beef Field	Wild Meadow
44. East Beef Field	Wild Meadow
45. North Beef Field	Wild Meadow

WARNER VALLEY STOCK CO.

Main field divisions 1963



Field names and crops on following two pages

Figure 6

Photo Number 5



Wild hay mowers with the maintenance trucks behind. They are lined up for maintenance during the noon hour. Note the steep west valley wall behind equipment.

direction and planning the work on the ranch.

Grain Farming. Although cattle production has always been the first consideration, grain was raised initially as a cash crop as well as to put the land into production and intensify its use. The first fields were drained and the first grain crop harvested in 1937. A separate organization known as the K & G farms was formed to concentrate on farming and reclamation. A grain camp headquarters was established and gradually equipment was acquired, although until 1941 all farming was done by horse. At this time 7000 acres of grain was being harvested. The K & G farms were operated until 1949 when the company decided to concentrate on alfalfa. The grain farming was then largely leased to a number of sharecroppers. All was later returned to be farmed by the company with the exception of 800 acres (operated by Slim Poor). Since 1953 much of the original grain land is now producing tame grass.

For many years the main crop was restricted to oats because of the short frost free season. Since 1955 however, barley a better feed grain, has replaced oats. Although the acreage varies, an average of about 4000 acres is planted to barley with the company operating 3200 and the sharecropper using another 800 acres. The company receives one third of the sharecropper's grain. The barley species planted are Tri-by and Wocus.

The grain farming begins in March when the fields are irrigated

by pre-flooding. The fields are drained and farming starts about the 20th of April. Five D 7 caterpillars are used with four foot paddles of four by fours bolted to the crawler tread if flotation is necessary. Seed bed preparation consists of discing, and then harrowing after a one day delay. The machines pull 30 foot wide discs and 60 foot harrows. Seeding is done with 24 foot press drills followed by a cultipacker. Sometimes the cultipacker is pulled behind the seeder and sometimes separately with a smaller tractor.

The peat soils require discing only, however, the clay loam type soils such as in Huston swamp (see Figure 6 no. 5 on p. 47) are always plowed in the fall until frost terminates operations. Insufficient time in the spring allows discing only (as in peat soils). When not plowed these soils will not "work up" or produce as fine a seed bed, and a much higher weed problem develops.

Grain crops and ditch banks are sprayed by airplane for weeds in June. The spray used in 1963 was 2-4D low volitol ester mixed with water. When spraying for grain the volume used per acre is about two gallons (mixed one pint to two gallons). The average cost to the ranch was about one dollar per acre for spraying grain.

The grain harvest occurs from the last of August to the last of September and accomplished with two pusher and five drag combines. The grain is handled in bulk with storage in the feed mill and another building near the airstrip. The entire crop is processed at the feed

mill and fed to the stock in the feed yard.

In the past an average of one ton or over per acre was obtained. Barley was planted first in 1955 and averaged one and one half tons per acre. After five years however, returns declined and have been as low as 1800 pounds per acre. Decline may be attributed to the lack of fertilization since no fertilizer has been applied in quantity since the land was reclaimed. A number of fertilizer tests have been conducted to determine the most effective. The county agents office has also established fertilization plots with tracer minerals on MC land. In addition to the usual fertilizing methods the company has experimented with fertilizer applied by airplane. This year (1963) for the first time fertilization plots are indicating deficiencies. The soils are basically fertile, with sulphur apparently one element that is lacking.

Alfalfa and Tame Grass Farming. Tame grasses and alfalfa mixtures occupy about 2700 acres and straight alfalfa is grown on another 1000 acres. The tame grasses grown on the main ranch are primarily Manchar Brome, Meadow Foxtail, Intermediate and Pubescent Wheat Grass, Tall Wheat Grass, and Alta Fescue. The most important of these is Manchar Brome and Meadow Foxtail. These grasses are all perennials and have a much higher production rate per acre than the wild grasses, with an average of two to over three tons per acre. Ladak and Nomad Alfalfa have been the most

productive alfalfa species, with an average return of four tons per acre. Alfalfa yields two cuttings--in 1963, a year with more spring precipitation than usual, four tons to the acre were cut on the first cutting.

The preparation of an alfalfa field, more costly than a grain or grass field, is the final step in the land reclamation program. The field must be well drained and leveled to eliminate low spots. Both alfalfa and tame grasses require approximately one acre foot volume of irrigation water per acre. This is done with one irrigation per season which consists of flooding for one and one half to two days.

Harvesting begins in late June and is completed by the last of September. The first step is accomplished with a "swather" which mows and leaves a swath of cut grass. The machines have a 12 foot sickle with traveling belts which move the grass and drop it into the center of the cut. A loose, fluffy, even swath is left to be picked up by the baler. The MC manager believes the swather is superior to the side delivery rake because the swather leaves a much looser swath. This allows air to penetrate, permitting more uniform hay curing. When the hay is cured (two days or more) a baler is brought to the field. The balers used are two wire machines that produce bales averaging 130 pounds. The third step in harvesting is done by machine called a "harrow bed". This is a one operator truck, especially designed to pick bales off the field, load itself, run to a

field stack, then unload in the stack.

These harvesting machines are an example of modern methods used to increase the production of labor. The swather operated by one man can do the work of two tractor operated mowers and two side delivery rakes. The harrow bed replaces at least two trucks with loading equipment, each requiring two men. Thus, two men can do the work formerly requiring at least eight men. The estimated 1963 costs for hay harvesting are as follows--swather operation, \$1.50 to \$2.00 per ton; baling cost \$4.00 to \$4.50 per ton; putting bales in stacks \$2.00. An average harvesting cost per ton would be \$7.50 to \$8.50 per ton for the hay in the stacks.

The Manchar Brome and Meadow Foxtail seed has been combined, cleaned, and sold to seed distributors such as Northrup Seed when the market for seed was high. This was done only when it was more profitable to sell as seed than to use as feed. The grass remaining on the fields does have some food value after the seed is taken.

The tame grasses and alfalfa are destined to be blended with grain and concentrates to be fed at the feed lot. Bales are stored in the field stacks and drawn upon as needed. Throughout the feed lot season from September to mid-April or the first of May the bales are being hauled from stacks to the hay storage building at the feed mill.

Photo Number 6



Swather cutting a heavy stand of tame grass. Note the check dam on the right of picture which is used to control irrigation water. The Seagulls catch mice that are exposed by the machine.

Livestock Management

Beef produced at a profit is the primary objective of the Warner Valley Stock Company, a meat factory which is converting range forage, irrigated hay, and grain into a more condensed, saleable product. A complex system of cattle management which integrates the capacity of both arid rangeland and irrigated bottomland with the moving, feeding, breeding, and other livestock control into a planned month to month schedule which enables the rancher to reach his goal--profit.

Livestock management is the most important segment of the ranch operation. The different facets of climate, soils, vegetation, location, changing technology, ramifications of government, social influences such as labor, foreign competition, and many other forces, have an impact on the actual handling and production of cattle. Raising livestock is more complicated than other farming enterprises such as single crop grain, truck farming, dairying or poultry.

Buckaroo Crew. The buckaroo crew is a vital cog in the cattle production. They are responsible for all phases of livestock management except the feed lot, and in addition they must handle the work horses for several weeks of haying on the Coleman Valley ranch and Doherty fields. The foreman has eight or nine buckaroos, a cook, and a wrango boy (buckaroo apprentice) to take care of the horses.

Each buckaroo will have about ten horses assigned by the foreman. As long as the man works for the company these horses are considered his and are ridden by others only with his permission. If the buckaroo boss wishes to make a change in animals, it is usually by agreement with the man concerned.

The buckaroo will own saddles, riata or rope, tepee tent, bedroll, chaps, and personal effects. The saddle normally used is a western slick fork saddle with bucking rolls*. The usual saddle has a four inch horn which is four inches in diameter. The saddle will be three quarters rigged*, with the cinch used on the front rings and the rear rings used to carry hobbles. The wearing apparel of the buckaroos depends in part on the individual, however, common to all is the cowhide chaps which protect the legs from brush. During winter the cowhide chaps have hair on the outside (called woolies) for warmth. The riata used for handling cattle are of two types--the old type, rawhide, may be spliced when broken. Nylon, the new type, is much stronger, but cannot be spliced if broken. Buckaroos of this area use the dallying method to hold roped cattle--the riata is wrapped several times around the saddle horn and held, differing from the southwest where the riders use a knot around the saddle horn which allows no slippage.

*See glossary

The MC ranch is one of the few operations still using a chuck wagon. A heavy duty modern steel trailer equipped with a butane stove, refrigerator, water tank and sink, plus quarters for the cook, accompanies the crew. Normally the chuck wagon is pulled from one location to another with a Dodge four wheel drive power wagon. However, several work horses are available and occasionally a team is used to pull an old type wagon if the power wagon mires down. When this occurs the situation is reminiscent of the past.

A number of cow camps, which provide headquarters for the crew are located on the range. With the exception of one line camp (Sage Hen) where a bunk house is constructed, the crew uses small tepee tents. All camps have catching corrals to keep horses in during the night. The horses not being used in the day are herded for grazing by the wrango boy.

The experienced buckaroo is able to ride, rope, understand cattle and horses, and withstand the rigors of a hot dusty summer and freezing winters. He must like outdoor life and be able to endure long periods of loneliness for low wages. The romance of television and western stories is deflated when one is aware of the true circumstances. The numbers of experienced buckaroos are diminishing. Men are still available but the truly skilled are difficult to find. Nevada apparently supplies the major portion. Competing industries such as logging or construction, and social changes like the

attraction of urban life must be considered a definite factor in the depletion of this labor source.


Horses. In the early decades of the 20th century the MC ranch had 350 work horses. Horses continue to play an important role in ranching operations, although the number of draft animals has been vastly reduced. During haying, 22 mowers and six to eight hay rakes were used with a change of horses at noon. Cutting desert fields required another five mowers. More efficient machinery began replacing the work horse in 1941. Since then they have virtually disappeared from the scene--only about eight animals are still maintained for occasional emergencies.

The riding horse, however, has remained the most efficient means of handling large numbers of cattle. The stallions are pastured with a brood herd of about 40 mares on the Coleman ranch during the summer. The colts are born in early spring and branded and gelded in May when taken off the range. The herd is also culled at this time. The original stock was Standard bred when Mr. Kittridge purchased the ranch in 1936. Since then three Morgan stallions for stamina and three Quarter horse stallions for "cow sense" have been acquired. Only "Geldings"* are used for saddle horses--they have more stamina and do not have the heat period of the mare.

*See glosary

Upon attaining four years of age, the geldings are "started"* , until that time the animal has been loose on the range and unrestrained except when branded. Among the buckaroos are a few men whose specialty is training horses. These are the "bronc" riders who will "break"* and gentle the horse over a period of approximately one and one half years. This "breaker" man has the right to give the horse a lifetime name.

At the end of this preliminary training the bronc rider will give the horse to a rider in the "rough string"* . This man will further teach the horse how to work cattle (such as roping and cutting out cattle). The bronc rider used a "snaffle"* bit which is hinged in the center, whereas the rough string rider will later "put the horse in a bridle". When the horse finally has been trained sufficiently to be considered a steady cow horse, he is put in the "cavvy"* . The buckaroo boss will then permanently assign the horse to a buckaroo. Approximately 100 head of trained saddle horses are maintained for the buckaroo crews use.

All company horses are identified by the brands they received when colts. The early horse brand was a circle T () on the right shoulder and some of these horses are still in the cavvy. At present there are two brands used, either a MC on the right shoulder, or a

*See glosary

Photo Number 7



Four year old gelding being brought into corral to have his first saddle cinched. This is in the corral at Coleman Valley ranch.

YJ (Y) on the left shoulder.

Cow Herd. The home ranch maintains a hereford cow herd of over 6000 head (see Table 4 on p. 65). The animals raised here are being bred especially to thrive in this particular environment. Breeding cows are selected from heifer calves produced on the ranch both for economy and to maintain the high quality of the already established herd which has basic qualifications for the high altitude, arid climate and sparse range. Approximately 800 head of replacement heifers are chosen each year, with the best available calves being selected. Quality bulls plus quality heifer calves is the basis for herd improvement.

The heifers are about three years of age when their first calves are born. The normal cycle of a cow's life begins with birth on the range. When taken off the range, and after weaning, she is placed in the feed lot and fed alfalfa hay. When the feed lot is closed in April or May, the calf is shipped to Klamath Marsh for the summer. The breeding stock is selected during this period. The heifer is wintered at the Summer Lake ranch and returned to the Klamath Marsh holdings the following summer for breeding. The bred heifer is taken to the home ranch in the fall, usually October, and is trailed to the Coleman Valley ranch for calving in the spring. After calving the animal will be put on the range with her calf until round-up time in September or November. She then returns to the home ranch

where her calf is weaned and hereafter she joins the regular breeding herd--wintering on the home ranch and summering on the range.

The life of a producing cow averages from 10 to 12 years. Grazing on the tough vegetation of the sparse arid range is difficult and large portions of the cows are eliminated when their teeth deteriorate. When the cattle are taken off the range they are visually inspected and all cows with defects are separated. The policy is to send the rejected cow through the feed lot, fatten, and then sell her at a livestock auction. There are of course differences from this sequence caused by diseases or injuries. These are treated, often by a veterinarian. The cows that recover are usually sent to the feed yard to be "finished out", being considered a poor health risk for the future.

Bulls. The Hereford bull program is an extremely important phase of the ranch operation. Herd improvement is accomplished by the introduction of high quality long yearling bulls. Each year approximately 50 bulls are purchased. The manager patronizes commercial pure bred Hereford bull producing ranches and he normally buys all of the animals needed for one year at the same ranch. Economy plays a role in this procedure--the price in quantity approximates \$500 per head while in smaller numbers it may be as high as \$800. The bulls are bought in the western states and western Canada with a high altitude environmental requirement. Cattle accustomed

Photo Number 8



MC Hereford range bull on Coleman ranch. Coleman Canyon is seen on the right skyline.

to high elevation successfully adjust to low altitudes, but the reverse is seldom true. An important quality in a range animal is stamina. He must be able to withstand the rigors of the high desert with its below freezing weather of winter and the heat of summer. In addition he must be capable of ranging effectively over miles of sparse grazing areas. Physical qualities sought include a relatively rapid physical development, sturdy legs, strong and vigorous, with little excess fat. Herd uniformity and strong breeding (high fertility) is very important. A Hereford strain the manager tries to avoid is the "redneck" tendency, which results in a lean, poor meat producer. Evidence of this train is the absence of white on the top of the neck.

The purchase year is branded on the bulls when they arrive at the ranch. The average use is from nine to ten years. When culled, they are sent to Klamath Marsh, used for breeding during the summer and then returned to the feed yard. After finishing they are marketed as "bologna" bulls. There is generally a good demand for such meat because the fiber and flavor make excellent bologna sausage. The 1963 price was about 19 to 20 cents a pound for these animals. Lower priced Australian meat for this purpose is affecting this grade and may eventually cause marketing difficulties.

Summer and early fall is the bull buying period. The animals are used briefly the first fall after purchase and then "grown out" fed good rations over winter. The following summer they service

the heifers and cow herd at the Klamath Marsh ranch. In the fall they are returned to the home ranch and used with the regular herd. A ratio of one bull to 25 cows is the normal practice. During the winters one bull to 20 cows with little calves or one bull to 30 dry cows is maintained, with the bulls being rotated to different fields about every six weeks. The bulls are separated from the cow herd during the months of April, May and June.

The MC Ranch achieves an 85% calf yield per year(85 out of each 100 cows have a calf), considered an excellent ratio for range cattle. Efficient control of all facets of the bull program is essential in obtaining this percentage.

Table 4

Cattle Inventory of The Warner Valley Stock Company
June 30, 1962

Warner Valley	
Cows	6066
Bulls	297
Klamath Marsh	
Cows	1141
Bulls	101
Calves with mothers	1951
Yearlings ready for feed lot	3640
Heifers to be bred	1031
Total June 30, 1962	14,227
Estimated new calves Jan. 1, 1963	5,600
	19,827
Estimated loss by death and butchering	827
Estimated cattle inventory Jan. 1, 1963	19,000

Annual Stock Handling Schedule

The availability of forage is an important factor in the management of cattle. The buckaroo crew is comparatively small in relation to the numbers of cattle that are controlled, so advance planning is necessary to insure adequate feed at all times.

The annual sequence of operations has its genesis about the 15th of March when the herd is on the home ranch. The replacement heifers averaging 800 head, which were bred last summer, are trailed to the Coleman Valley ranch. The young cows carrying their first calves require constant observation and an occasional calf pulling* (obstetrical assistance) is necessary at birth. The obstetrical operation is unnecessary as soon as green forage appears near the middle of May and the manager is considering a one month delay in heifer breeding to eliminate this problem.

The dry* or heavy* (cows without calves) are moved to the desert range about April the first. The cows are taken through Greaser Canyon to Guano Valley (Doherty Ranch) and finally to the east side of Sage Hen and Hawksie Walksie--low areas with non-poisonous forage which produces feed early in the spring. The trip requires about five days. Approximately 1200 cows with calves that

*See glossary

were born during the previous fall are usually taken to the east side of Beatties Butte--a six day trip. Between the 20th and 22nd of April the bulls that wintered on the main ranch are trailed to the Coleman ranch.

Near the first of May many of the heifers on the Coleman ranch have calved, so at this date approximately 400 head with calves are taken to the Little Valley range to the south (see Figure 5 on p. 33). The balance of the heifers, about 400 head are taken to the Hill Camp area in South Warner. Any heifers exceeding these two groups of 400 each are left on Coleman ranch. The emphasis of attention is placed on managing the horse herd for the rest of May.

In early June the buckaroos first brand and vaccinate the calves on Coleman, and then ride the ranges branding and vaccinating. They return to Coleman and take the bulls out on the range, completing this task by July first. The animals are distributed to insure more efficient breeding. A reserve of 60 bulls is kept on the Coleman Valley ranch.

Following the work with the bulls most of the buckaroo crew returns to Coleman to begin haying and starting* or breaking* colts (training). A nucleus of men are left at several desert range cow camps--Actey, Sage Hen, and Rock Springs in the Beatties Butte area.

*See glossary

These men check the conditions of the watering places, keep the bulls distributed and observe the drift of the cattle to prevent heavy concentrations.

Around the first of August the heifers in Little Valley begin "drifting off"* the range and are pastured in the Fee field on Coleman. During August the buckaroo foreman checks on the men in the cow camps and extra help is sent if needed.

By the first of September the crew starts moving cattle from Actey and Beatties Butte areas. Drift fence gates are opened and the natural tendency of the cattle is to start drifting towards Warner Valley through Guano Valley which acts as a holding area.

Labor Day is like a Christmas Holiday for the buckaroos. There is a general exodus to Lakeview, Oregon for the rodeo and other festivities. After Labor Day however, the routine continues. The buckaroos gather cattle from Actey Butte, Sage Hen, and South Corral and herd them into Guano Valley. A large portion of the Beatties Butte cattle have naturally drifted into the valley. By the 15th to 20th of September, 50 to 60% of the cattle are in Guano Valley. Each day, as a group arrives at the Greaser reservoir area on the east side of Warner Valley, it is driven north into the state leased land in the Crump Lake region. By the 25th of September Guano Valley is

*See glossary.

usually emptied and the cattle are all on state land.

The entire herd of perhaps 3500 to 4000 cows are now ready for separation and classification and are moved into the North Beef field (see Figure 6 no. 45 on p. 47). The daily routine starts at 6 AM and ends at 6 PM. The general practice is to select 500 to 700 head at random and herd them into a smaller field to begin separating. The key work force consists of three men who do the actual separating, three men to handle the separated cows, and one man who makes decisions as to the placing of cattle in several categories.

The separation and classification has an important bearing on the entire beef production of the ranch. The first and most difficult task is separating cows with calves. The men must proceed carefully to minimize the possibility of exciting the cattle. A relatively calm atmosphere must prevail so that calves will "mother up"* to the cows, which usually allows a mother-calf relationship to be evident. The men must not "split up a pair" because a cow will not allow another calf to feed. One incorrect identification could result in the loss of two calves.

The man who decides calf classification operates gate entrances to different fields for four groups. These consist of (1) Weaner* (calves just separated from mother) calves seven to seven and one

*See glossary

half months of age , (2) to be a weaner next December, (3) to be a weaner next February, and (4) the youngest calves who will go to the desert range with their mothers next spring. The weaners (first group) go into a holding pen with their mothers and the others are put on bunch grass fields.

In the afternoon the September weaners (first group) are taken from their mothers. The stray cows, dry cows, and cull bulls are also taken from the herd. The cattle left from the original 500-700 head will be turned back into the large herd at 3:30 PM so cows and calves can get together. The rest of the day is occupied in taking the dry cows to the grain fields, the strays and cull bulls to the starve-out field (see Figure 6 no. 40 on p. 47), and the weaner calves to the feed lot. The separating process takes from a week to ten days and ends about the fifth of October.

The cows with little calves (group 4) are moved south to the Robinson place and all unbranded calves are branded. During the rest of October the buckaroos head back to the desert and make a clean sweep through the entire range area. The drift gates have been left open since September and many of the cattle have drifted into Guano Valley. This sweep will be completed and the remaining cattle will be on the state land by Crump Lake from the first to the tenth of November. The herd is then moved to the North Beef field and the entire operation of separating, classifying, and branding is

repeated with completion near the Thanksgiving holidays.

On or near the first of December all breeding cattle, but the cows with little calves and feed yard animals, are dipped in a steam heated vat (see Appendix E). The feed yard cattle and little calves are sprayed with disinfectant. During December the calves born last spring (now six and one half to seven months old) are weaned, put into the feed lot and fed chopped alfalfa. At this stage the problem is to prevent calves from contracting pneumonia or respiratory diseases. Large death losses have occurred from these ailments. Prevention includes vaccinating all cattle when entering feed lots. The mother cows, after the weaning, are taken off the bunch grass fields and put on the grain fields with other dry cows. After weaning, all cows are vaccinated for "Lepto" (see Appendix E).

After Christmas when the December weaning has been completed the horses are rounded up and the colts weaned. The horses to be broken in the winter are separated. During January the colts are started and the cattle in the fields still kept in their particular category are moved to equalize the grazing use of the land. When the forage in the grain fields is exhausted, the dry cows are moved to the bunch grass fields recently vacated by the cows with calves.

The spring weaners are separated from their mothers and sent to the feed yard during February. In this period the December and February weaners are also run through the chutes and dehorned--

the heifers are also vaccinated for Brucellosis.

Around the first of March all small calves in the fields are roped, dehorned, branded, vaccinated, and the heifers also vaccinated for Brucellosis. The operation should be completed by the 15th of March. This group of calves will go to the desert range with their mothers. Finally the remaining cows are separated and vaccinated for Lepto by the 20th of March.

Through winter the buckaroos have been visually "cutting out"* cows that appear old. These cows are run through the chute and checked either by the manager or the buckaroo boss. They are "mouthed out" which means the teeth are checked to determine the animals ability to graze on the range. A cow who has lost some teeth, usually the front ones, is called "broken" mouthed, and a "smooth" mouth or "gummer" has few or no teeth remaining. The general health of these cattle is considered before cutting them from the herd, although a "gummer" is definitely rejected. Ones that have calves are kept until the calves are weaned, then sent to the feed lot to be finished out. The decision to discard a cow is important because a producing beef cow is considered to have a value of approximately \$200.

In addition to cattle cutting the buckaroos are busy moving

*See glossary

animals from field to field for efficient feed utilization. Preference is always given to cows with calves. Other duties include spacing the bulls through the herd, pulling cows out of mud holes, and herding cattle into areas for storm protection.

The yearly stock handling schedule is complete.

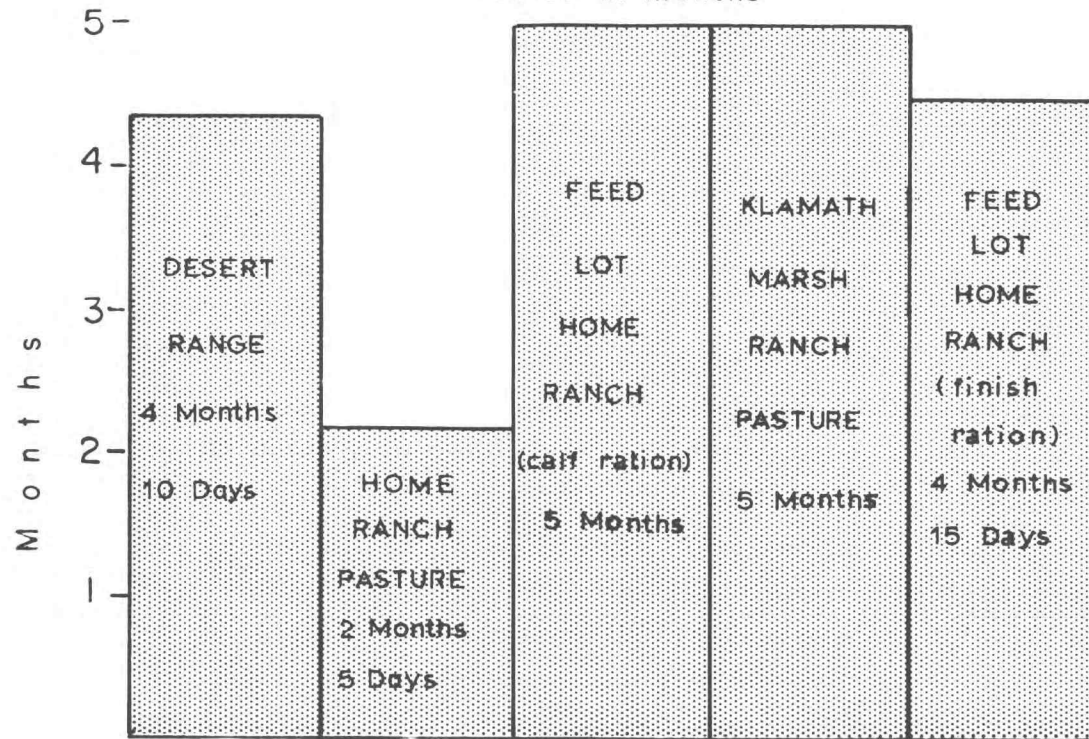
Table 5

Beef Producing Lifeline of Warner Valley Stock Co.
The sequence of events in the life of a typical
calf from birth to market. Time normally
required for market is 20 to 21 months.

<u>Months</u>	<u>Location</u>	<u>Activity</u>
22-		
21 - - - - -		Sold and shipped
20		
19-	Home ranch feed lot	-Sprayed with disinfectant
18-		
17-		
16 - - - - -		Shipped back to feed lot
15-		
14-	Klamath Marsh Pasture	
13-		
12-		-Vaccinated for Anthrax
11 - - - - -		Shipped to Klamath Marsh
10-		-Dehorned
9-	Home ranch feed lot	
8-		
7-		-Sprayed with disinfectant
- - - - -		Weaned-placed in feed lot
6-	Home ranch pasture	
5-		
4 - - - - -		Separated to weaner class
3-		
2-	Range	
1-		-Branded and vaccinated
0 - - - - -		Born

Figure 7

20 to 21 months



CALF TO BEEF

Comparison of time at different locations

Feed Lot Operation

The final and most important integrated phases of the ranch operations are the feed lot and marketing activities. Profit is the measure of success, and profit is highly correlated with feed lot management to produce high quality marketable beef. The Warner Valley Stock Company purchased a feed lot from the Safeway stores at Malin, Oregon in 1948 and managed it until 1957. While the Malin feed lot was used, feed was bought on the open market and the grain raised at Warner Valley was sold separately. When feed capability at Warner Valley was increased, a decision was made to construct a feed lot operation on the headquarters property. A basic economic factor on this decision was the cost of transporting grain and beef out of the valley. Conversion of grain to beef reduced the total shipped weight which resulted in greater profits.

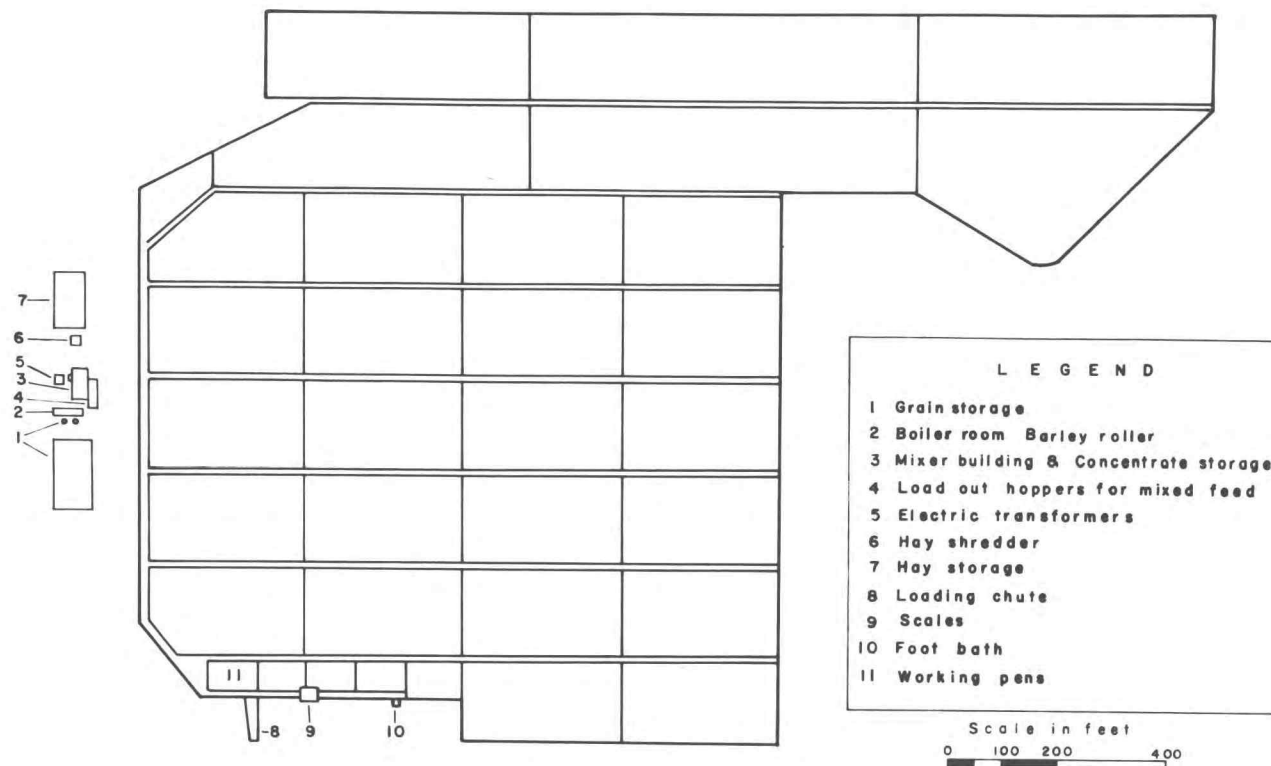
A feed mill and feed lot of approximately 40 acres were constructed in 1957 and placed in operation during the fall of 1958. The initial feed lots which could feed approximately 4000 head had about two and one half miles of feed troughs. The mill is a modern permanent installation with steel structures and concrete foundations and floors. The main mixing equipment was designed, produced, and erected by the Stohsner Machine Works of Napa, California. All cutting, mixing, rolling equipment, transfer augers, blowers, belts,

pumps, etc, are electronically controlled and operated with a minimum of hand labor. The feed mill consists of four divisions--the grain storage, hay storage, mixing, and load out section. The structure housing the mixing equipment is between the hay and grain storage units. Hay and grain flow by blowers into the mixing plant and are combined into the proper rations. After mixing, the feed is transferred to hoppers in the load out section and loaded into trucks as needed (see Figure 8, 1 to 7 on page 77). This is the largest integrated ranch feed mill in Oregon, and during operation days it has processed 1500 bales of hay (approximately 90 tons) and 25 to 27 tons of barley. An excellent record for production with few shutdowns has been maintained, only three hours of operating time were lost in 1962

The feed lot labor consists of a foreman and four or five men during peak feeding operations. They work a seven day week, keeping the feeding troughs continuously full until the cattle are shipped. The lots are serviced by two trucks equipped with power transfers which unload feed directly into troughs while moving.

The feed used is a blend of hay (alfalfa and tame grass), barley, a concentrate of cottonseed meal, and molasses (see Table 6 on p. 79). The rations are predetermined depending on the age and stage of the feeding cycle. Weaner calves start with about 15 pounds

*See glossary



WARNER VALLEY STOCK CO. FEED MILL & FEED LOTS

Figure 8

Jack Hunt

of chopped alfalfa per day. Feeder cattle progress through three ration changes (see Table 6 on p. 79). The first accents hay and this is followed by increasing amounts of barley. The "finish"* cattle, when close to market weight consume 25 pounds or more feed per day in the final stage. There is no scheduled feeding time since full troughs are always available. About September first the feed yard starts receiving the preceding spring and fall weaner steers and heifers, plus heifers culled from the breeding stock. The heavier steers (650-700 pounds) are started on a barley ration as soon as possible (see Table 6, ration 2 on p. 79). During the first three weeks mostly hay is fed, with small amounts of barley, molasses, and cotton seed concentrate. After three weeks, barley is increased and less hay is used (see Table 6, ration 3 on p. 79). The animal will be on full ration by November first, with a daily consumption of 18-20 pounds of barley, two pounds of concentrates, and two to five pounds of hay and molasses (see Table 6, ration 4, on p. 79). The animals in this group should be shipped between mid-January and the last of February.

On about the first of November, the lighter steers fed mainly on alfalfa, have attained a weight of about 650 pounds while the heifers in this group have reached 550 to 600 pounds. These animals are

*See glossary

Table 6

Feed Lot Rations

Ration Number 1 (Calf Feed)

Molasses - - - - -	240 pounds
Alfalfa hay- - - - -	1320
Grass or grain hay - - - -	440
	<u>2000 pounds</u>

Ration Number 2 (Beef Cattle)

Molasses - - - - -	261
Cottenseed-concentrate - - - -	87
Barley - - - - -	435
Hay - - - - -	1217
	<u>2000 pounds (39% concentrate)</u>

Ration Number 3 (Beef Cattle)

Molasses - - - - -	261
Cottenseed-concentrate - - - -	87
Barley - - - - -	870
Hay - - - - -	782
	<u>2000 pounds (61% concentrate)</u>

Ration Number 4 (Beef Cattle final feed)

Molasses - - - - -	261
Cottonseed-concentrate - - - -	87
Barley - - - - -	1392
Hay - - - - -	260
	<u>2000 pounds (87% concentrate)</u>

The cotton seed concentrate is composed of the following ingredients.

40% cotton seed meal - - -	1633 pounds
Alfalfa meal with fat added -	102
Shell flour - - - - -	102
Bone meal - - - - -	51
Urea- - - - -	51
Trace mineral salt - - - -	51
Vitamin A - - - - -	4
Yeast - - - - -	4
Copper - - - - -	2
	<u>2000 pounds</u>

The cottonseed concentrate analyzes about 39% protein

now started on the schedule just described in the preceding paragraph, with sale and shipment occurring in March and April.

During the first 90 days the gain* (increase in weight) averages about three pounds daily, however, this increase diminishes in the final stage (about 60 days) until at the last it could be below two pounds. The average daily gain on finish rations is 2.4 to 2.5 pounds. All feeder stock is weighed upon entering the feed lot for gain computation.

The market weight for finished cattle has lessened over the years. Finished heifers now weigh 850 pounds whereas formerly 1000 pounds were required. Steers are marketed from 1050 to 1100 pounds in contrast to 1300 pounds in the past. The average age for these animals is 20 to 21 months, a reduction from as much as 36 months. Another change in marketing is necessitated by Federal meat grading rules. A hardening of the spinal cartilage (called "hardboned") occurs in heifers aged 24 months or over and results in 15% to 25% reduction in grade and meat price. The heifers in this hardboned group are designated as cows--age has become a significant factor in marketing and consequently ranch personnel cull the breeding heifers earlier than in the past.

The old cull cows with calves have been eating hay, but as soon

*See glossary

as the calf is weaned, they are started on finish rations along with the cull dry cows and cull bulls. All during the winter loads of cull bulls and cows are being shipped and sold when marketable.

During the feed lot season the spring, fall, and winter weaners have been in the feed yard receiving a carrying ration of chopped alfalfa (see Table 6, ration 1 on p. 79) in preparation for summer pasturing. The calves gain an average of 1.5 pounds per day. This is one of the most economical growing periods, the average cost per pound gain on alfalfa in 1962 was 15 cents contrasted to 23 cents for finished ration gain.

After each yearly cycle is completed (from September to mid-April or May) and all cattle are shipped, the feed mill and feed yard are completely reconditioned. Equipment is inspected and necessary repairs or replacements are made in preparation for the next season.

Warner Valley has both advantages and disadvantages stemming from its geographical location for a feeder operation. The availability of low cost feed production is of course the most important. Another distinct advantage is low precipitation--wet weather periods increase the incidence of respiratory diseases among crowded animals and may cause a high death loss. On the other hand, the cold winter temperatures require more food for energy to overcome the cold. The main disadvantage is the long distance from market which causes a freight differential. The buyers must of necessity take

Photo Number 9



Feed mill mixing section is in building under the blower pipes. The pipe from the right brings chopped hay to mixing plant. Grain storage is behind the plant, and load-out section is indicated by large entrance for trucks.

Photo Number 10



Feed lots, roadways and divisions. Dark areas are mounds left after cleaning yard to provide dry ground.

large numbers (1000 head or more) instead of only a few truck loads as when dealing with closer lots. The need to purchase large numbers cause the buyers to hesitate because of possible market fluctuations.

Marketing

On or near December the first cattle buyers contact the ranch, however, if prices are low or unstable, the ranch contacts the buyers. When a price has been established, there is a verbal gentlemen's agreement that the cattle will yield* (dressed out carcass weight) 60% or over and grade approximately 75% choice. On the first of January a sample or test load will be sent to the buyer. If this shipment is satisfactory, further shipments will begin. If the load is "green"* or not ready, feeding will continue. When the trial load indicates the cattle are ready, the buyer will take two or three loads a week, with shipment completed on the first group approximately the first of March. The second feeder group started in November should be sold by the first of February for delivery in March and April. Although unusual, the feed lot has shipped as many as 900 head in one day.

The majority (90%) of the finish cattle sales are to the California market. The company sells primarily to California meat packers such as the San Jose Meat Company, the Marks Meat Company in

*See glossary

Woodland, the Minch Meat Company in Red Bluff, and the Allen Brothers in San Francisco. The Auburn Pack Company of Seattle, Washington have been customers in recent years. The buyers always arrange truck transportation, with the trucks averaging 40 to 50 head per load. The shipping rate to San Francisco Bay area is eight tenths of a cent per pound (80 cents per 100 pounds), causing the Warner Valley prices to be about one cent a pound less than the Bay prices. An unstable market may cause the prices to be one and one half cents less. The ranch generally allows 4% off the cattle weight for shrinkage in transportation. On the day of shipment the cattle are weighed at 8:00 in the morning instead of departure time.

The company finishes about 3500 head of steers and heifers each year at the feed lot on the ranch. The young stock sent to winter range near Red Bluff will probably average 1200 head. These may be sold as feeders or fed out by feed lots in the area. The number of cows and bulls marketed varies yearly, but a close indication is the heifer and bull replacement which averages 850 animals. Subtracting death loss and butchering (about 400 head) an estimate of animals sold annually amounts to 5150 head.

Beef production is generally not a high margin operation, and estimates indicate that the net income on capital investment in the Warner Valley Stock Company for the last 25 years would average about two and one half percent.

The Economic Impact of the Warner Valley Stock Company

The Warner Valley Stock Company is a large private enterprise with costs of operation exceeding one million dollars annually (see Tables 7 and 8 on p. 89-90). The capital investment, allowing depreciation, is approximately two million dollars. The MC ranch contributes a conservative estimate of 5000 head annually to the U.S. beef production, which supplies the beef requirements for a city of approximately 35,000 people¹.

Much of the money spent for the operation must of necessity leave the immediate community, but the policy of the management is to buy locally whenever possible. In many ways this does not show directly, however, a large percentage is evidenced in the following items. Over 40 permanent employees on the main ranch and about 20 on the balance of the operation receive approximately \$5000 per week for labor. The stock industry wages are fairly stable in this area, with a "going" wage being paid for different jobs. The buckaroo standard is \$7.00 per day, with an extra dollar being paid during extra heavy work periods. This crew normally works seven days a week and 12 months a year. Machine operators that drive large D 7 caterpillars and smaller machines in construction and farming make

¹ Beef consumption 86.7 pounds per capita

\$10 dollars per day. Machinists, carpenters and dragline operators are paid \$2.00 per hour. The foremen receive approximately \$500 per month. Normal wages for harvesting jobs such as mower or rake operator is \$8.00 per day, while a lead man or straw boss will receive \$10.00 per day. The general rule for ranch work is a six day week (with the exception of buckaroos). During heavy work periods such as harvesting or feed lot operating, however, the work is on a seven day week basis. In addition to wages, all unmarried men on the ranch receive their meals and may live in the furnished bunk-houses. Housing is provided for many of the married men who are steady workers. Maintenance, utilities, milk, and meat are also supplied. The ranch has a commissary where groceries, cigarettes, etc., can be bought at wholesale. Labor and salaries in 1962 amounted to over 23% of the annual expense.

Contract work plus repairs and maintenance, mostly local, exceeded 10% of the cost. Other costs that are at least partially local such as county taxes, rent, and grazing fees, as a group totalled 13%, while the annual bill for mechanized energy (electricity and petroleum) accounted to 6% of the annual cost.

The largest expense group is for other agricultural products or processed agricultural products, representing 27% of the total-- indicating the company is a good customer for this segment of the economy.

Each year the company invests \$85,000 to \$100,000 in capital improvements on the ranch, which covers many facets such as new equipment, land improvement, and construction of buildings. The policy is to operate equipment as long as feasible. Some items such as caterpillars, vehicles, and wheel tractors are generally used many years with periodic overhauling or rebuilding in the company shop. A good example of this is the RD 6 caterpillar (27 years old) operating a brush cutter on the Coleman ranch. More complex machines such as hay balers are usually replaced after four to six years of service.

This organization is not associated with any other industry or field as has been the case with some large ranches. The prime objective is to raise beef for a profit--the owners are stockmen and dependent upon the ranch production for their living.

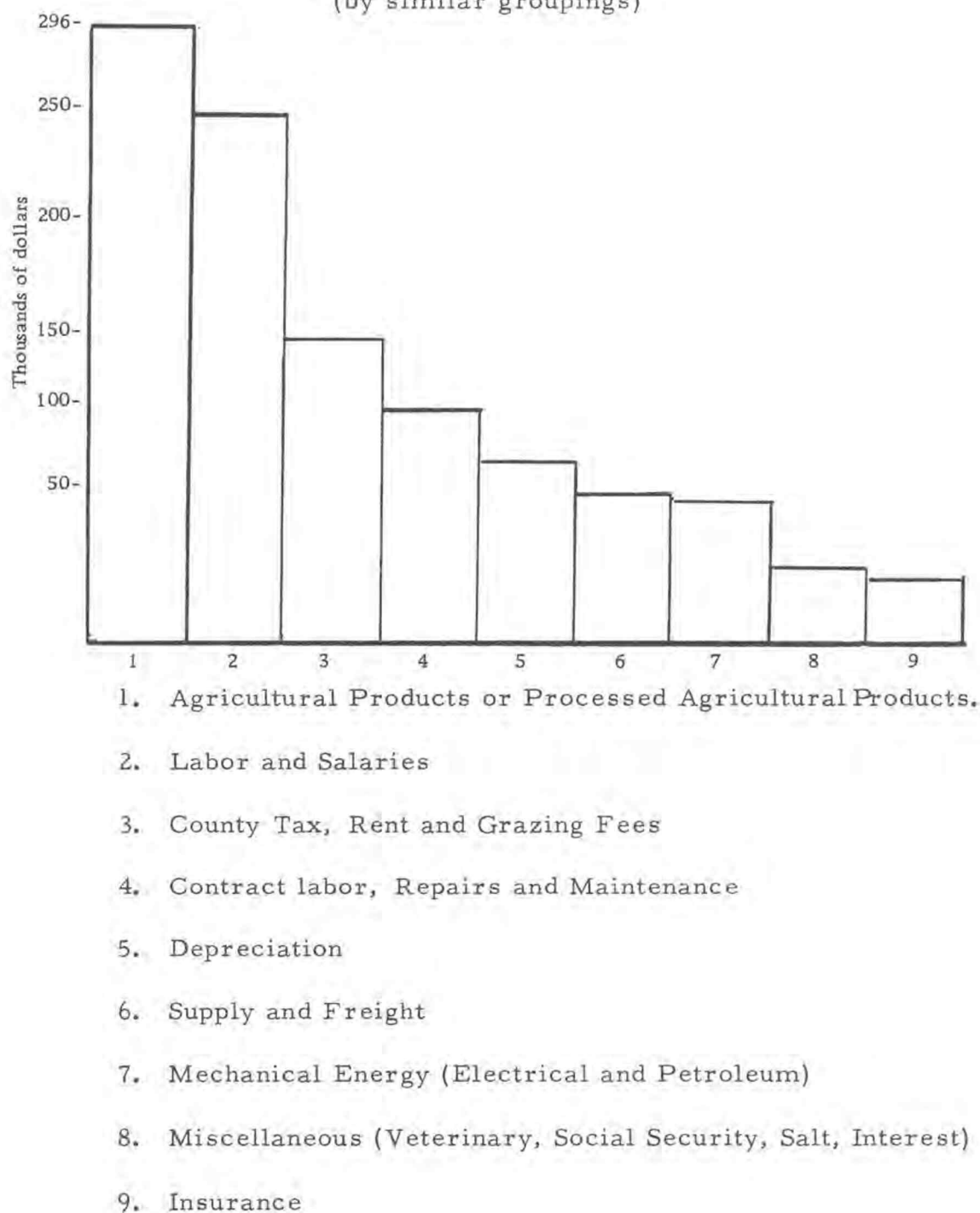
Table 7

Distribution of Warner Valley Stock Company Costs for 1962

Molasses (1350 tons) - - - - -	78,000
Feed concentrate (428 tons)- - - - -	61,000
Barley (1000 tons) - - - - -	50,000
Cattle fed by outside contract - - - - -	82,000
Bull purchases- - - - -	25,000
Salt for animals - - - - -	6,000
Power bill (electric) - - - - -	21,000
Petroleum (fuel and lubricant)- - - - -	46,000
Repairs and maintenance- - - - -	66,000
Contract work (Hay piling, spraying, etc.) - - - - -	44,000
Ranch labor- - - - -	200,000
Salaried employees - - - - -	52,000
County taxes - - - - -	44,000
Grazing fees - - - - -	14,000
Rent- - - - -	86,000
Insurance (fire, liability) - - - - -	5,000
Accident Compensation Commission Insurance - - - - -	25,000
Social Security - - - - -	6,500
Supplies (Cook house supplies, miscellaneous) - - - - -	30,000
Wire and twine for baled hay - - - - -	15,000
Freight - - - - -	25,000
Vaccines and veterinary expense- - - - -	10,000
Interest - - - - -	13,000
Depreciation on equipment - - - - -	<u>85,000</u>
 Total Annual Expense	 \$1,089,000

Table 8

Graphic Distribution of Costs
(by similar groupings)



CHAPTER V

SUMMARY AND CONCLUSIONS

The Impact of physical and cultural elements upon the Warner Valley Stock Company has been examined in detail. These interrelating forces have combined to modify the existing organization.

The Warner Valley Stock Company is a large concern, utilizing over 80,000 acres of private land and over 680,000 acres government grazing land. A complicated land tenure system and an equally complicated land use system are meshed together for a single purpose--to produce and market as much beef as possible, and as profitable as possible. Although the home ranch is most important, other units owned or leased play a definite role in augmenting the Warner Valley production. The main ranch is used for cow-calf and finishing operations. Klamath Marsh summers the calves and has a limited cow herd. Summer Lake winters replacement heifers, and Red Bluff is used to winter pasture some of the steers and heifers.

The cattle are of primary importance, constant herd improvement by quality bull purchases and heifer selection is a necessity. The control of diseases, breeding, feeding, and management of cattle must be dovetailed with advance planning to have an efficient operation.

The location of the home ranch is unusual for this section of

southeastern Oregon; there is sufficient irrigation water (most of the time), suitable soils for feed crops, and a milder winter climate than the surrounding area.

The control system of water diversion, drainage, and irrigation has changed the valley floor from intermittent lakes, swamps and meadows, to productive fields. The valley formerly produced only one half to one ton of hay to the acre, whereas now, on fully developed land approximately four tons of alfalfa are cut per acre. Before reclamation the ranch cut 8,000 to 10,000 tons of wild hay annually. It still yields 10,000 tons of wild hay, and in addition approximately 3,600 to 4,000 tons of grain and 10,000 tons of tame grass and alfalfa annually.

The efficient use of a modern feed mill in conjunction with hay and grain production makes this one of the few fully integrated ranches. Cattle are raised completely from calf to finished beef, which is uncommon in Oregon.

The use of government desert rangeland correlated with the operations on the ranch is necessary to the present system. The forage on the public range can sustain the cattle for five to seven months of the year, which releases ranch land for crops. The meat produced on the range is the least expensive portion of the growing cycle,

A source of concern is the instability of government range leasing, since grazing rights are not guaranteed. Of further concern are

the demands for increased government range use including diversification for wildlife refuges and recreational activities such as hunting, rock hunting, and scenic attractions for the tourists. Competition between grazing and other land use is becoming more competitive. Development by the BLM designed to increase the range capability and its diversity will be reflected in increased costs. The rancher is aware and realizes the importance of the multiple use concept in achieving the fullest use of the range resources. He points to the fact, however, that this land was originally settled and developed as grazing land. Range beef is a definite contribution to the nations economy and should continue to supply meat to the public in conjunction with other range uses.

Ranch labor is becoming a serious problem as social patterns change. Competition from other fields have made it increasingly difficult to obtain competent men who will work for the "going wage" stockmen have been paying. Higher labor costs have in some instances been met with mechanical equipment. This trend will undoubtedly continue, but some phases of ranching such as cattle handling have so far "resisted" mechanization.

The mixed impact of government cannot be overlooked in this operation. Ranching is faced with increasing restrictions of the rangeland and with rising federal, state, and county taxes. On the other hand government forces such as the aid from county agents,

Soil Conservation Service, research by Oregon State University and other institutions, have made a substantial impact on the improvement of the ranch--these forces tend partially to mitigate tax increases and other restrictions.

The management maintains an efficient operation and has a progressive philosophy which can be illustrated in land reclamation, cattle herd improvement, modern feed mill installation, mechanical equipment, range improvement, and feed crop improvement. The company is constantly searching for and considering advances or changes that will provide greater efficiency for the ranch. Examples of anticipated improvements are construction of sheds to protect hay stored in fields, and the possibility of using a combination of rye and peas instead of wild hay to bunch for feed.

The land in the north end of the ranch possibly has the least used potential at present. This area is a combination of peat and clay loam soil with natural drainage of the valley assuring water for irrigation. The increased use of fertilizers should be a definite factor in achieving more feed in the future. Eventually the ranch may produce more intensive crops such as sugar beets, however, distance from market and climatic restrictions will probably limit more intensive crops in the immediate future. The possibility of improved water control with reservoirs in the watershed could raise the potential, although it is now prohibitively expensive. If rangeland grazing is

decreased in the future, more intensive production of the home ranch will be necessary to partially offset the loss.

Cattle production at the present time is the most efficient utilization of the natural resources, considering climate, soil, natural vegetation, location, and other factors. The potential of these resources has not been achieved as yet--however, the pattern is established and development will continue. The company has enhanced the available advantages, and compromised where prohibitive conditions existed. The goal is permanent use, not exhaustive exploitation of the resources.

The high transportation expense could possibly be reduced to some extent in the future if the company extends its facilities and erects a packing plant that would function with the feed lot, thus reducing shipped weight.

Although ranching is an extensive use of the land, this ranch use could be termed "intensive", because the integration of all facets of forage production and animal husbandry is completely coordinated and executed in order to achieve quality beef at a competitive cost.

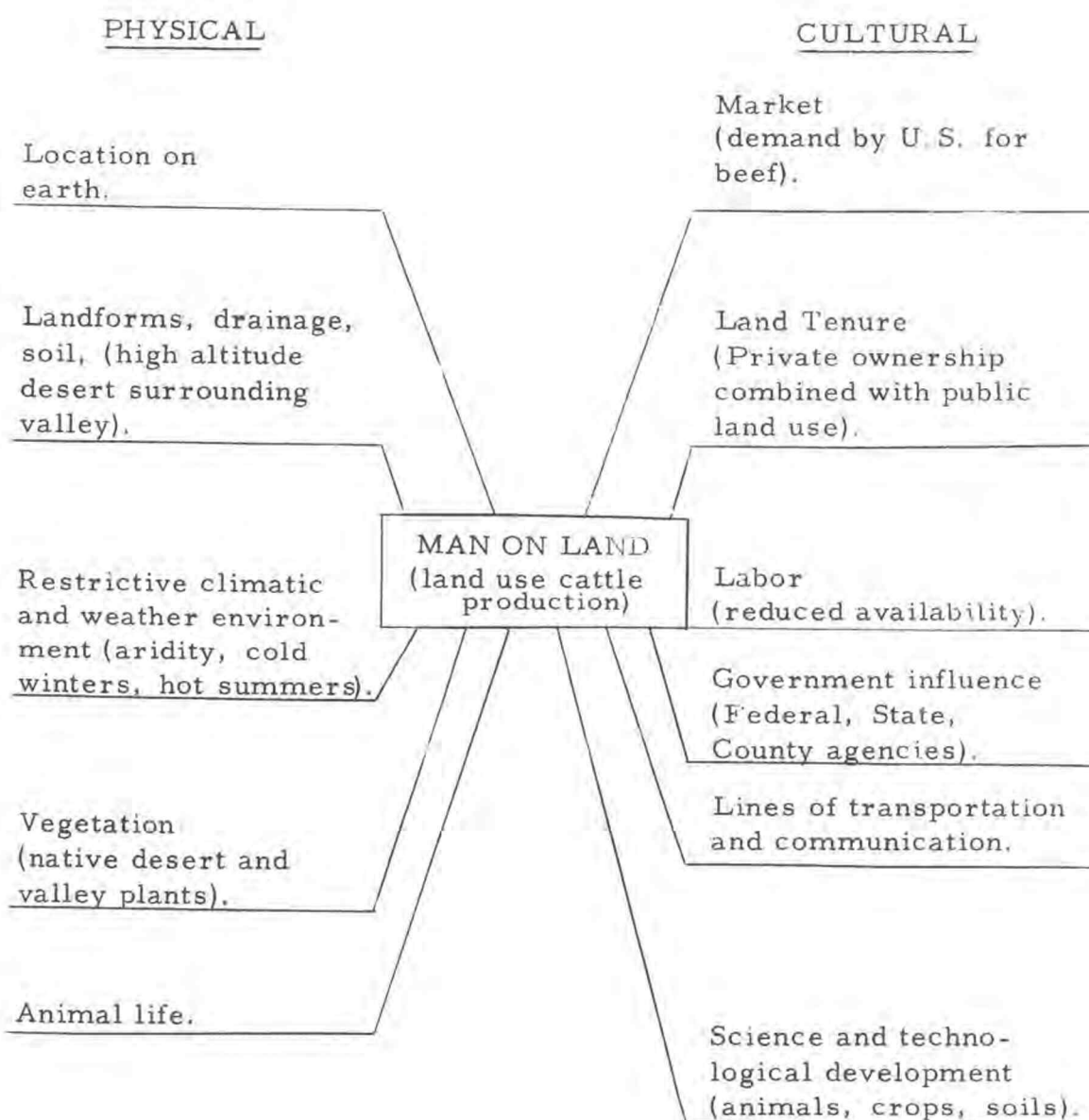
A number of interrelating forces have a direct affect upon the operation--climate, physical surroundings, transportation, government influences, labor, market, domestic and foreign competition, diseases, technological improvements, cultural and historical background, all combine to form the framework within which the ranch

has developed.

Study of the Warner Valley Stock Company has provided a window through which the reality of man's occupance on the arid eastern Oregon lands may be viewed and better understood.

TABLE 9

FACTORS INFLUENCING THE WARNER
VALLEY STOCK COMPANY



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APPENDICES

APPENDIX A

GLOSSARY OF LOCAL RANCHING COLLOQUILISMS

Bawler Cow	A cow just separated from her calf
Breaking	Training horses
Broke	Trained saddle horse
Buckaroo	Cowboy--Cowboy is not used in this area
Bucking rolls	Small rolls attached to pommel (front) of saddle allowing legs to grip saddle.
Calves pulled	Obstetrical help--when cow has difficulty giving birth and calf has to be pulled.
Calvie	Cows expecting calves within a month
Cavvy	Buckaroo riding horse herd
Chapps	Leather leg covering for protection--held on by straps--shotgun chaps are constructed like pants legs.
Concentrate ration	Feed with higher energy than hay.
Cut out	To separate animals.
Dewlap	A flap of tissue cut on the brisket to form a distinct marking.
Drifting	A natural movement of the cattle over the range started by forage and climatic conditions on the range.
Finish cattle	Cattle on grain rations fattening for market--also "fat cattle".
Gain	Amount of increase in animal weight.
Gelding	A castrated male horse.

Grazer	A straight bit with a short mouthpiece.
Green cattle	Cattle not ready for slaughter -"short fed"
Grown out	Usually applies to young bulls--they receive a good growing feed but not a finishing ration.
Gummer	Cow without teeth--usually old.
Heavy	Cow expecting calves within a month.
Halfbreed	Straight bit with a short mouthpiece--occasionally called a "grazer".
Leppie	Orphaned calf
Mothering up	Calf claimed by cow.
Mouthed out	Teeth inspected to determine age and condition of cow.
Mulley	Cattle which do not develop horns.
Orejana	Unbranded calf, also called "slick ear"
Open Heifer	One that is not bred.
Rough String	Horses partially trained.
Sacking out	When breaking a horse one hind foot is tied up--then a sack is waved at the horse to get him used to the idea that sudden movement will not hurt him.
Shrink	Amount or percentage given off weight when sold.
Shotgun chaps	See chaps
Smooth mouth	Old cow--no teeth.
Snaffle bit	A bit that is split or hinged in the center.

Spade bit	Spade shaped mouthpiece, gives more control over horse.
Split a pair	When a calf gets away from its mother or when a calf goes with the wrong mother.
Stand with shrink	Cattle stand overnight without water and then a shrink is taken when sold.
Starting	Beginning training horses.
Started	Same as starting--breaking horses.
Steer	Castrated bull.
Stray	Other rancher's cow.
Take a deep seat	Horse looks like he will buck.
Three quarters rigged	Saddle with two pair of rings for the cinches--one in front and one in back.
Tapadero	Leather covers over stirrups to protect feet.
Taps	Same as Tapadero.
Thawing out	Galloping a fresh horse along a fence, "getting the bucking out".
Warmed up cattle	Cattle that have been in the feed yard 60-80 days and are ready for full concentrate rations.
Weaner	A calf that is separated from the cow.
Woolies	Chaps used in winter, have hair still on them--made of cow hide.
Wattle	A flap of live tissue cut normally from the shoulder or neck to form a distinctive marking.
Work	The cattle have a grade and yield enough so that they are ready to be slaughtered.

Work with shrink	Moving the cattle around before weighing them when they are sold.
Wrangler	Horse handler
Wrango boy	Apprentice buckaroo who takes care of saddle horses.
Yield	Refers to the relationship between live-weight and dressed carcass weight of an animal.

APPENDIX B

MANAGEMENT PERSONNEL AND RESPONSIBILITIES

Home ranch manager and overall supervisor Jack Nicol

Assistant Manager William Lane

He is assistant to the general manager and is directly responsible for irrigation and harvesting Wild Hay. His crew averages nine men, with about 14 extras during haying.

Foreman William Kittridge Jr.

His responsibilities include construction, grain, tame grass and alfalfa production. The normal crew consists of eight men, with four more used during harvest--a reduction from the past when a total of 20 men were needed for harvesting.

Foreman Clevon Dixon

The buckaroo crew is under his control, with direct responsibility for the cattle and horses, on the desert range and on the home ranch, with the exception of the feed lot.

Foreman George Retrath

He is responsible for the cattle in the feed lot, both feeding calves and fattening cattle. The crew will average four to five men,

Semi-retired Foreman Ross Dollarhide

In spite of his advanced age (late 70's) he is still actively driving a pickup or leading mowers during harvest, and assisting in cattle separation and classification during round-up.

Klamath Marsh Foreman

Rex Tingley

He has been with the organization for 15 years, and is responsible for the operation on the Klamath Marsh ranch. The crew averages 15 men, with ten more employed during haying.

Assistant Secretary and Treasurer

Ray Michels

He is the business manager and coordinator for the company. He knew Bill Kittridge and did some work for him as early as 1935. He has been with the company since 1948.

APPENDIX C

SOILS OF SOUTH WARNER

A detailed map showing soils boundaries is not available for the South Warner area. The Soil Conservation Service has been working in Lake County, and temporary names have been suggested for the predominant soils in South Warner. Within the next few years detailed maps of southern Lake County should be available.

The Crump series are Bog or Half Bog soils, poorly drained with organic surface horizons and mineral subsoils. The parent materials are muck, peat, and recent diatomaceous sediments (14, p. 56). The poorly drained Paulina series are medium to moderately fine Humic Gley soils that occur on nearly level low lake terraces. The parent materials consists of recent lake sediments with the top soil generally a deep silty loam (14, p. 144). The Loftus series are medium textured, imperfectly drained Solonchack soils, usually occurring as small islands or slightly raised knolls among the Paulina soils. Loftus parent materials are medium to moderately coarse textured lake sediments (14, p. 119), with top soils predominantly a silt loam two to eight inches thick and moderate to strong alkalinity.

The map (Figure 9 on p.108) was prepared and the following description of the soil was made on the basis of personal observation

and information supplied by ranch personnel. The soils found on the ranch can be separated into five categories--peat, clay loam, sand silt with some clay, sand silt with some gravel, and sandy gravel (see Figure 9 on p. 108). The two heavy peat areas called Dodson Lake and Old Potholes, have deep soils with nitrogen often being in higher concentration at three feet depth than near the surface. When plowed deeply, a material locally called "Yellowcake" is brought to the surface. This is a material that has not deteriorated enough to yield well,--several years farming are required to increase yield. To the north, the soils are mostly combination peat and clay loam, with the peat concentration in the lower areas. The higher areas have more clay and some alkalinity (soluble alkali that can be leached). Huston Swamp in the south has a heavy clay loam locally called "Dobie", that is sometimes difficult to farm. Usually it is plowed in the fall, then disced and the seed bed prepared in the spring. A low alluvial fan that extends out from the headquarters area is composed largely of sandy silt with some gravel. Another low fan south of the potholes district (see Figure 6, no. 22 on p. 47) is a sandy clay mixture. Twenty Mile Field (see Figure 6, no. 16 on p. 47), along the creek at the south end of the ranch is mostly old gravel bars laid down by the creek before the levee was constructed. This mantle is a sandy, gravel mixture with some silt that has been successfully developed into an alfalfa producing field. The soils are thinner at the south

WARNER VALLEY STOCK CO.

Soils Distribution

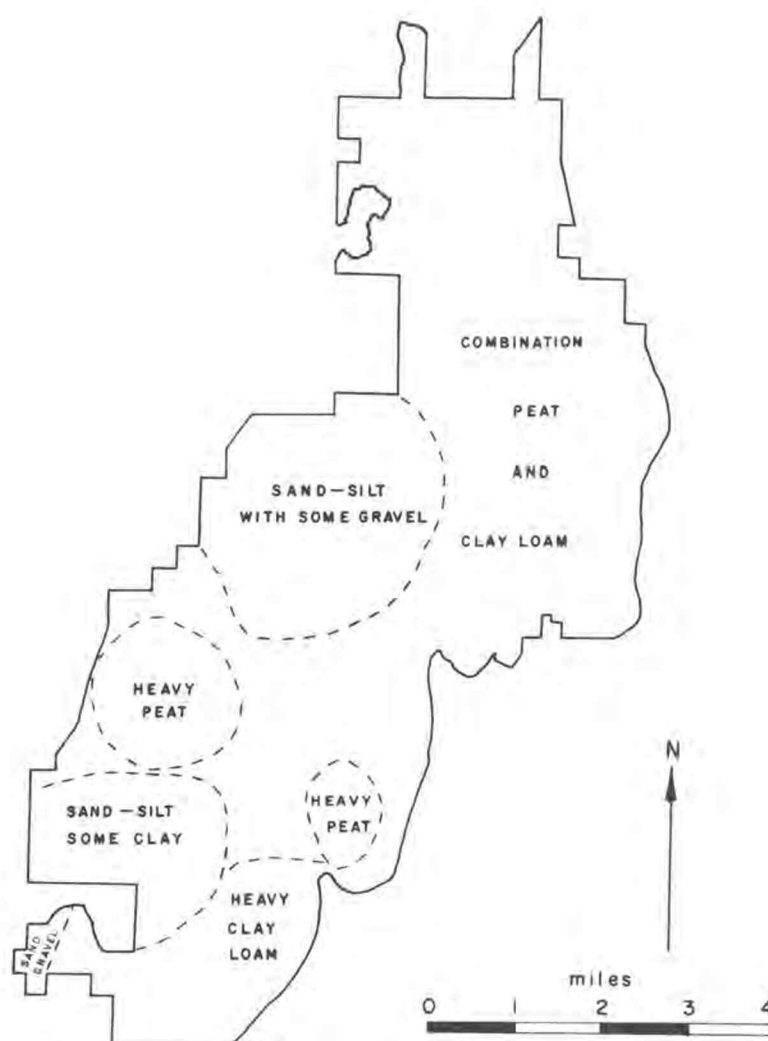


Figure 9

Jack Hunt


end of the ranch and become deepest through the peat areas. Farther north the soil again becomes more shallow. Top soil on the low knolls in the northern fields may be only six inches deep, whereas the lower areas may be 18 inches in depth.

The heavy peat areas have been the best producers in the past, however, production has been increased on soils such as Huston Swamp. The north part of the ranch, now used for wild hay and pasture has a high potential for alfalfa and grain in the future, with the availability of water and water rights being a helpful factor.

APPENDIX D

BRANDING AND MARKING


Cattle

The MC brand is over right ribs ().

The Earmark is a swallow fork on the right ear (a V shaped notch cut into the end of the ear).

A Wattle is on the right shoulder.


A limited number of cattle are branded with the brand that William Kittridge's father used--


The YJ brand () on the right hip.

The Earmark is a swallow fork on the right ear underbit
on the left ear,
and underbit on the right ear.

A dewlap is on the brisket (cut down and hangs down)

Horses

The early brand was a circle T () on the right shoulder
Circle brands are no longer allowed because of ease in
changing them--there are still some horses on the ranch
with this brand.

The present brand is MC on the right shoulder or a YJ ()
on the left shoulder.

APPENDIX E

DISEASE CONTROL

1. Blackleg This is an infectious disease, the symptoms are swelling and crack of the skin, usually fatal. Caused by *Clostridium chauvaei*.

Malignant Edema. Abnormal swelling, accumulation of fluid in interfibrillar spaces, gangrene and convulsions usually fatal, caused by *Clostridium septicum*.

All calves receive a permanent dual vaccine at the time of branding.
2. Leptospirosis Commonly called Lepto--symptoms are fever, loss of appetite, and bloody urine. It can result in death. Caused by *Leptospira bovis* and *po-mona*.

All cattle receive an annual vaccine.
3. Rhino tracheitis Symptoms involve mucous membranes of upper respiratory tract--high temperature and nasal discharges for three to four days, only one to two percent mortality, but weight loss is costly.
4. Hemorrhagic septosemia (stockyard fever) (actually a misnomer as infection in blood stream--septicemia--is limited). This is an infectious disease with a high mortality, hemorrhages in body tissue, high temperature, loss of appetite, nose discharges, coughs, and sometimes swelling beneath the skin of the head, throat, or dewlap, are the general symptoms. A virus is suspected, with secondary infection of some strains of pasturella organisms. Any cattle may be affected, but particularly prevalent in feeder cattle where crowded in pens or transported.

5. Brucellosis Disease causing abortion, a permanent vaccine is given to all heifers by a veterinarian. They are also ear tagged, branded on the jaw, and have an ear tatooed for further identification.

6. Anthrax An acute infectious disease, spleen enlarged, ulcers, produces septicemia, usually fatal, caused by *Bacillus anthracis*.

7. In addition to the above treatment, all cattle on the ranch are disinfected by spraying or dipping. All cattle not entering the feed yard are dipped in a concrete tank. This is done during winter, so the liquid is heated with a steam boiler to 75 degrees. All cattle entering the feed yard are sprayed because dipping allows some of the liquid to enter the lungs, causing respiratory ailments.

The disinfectant now used is Toxephene 44.15%, Gamma isomer of Benzine Hexachloride 1.32%, and inert ingredients 54.53% in a water solution.

8. Foot Rot A foot infection in that feed lot which must be checked continually. The most effective treatment has been a solution of Copper Sulphate used in a foot bath (see Figure 8, no. 10 on p.77).

Two diseases incurable at the present time are Virus abortion, and Anti-plasmosis (an insect carried disease normally contacted on the range). These have been relatively unimportant.

APPENDIX F

AN INVENTORY OF THE PRINCIPLE MECHANICAL EQUIPMENT

Draglines	3
D 7 Caterpillars with dozers	5
RD6 Caterpillar (first on ranch in 1936)	1
Small Crawler tractors (3 at Klamath Marsh)	6
Wheel tractors	35
Harrow beds	3
Swathers	4
Hay Balers	6
Pusher Combines	2
Pull Combines	5
Land Plane	1
Carry-alls	2
Vehicles (trucks and pickups)	40
Large 36" electric pumps	2

APPENDIX G

PROMINENT RANGE PLANTS FOUND ON THE MC RANGE

Plants that offer forage

<u>Common Name</u>	<u>Scientific Name</u>	<u>Season of Use</u>
Wild Foxtail Barley	<i>Hardeum jubatum</i>	Sp
Meadow Barley	<i>Hardeum brachyantherum</i>	Sp
Cheatgrass Brome	<i>Bromus tectorum</i>	Sp
Sheap Fescue	<i>Festuca ovina</i>	Sp & F
Needle and Thread	<i>Stipa comata</i>	Sp
Mountain Brome	<i>Bromus marginatus</i>	Sp, S, F
Blue Wild Rye	<i>Elymus glaucus</i>	Sp, S
Idaho Fescue	<i>Festuca idahoensis</i>	Sp, S, F
Slender Wheatgrass	<i>Agropyron pauciflorum</i>	Sp, S, F
Desert Wheatgrass (crested seeded)	<i>Agropyron desertorum</i>	Sp, S, F
Giant Wild Rye	<i>Elymus condensatus</i>	F, W
Nevada Bluegrass	<i>Poa nevadensis</i>	Sp, S, F
Junegrass	<i>Kohleria cristata</i>	Sp
Bulbous Bluegrass	<i>Poa bulbosa</i>	Sp
Bottle brush Squirrel tail	<i>Sitanion hystrix</i>	Sp, F
Blue Joint Wild Rye	<i>Elymus triticoides</i>	S, F
Bitterbrush	<i>Purshia tridentata</i>	late S

Non-forage

Big Sagebrush	<i>Attimesia tridentata</i>
---------------	-----------------------------

<u>Common Name</u>	<u>Scientific Name</u>
Indian Paintbrush	Castilleja species
Wild Buckwheat	Eriogonum ovalifolium
Mullein	Verbascum thapsus
Puncture vine	Tribulus terrestris
Western Juniper	Juniperus occidentalis

Poisonous Range Plants

<u>Common Name</u>	<u>Scientific Name</u>
Larkspur	Delphinium andersonii
Arrow grass	Triglochin maritima
Death Camas	Zigadenus venenosus
Halogeton	Halogeton glomeratus
Greasewood	Sarcobatus vermiculatus
Lupine	Lupinus

The county agent range specialist has spent some time on the range with the MC manager identifying poisonous plants and helping to determine their effect on the range cattle. Larkspur, the major cause of cattle poison loss is most deadly in the early spring when the root which contains most of the poison may be pulled up and eaten.¹ Arrow grass and Death Camas may both be fatal, but

¹ The stockmen say that Larkspur victims may be saved if located early enough (symptom is staggering). They make an incision across the buttocks below the tail, allowing the cow to bleed.

greatest losses are sheep. The other three plants are most dangerous to sheep, and have little affect on cattle.