Bunchgrass Historian

Whitman County Historical Society Quarterly

Volume 16, No. 3 | Colfax, Washington | Fall 1988

- **The Interior Tramway**
- **Soil Conservation History**

CONTENTS

THE AUTHORS

Glen Lindeman is an independent researcher and writer from Pullman. Matthew Root was a graduate student in anthropology at Washington State University when researching this material.

The late Verle Kaiser spent his life working with soil conservation in Eastern Washington. He was interviewed by Douglas Helms, a SCS employee, in 1981, and the interview was placed in the public domain. It was condensed and edited for this publication by Tina Atkinson Oswald, Manuscripts Librarian at the Washington State University Libraries.

COVER

Ruins of the upper terminal of the Interior Tramway. Courtesy Washington State Office of Archaeology and Historic Preservation.

The Bunchgrass Historian is published four times a year by the Whitman County Historical Society. Its purpose is to further interest in the rich past of Whitman County.

●

SOCIETY ADDRESSES

Society Business:
Whitman County Historical Society
P.O. Box 67
Colfax, WA. 99111

Memberships and subscriptions
Gwenlee Riedel
Membership Committee
Whitman County Historical Society
SW 220 Blaine
Pullman, WA 99163

Articles for Publication:
Lawrence R. Stark, Editor
The Bunchgrass Historian
P.O. Box 2371 C.S.
Pullman, WA. 99163

Current and Back Issues:
(Send $2.50 per issue)
Susan Bohm, Sales Editor
The Bunchgrass Historian
SW 405 State Street
Pullman, WA 99163

THE INTERIOR GRAIN TRAMWAY

by Glen Lindeman and Matthew Root for the National Register of Historic Places

The following article on the Interior Tramway was originally written for a nomination to the National Register of Historical Places, and is presented here in slightly altered form. Persons interested in viewing the present ruins of the tramway are advised that these are private property and should be respected as such.

— editor

Though abandoned and extensively deteriorated, the Interior facility is the most complete and intact grain tramway remaining in Whitman County and eastern Washington. Located in the Snake River canyon one to two miles north of Wawawai, it conveyed sacks of wheat from the high Palouse hills down a steep ridgeline to the valley floor via a long steel cable strung on wooden towers. Remains of at least 27 towers are yet present on the rugged, wind-swept hillside. Eight towers still stand, but the others have collapsed or been razed. Situated at the top of the hills overlooking the deep river canyon is the upper terminal complex consisting of one standing

Upper Terminal, Interior Tramway Ruins

structure and the scattered remains of at least five others. In total, the nominated property stretches over 5,000 feet from the river to the top of the tramway and consists of the tower corridor and upper terminal (one contiguous site area) and nine standing (contributing) structures.

The tramway and its setting are best veiwed from the upper terminal. There, on what are referred to as "The Breaks", the rolling fields of grainend abruptly at the rim of the Snake River canyon. It is one of the most dramatic vistas in North America. Marching single file down the precipitous slopes to the river's edge are the rustic tramway towers, crude in their construction, diminutive in size and overwhelmed by the steep of the landscape. It was via this quaint technological contraption that farmers overcame the 1600 foot vertical drop from their fields to the transportation outlets along the river below.

The Interior Grain Tramway operated from 1901 through 1938. It took its name from the Interior Warehouse Company, which acquired ownership shortly after the facility was completed. The tramway functioned much like a modern ski lift, but instead of skiers it hauled two-bushel wheat sacks weighing 130+ pounds each. A brakeman at the upper terminal controlled the rate at which the heavy sacks descended the steep hillside on the device. Warehouses at either end of the tram stored grain awaiting transportation. Remains of the warehouse and other associated

Lower Terminal, Interior Tramway ca. 1935

structures are present at the upper terminal, but the facilities at the bottom of the tram have all disappeared. Completion of Lower Granite Dam in 1975 raised the river's water level about 90 feet, forcing relocation of the railroad grade hill, and thus obliterating the Interior warehouse siding and probably one or more of the tram's lower towers.

A contemporary observer wrote the following succinct description of the facility in its early years of operation:

> The upper terminal [breaking device]...is a large cast-ironwheel, eight feet in diameter, supplied with a patent rachet grip that the cable passes through, and a smooth, band-iron grip brake for regulating the speed of the cable. The lower terminal is constructed in the same manner. The farmers deliver their grain to the warehouse at the upper terminal, and the sacks are placed on the carriers and lowered on the cable to the house on the river.
>
> The cable is run on a gravity basis, the loaded carriers pulling up the empty ones. The lower terminal is in the tower of a large warehouse at the foot of the bluff, and grain is conveyed in chutes from this tower, either to different sections of the warehouse or to the steamboats, as the case may be.
>
> This tramway has proved a great success, and saves the farmers a haul of from 10 to 15 miles over a rolling country to the nearest rail-

road station. There are about 50,000 sacks (100,000 bushels) of wheat put down to the river landing over this tramway each season. [George M. Gage, "The Bucket Tramway," *Pacific Monthly,* 12:149-150 (September 1904)].

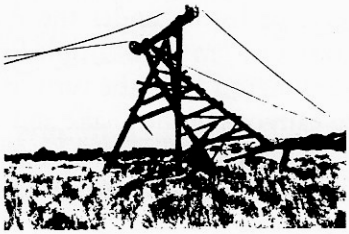
The above assessment remains an accurate portrayal of the facility's operation throughout its 37 years of active use. At peak times in late summer or early autumn, perhaps as many as 15 people, including a cook, worked at the site. Moonshine from a still in a secluded wooded spot in the side canyon was available to help men get through the long day. Whitman County farmers using the facility included N.C. Myers and later Charles Vollmer (owners of the land at the upper yarding area), Lou and Chet Wayman, and others within six or eight miles of the canyon.

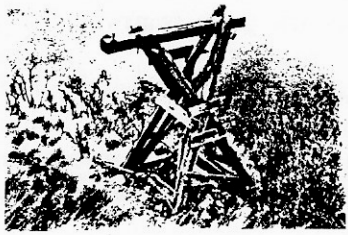
By 1938, however, the tramway became outmoded and was abandoned, after which time some of its features were razed or scavenged, mainly at the upper and lower terminals. The warehouse at the river's edge was torn down in 1940 and the site since has been inundated by the modern reservoir. (The Lower Granite Dam project also forced the relocation of the railroad grade to a higher elevation). During World War II, the Pullman Junior Chamber of Commerce spent a day salvaging metal from the tram for the war effort. They removed the large breaking wheel and other accessible metal parts.

Though the buildings at the upper terminal were razed or salvaged, the foundations and debris from all five structures (scale house, cook house, warehouse, storage platform, and brake house) still remain today. A cement foundation and some boards are remnants of the scale house, onto which wagons or trucks were driven and weighed. The cook shack has collapsed; the walls have fallen outward and the roof now rests directly on the floor. Nearby is a corroded cookstove and a trash dump of kitchen debris. The foundation of the large warehouse is situated in the middle of the yarding area, and a very badly decayed storage platform is located a short distance to the north.

At the brake house (or "head house"), practically all of the machinery has been hauled off and much of the building's razed wooden framework was dumped immediately to the east. Still intact, however, is a large wooden box-like structure filled with devices, but about all that remains of its machinery today are two pairs of 8 inch metal wheels, and a flat metal tongue and steel ring near the rear. A road exists to the northwest from the yarding area, but now is rutted and overgrown and soon disappears in a plowed field. (Today, the nearest roads are a mile or more away; the tramway is accessible only by foot).

The most impressive remnants, however, are the towers and steel cable extending down the nearly one-mile-long ridgeline to the river below. The main cable is a continuous loop, upwards of two miles in actual length. It





Towers, Interior Tramway

still lies in the tramway right-of-way, with only the bottom-most section missing in the vicinity of the three lowest towers. Much of the cable remains suspended in the air on the small metal wheels at the ends of the tower arms; elsewhere it lies on the ground.

Carriers were attached to the cable by ca. 5 foot long metal shafts; wheat sacks were hauled on a metal and wood chair-like framework fastened to the bottom end of each carrier arm. Many of the 128 original arms remain, but a number have been removed (particularly at either end of the tramway route accessible to salvagers). The cables and carrier arms now are rusted, but otherwise remain in fair condition. A second cable also is present on the ground along the lower portion of the tramway route; perhaps it was a worn-outcable that was replaced.

At least 27 wooden towers remain; most have collapsed, but eight of these rustic, hand-built structures still stand. The site where one or more additional towers might have been obliterated by the dam reservoir and relocated railroad grade at the base of the hill. Some of the collapsed towers are fairly intact, whereas remnants of others are extensively scattered. In the tram's mid section, the cable and a number of towers appear to have simultaneuosly shifted and collapsed together, perhaps during a heavy snowfall or windstorm. Composed of boards and stout timbers, the towers varied in height from ca. 6 to 13 feet, depending upon the requirements of the terrain. In places, the loaded grain sacks barely cleared the ground. Towers were anchored or stood on platforms of stacked basalt boulders, which were readily available in this rocky, semi-arid canyon. The eight towers that remain standing are distributed along the length of the route, numbering from the bottom: the 1st, 4th, 13th, 15th, 17th, 22nd, and 23rd towers.

The Interior facility appears to retain the most complete remnants of any historic grain tramway that may qualify for listing under the Associated Property Type "Grain Conveyance Systems," in the Multiple Property Listing "Grain Growing in Eastern Washington." At the turn of the century, several trams were built in the deep canyons of the Snake and Columbia rivers, which transect the high Columbia Plateau wheat country. For decades these conveying devices were used to haul grain to steamboat landings or railroad sidings, until obsolescence closed them down in the pre-World War II era. The Interior facility was especially successful, and, today it is the best remaining example of a tram in the Snake River country of southeast Washington and probably the entire state.

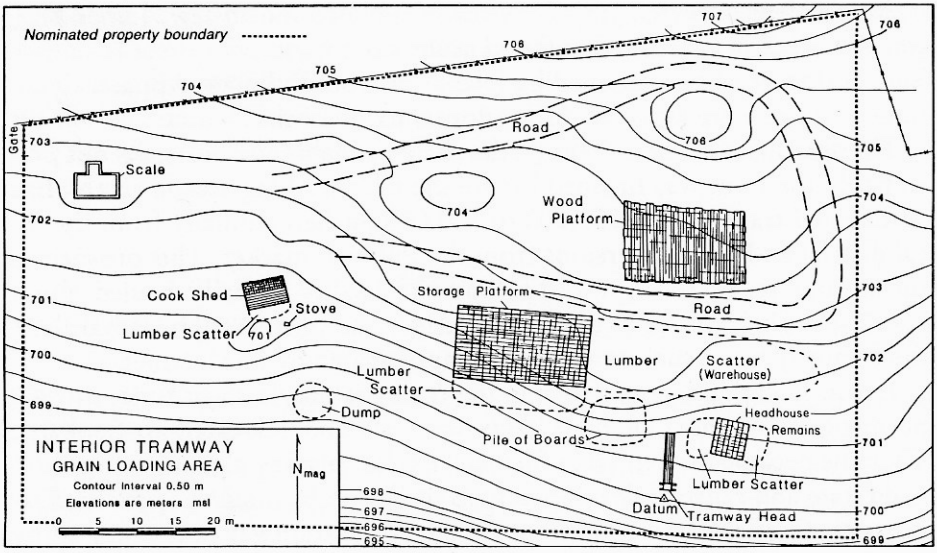
The tram is significant for its historical associations, since it played a central role in the development and history of grain transportation in the Wawawai/Union Flat wheat district of Whitman County. Furthermore, the facility's remnants, particularly the long cable and series of towers, now are exceptionally rare features. They clearly delineate the type of materials, method of construction, and mode of operation that characterized these very long, often spectacular, linear structures.

Local businessman and entrepreneur Aaron Kuhn, of Colfax, financed the construction of the tram. His migration to the Palouse country had been a long one in time and distance. Kuhn was born in Germany on January 25, 1857, and immigrated to America in 1873 at the age of sixteen. Lured by economic opportunity to the West, he successfully managed mercantile businesses in Salt Lake City, and later in Elko and Tuscarora, Nevada, before quitting that area in 1878. Via San Francisco, he proceeded on to Pierce, Idaho, where he operated a general store until 1883.

From Idaho, he moved to Colfax and continued in the same line of work, while marrying Miss Leah Grostein of Lewiston, Idaho. Soon, Kuhn began purchasing valuable real estate in the burgeoning wheat (and fruit) belt of the Palouse country. As his holdings and financial resources expanded, Kuhn became one of the largest and best known wheat shippers in southeast Washington, handling as much as 1-½ million bushels a year.

While at the apex of his career as an influential grain merchant, Kuhn turned his attention to the Snake River breaks (located some 15 miles south of Colfax), where farmers had great difficulty getting grain wagons down the steep canyon walls to steamboat landings on the river. It was at this time that he decided to erect a cable tram below Wawawai. Grain hauled down the facility would be stored in a new river warehouse until shipped by sternwheeler to the railroad head at Riparia, Washington, located about 40 miles down the Snake. By early 1901, Kuhn forged ahead with planning and financing. Estimated cost was $7,500 to $8,000.

Regional newspapers reported that Kuhn was "preparing to revolutionize the wheat business of Pullman and vicinity" and in all probability



would "divert from 125,000 to 250,000 bushels of wheat that ordinarily came to Pullman each year". Pullman stood about 10 miles northeast of the proposed tram site. The rolling hills of the Union Flat Creek country, located immediately north of this section of the Snake, were noted for "the finest quality of wheat grown in the Palouse country." In fact, some farmers had contemplated building a similar tramway system in this locality, but gave up the idea after Kuhn announced his project.

On-site preparations began April 24, 1901, when Manning and William J. Roberts of the Washington Agricultural College (now Washington State University) travelled to Wawawai to make a survey for the cable tram. Roberts (holding degrees from the University of Oregon and the Massachusetts Institute of Technology) was Associated Professor of Mathematics and Civil Engineering at the new college in Pullman. When the survey was completed, construction pushed forward. Manning directed the installation of the cable and towers, as well as the building of a upper warehouse at the canyon rim and a 60 x 150 foot warehouse on the river.

By late June, the upper warehouse neared completion, but lumber for the river flathouse was still being hauled to the site. Nearly 10,000 feet of 7/8 inch cable arrived by railroad from the East, and was being hauled by a local teamster to the plateau rim. The cable was wound on two large spools, each holding 4,900 feet and weighing 6,000 pounds. The wagon could haul only one spool at a time.

An accident occurred July 2, When Manning's son-in-law, James Benton of Colfax, was seriously injured at the site by a heavy timber falling on him. A doctor was summoned by telephone from Pullman. Apparently no other injuries were incurred during construction of the facilities.

The anticipated July 1st completion date probably was not met, but presumably the tram was finished before the fall threshing season. Kuhn had anticipated transporting 250,000 to 300,000 bushels annually from the local district and from diversions from the Pullman market. This prospectus turned out to be too optimistic, and the facility actually hauled about 100,000 bushels annually during its early years of operation. Regardless, the tramway was a success and greatly appreciated by local farmers.

Aaron Kuhn apparently owned the tram for only a short time; in 1902 he disposed of most of his Colfax interests and relocated to Spokane. There he became influential in financial circles, playing a prominent role in real estate and railroad development as well as in banking at Spokane, Davenport, Garfield, and Sandpoint (Idaho). The tramway was acquired by the Balfour-Guthrie Company of Portland, Oregon, and by 1904 or earlier the Interior Warehouse Company was running the facility. It was in this period, of course, that the name "Interior" was first applied to the tramway and its riverfront flathouse. The Interior Warehouse Company was one of the large warehousing and milling businesses that operated an extensive chain of grain facilities in the Pacific Northwest. By 1910, in fact, Interior's network of 39 warehouses was the second largest in the Columbia Plateau, comprising nearly 10 percent of all grain storage installations in the region.

Sacked grain was loaded onto sternwheelers at the Interior landing for the 40-mile cruise downstream to the railway head at Riparia. The grain then was transferred to trains for shipment to the coast, where it was loaded (sometimes after milling) on cargo vessels for overseas shipment. Steamboats no longer stopped at Interior after about 1908, when the Camas Prairie Railroad was built along the north bank of the Snake River from Riparia to Lewiston, Idaho. After that time, wheat from the tram and warehouse was loaded directly on boxcars for the long haul to coastal ports.

With the information currently available, it appears impossible to give a reliable accounting of either the annual average of grain hauled, or the total amount handled, over the tramway's long years of use. Annual amounts, however, probably fluctuated somewhere around a reported 100,000 bushel average in 1904 to the 59,474 bushels hauled in 1927. By the 1920's and 1930's, trucks and improved roadways probably diverted some grain away fron Interior to railroad sidings located elsewhere.

At any rate, the tram remained a boom to local farmers for nearly four decades, before obsolescence finally shut down the aging facility in 1938.

Just prior to World War II, modern roads, vehicles, and storage elevators had finally revolutionized grain transportation in the Columbia Plateau by instituting the widespread practice of handling grain in bulk, rather than by the sack load. The sack-carrying Interior tramway system, of course, was not adaptable to the new bulk handling method. It has remained abandoned ever since.

References

June Crithfield, *Of Yesterday and the River,* privately printed, 1964, pp. 53-56.

George M. Gage, "The Bucket Tramway," *Pacific Monthly,* 12:149-150 (September 1904).

"Aaron Kuhn," in *History of the City of Spokane and Spokane County, Washington,* Vol. 2, S.J. Clarke Publishing Company, Spokane, 1912, pp. 282-283.

D.W. Meinig, *The Great Columbia Plain,* University of Washington Press, Seattle, 1968, p.435 fn.

Keith Petersen and Mary E. Reed, "Tramways," *Latah Legacy,* (Latah County Historical Society, Idaho), Summer 1983:21-24.

Pullman, USGS quad map, 1910 edition (scale, 1:125,000).

Pullman Herald (Pullman, Washington), April 27, 1901; June 29, 1901; and April 27, 1928.

Matthew Root, The Interior Tramway: Wheat Transportation in the Snake River Canyon of Eastern Washington, unpublished ms., Pullman, ca. 1986.

Spokesman Review (Spokane, Washington), April 23, 1901 and July 4, 1901.

SOIL CONSERVATION IN THE PALOUSE COUNTRY

Oral History Interview of Verle Kaiser 1981

Interviewed by Douglas Helm

Edited for Publication by Tina Atkinson Oswald

Verle G. Kaiser was born on October 15, 1911 in Hettinger County, North Dakota. The family moved to a farm near Post Falls, Idaho, in 1920 before settling on a dairy farm near Cheney, Washington, in 1922. After graduating from the local high school in 1928, Mr. Kaiser attended Cheney State Normal School from 1928 to 1931. He then enrolled at Washington State College and graduated with a B.S. degree in agriculture in 1933.

Mr. Kaiser interrupted his studies on a master's degree in agricultural education at Washington State College to work on a subsistence homestead survey in Grays Harbor and Mason counties, Washington. He went to work for the Soil Erosion Service in July 17, 1934 on the South Fork Demonstration Project. After returning to Washington State University for an engineering degree in October 1934, Kaiser rejoined SES in April 1934. Mr. Kaiser continued to work as an agronomist on the South Fork Demonstration Project until the project closed. With the beginning of the conservation districts he worked as an agronomist, a district conservationist, and an area conservationist in western Washington and northern Idaho. In 1955, he became the agronomy specialist for Washington, Idaho, and Oregon. Later his work in agronomy was confined to Washington. Mr. Kaiser retired on June 10, 1972. Kaiser died in 1982.

HELMS: Mr. Kaiser, would you tell us your date, place of birth, about early education and where you went to college?

KAISER: I am actually a transplanted midwestener. I was born in 1911 western North Dakota, but my folks came to the Pacific Northwest in the very early twenties. I consider myself a "native" here. I grew up in the small city called Cheney, which is a dozen miles from Spokane. I took vocational agriculture and participated in 4-H club projects as a youngster in high school and was awarded a Union Pacific scholarship in agriculture at

Washington State University. Because my home was in a college town, I chose to take the first two years of college at Cheney in scientific studies. I later transferred to Pullman and graduated in agronomy in 1933, from Washington State College, now [Washington State University]. In 1934, at the suggestion of two of my former Washington Stae College professors, Dr. [Atlee] A. L. Hafenrichter and [Clarence] C. C. Johnson, I looked into going to work for the fledgling Soil Erosion Service. Hafenrichter and Johnson had just left Washington State College to head up the work of the Soil Erosion Service in eastern Washington and northern Idaho. On July 17, 1934, I entered SCS as an agricultural trainee. I worked that summer and it soon became apparent that the main emphasis in erosion control was building gully control structures. I went back that fall to Washington State College and enrolled in engineering even though I had a degree in agronomy. In the spring of 1935, Dr. Hafenrichter knew that the Soil Erosion Service was going to become the Soil Conservation Service. He suggested that I come back on board again, which I did, and was transferred over to the Soil Conservation Service in April of 1935 when it was organized.

HELMS: Where did you become a junior foreman or a junior agronomist?

KAISER: This was in the South Fork of The Palouse Soil Erosion Demonstration Project. This one represented the wheatlands of the Pacific Northwest. It included a hundred thousand acres that lay between the two land grant university towns of Pullman, Washington, and Moscow, Idaho. It was in both Washington and Idaho. My first job was to help build a plank dam in a gully on a farm south of Pullman. Incidentally, my working partner was [Thomas P.] Tom Helseth who later became state conservationist in California. However, we did handslope the gully sides with shovels and other types of equipment and then seeded grass on them. But we were starting at the "wrong end" of the problem. We were starting down at the bottom of the watershed where the water was going out and cutting the gullies. We should have started at the top of the watershed to put the water in the ground insted of letting it run off the surface.

HELMS: How long did it take you to figure that out?

KAISER: About a couple of years. We learned fairly fast.

HELMS: But it was two or three years before you changed the method on that?

KAISER: It was. In late 1933, the Service started working with individual farmers in this demonstration project. We did not have any soils maps

in those days. We did not have aerial photos. The technician would take a plain piece of paper on a tripod and draw a map of the farm and draw in the fields. Then he, with the farmer, would decide whch field had the most critical problems and what should be done about them. Naturally, they were looking towards the gully controls because that was the most visible thing. Furthermore, they had CCC camps to keep busy. Building gully control structures was a job for the CCC's. Naturally, that got a lot of emphasis. Soon after that, we broadened the scope to the concept of *total* land treatment and the different disciplines entered into it in their proper relationships.

HELMS: What are some of the other things you emphasized during the demonstration project period?

KAISER: One of the big things that we tried to do was to get the farmer to stop burning his crop residues. In those earliest years, 90 to 95 percent of all the pea residues in the Palouse country and about three-fourths or more of all the wheat residues in the country were burned after harvest. Of course, that left the land very vulnerable to erosion.

HELMS: Is that because the equipment was not available to. . . ?

KAISER: Many reasons. Inadequate equipment is a big one. Another is that the wheat varieties that were raised then grew as tall as a man. The proportion of straw to grain was way out of line compared to today. Another thing was "habit." It ws an "easy" way of farming. You burned the residues and you did not have to worry about them.

HELMS: Were there any other structural measures that you can think of in particular?

KAISER: We tried in some of the very early days to promote contour farming. But it was not a *practical* measure in the Palouse. Anybody who has seen the Palouse hills knows that it is impossible to lay these hills out on the true contour and farm them with the size of equipment that we now use.

HELMS: In terms of cultural practices. . . ?

KAISER: We tried to improve the tillage practices. Many of the farmers in those days would use the moldboard plow as their only tillage equipment. On these steep hlls, it was impossible with the plows they had in those days to turn the furrow slice *up* the slopes. Farmers traditionally turned it *down* the slope. In other words, they were *plowing* the soil off

their hills as well as having it washed off by water. First, we took the moldboards and cut the moldboards in half. We called them "stubby moldboards." That would reduce the amount of downhill throwing. Later we substituted in place of the moldboard plowing, a chisel type of implement or a duckfoot sweep type of implement that did not turn the soil over. But there were a lot of problems because equipment in America is built primarily for the big farming area in the Midwest, which is *level.*

HELMS: You did not have a specialized regional farm implement manufactured?

KAISER: There were some *starting* at the time. They grew with the soil conservation movement in fact. There are two or three here in the Pacific Northwest that have stayed closely aligned with conservation farming. The rotary rod which is a standard tool now in much of North America was invented here in the Pacific Northwest.

HELMS: In terms of equipment, what are some of the major contributions that SCS made, or convinced implement companies to work on something more practical, either one?

KAISER: I would say there are a number of things. We impressed on them the need for putting residues back into the soil. They did not appreciate that before. One of the very early things in that regard was to put straw spreaders on combines. In 1933, there was not a single combine between Walla Walla, Washington, and Spokane, Washington that had a straw spreader on it. As a matter of fact, Paul McGrew when he was with Erosion Experiment Station at Pullman, helped a local farmer there to put the first straw spreader on a combine in that whole area. Another thing is the fact that the equipment that was built for the Midwest and was sold out here was built to utilize stubble that grew *knee*-high. We were growing stubble *shoulder* high. You had to have much more clearance built into the equipment out here. Another thing is the strength of the equipment. Many of your midwest soils are sandy type soils and the equipment does not have to be as strongly built as for these heavier textured soils out here. It was just a gradual evolution of all those things fitted together.

HELMS: Someone I talked to said that one reason the farmers in the Palouse were willing to take SCS help when it came along was that their gullies were so bad that it was tough getting their equipment across it. In fact, some of the equipment would actually break and some farmers had taken to putting I-beams under. . .

KAISER: That is correct. There is no lie about that at all. It was very

severe and one or two of the early bulletins put out by the land grant universities point out the troubles of trying to farm gullied land and the extra cost of operation.

HELMS: Let us go back to 1935. When you start stressing agronomic ideas. What are you trying to convince farmers to do in that regard? Were most of these Hafenrichter's ideas?

KAISER: "Hafey" was the parent of a good many of them. Let me put it in three categories. In the Palouse country, with its hilly topograghy, the most severe erosion is on the tops of the hills. Dr. Hafenrichter got the idea [and we promoted it with the farmers] of planting those hilltops to alfalfa and grass in a rotation. In other words, leave alfalfa and grass on them for five or six years then plow them [after alfalfa had built the soil up] and raise a few crops of grain and then put it back in alfalfa again. That was one of the things. There was a second thing that we introduced into the Palouse farmer's thinking. It was about this time that wheat yeilds were starting to decline. We did not have at that time commercial fertilizers to take up the slack. We got a very widespread program going on planting biennial sweet clover. We planted it with peas as a nurse crop. They harvested the peas that year; let it grow over the winter and next spring [when it got shoulder high], they plowed it under for soil enrichment. That was a very profitable and practical program in those days because it boosted wheat yields by about 25 percent. Most farmers could see that. After the war, when our munition factories were converted to making commercial nitrogen the green manure practice fell off to the point that very few farmers used it anymore. It is much easier to *buy* your commercial nitrogen in the form of fertilizer.

HELMS: But in doing so, you lose...?

KAISER: We lose that organic matter. Because the sweet clover is a tap rooted legume it penetrated through the subsoil and gave channels for the moisture to get down deep. Fertilizer will not help you on that. The organic matter is the *key* to all that you get out of the soil. Your crops, how you are able to farm it, how you can resist erosion. It is the key — the "life of the soil." When you lose organic matter, you lose the value of soil. We have lost more than 40 percent of the original organic matter in the Palouse in the hundred years that we have farmed this country.

HELMS: What about strip crops. Did you try to ger those started?

KAISER: We tried. Actually, strip cropping is a very meticulous practice. It does an excellent job on the land that is adapted to it. Unfortunately, the land that it is adapted to has a slope range of from 5 percent to

12 percent and it must have long uniform slopes. The area of that kind of land in the Palouse is very, very limited. I have records of more than a hundred fields that have been strip cropped in the Palouse. Fewer than 25 percent of those ever stay in. Farmers put strips in, use them a few years, and abandon them. To my way of thinking, if that many farmers honestly try a practice and then abandon it, there is something wrong with the practice. There are some farmers in the Palouse that have some of this land that I was telling you about who still stay with strips. I can show you strips that have been in for thirty to thirty-five years down there and they are doing an actual job. They are not on a steep hill. They are on these long, gentle slopes.

HELMS: What did you do to convince farmers not to burn wheat stubble?

KAISER: In the very early days when most farmers were burning stubble, and we were trying to get farmers and businessmen concerned about soil erosion, we would have tours in the spring after the erosion season. We would drive around in buses and in cars looking at the fields to determine why some fields washed, and why some fields did not. On this particular day down in the heart of the Palouse, we came by this place with good erosion control where it was quite obvious that the farmer had utilized every bit of his stubble. This man was Bill Redman; he wanted to conserve his soil. You have got to *want* to conserve soil.

HELMS: Did you regret seeing the demonstration project phase of SCS close down in the Palouse?

KAISER: No, I did not because it was obvious that it was reaching a very small percent of the total area that needed to be reached. Even with the demonstration projects — you see, they had a demonstration project in the South Fork. They had a demonstration project down at Dayton, Washington, which is a hundred miles to the south and to the west. They had one or two demonstration projects, I think, up in the Waterville country. One down in and around Morrow, Oregon. But it was just "speckles" on the land. You could not afford to put the input in the job of conservation over the whole United States that we put into these individual demonstration projects.

HELMS: How did you fare getting the conservation districts started aroumd here?

KAISER: We were very fortunate, I would say, in that we had a group of county agents who were dedicated people. They wanted to *help* the farmers. Even though the SCS was a fledging organization and was stepping into their backyard, they were honest enough to know that erosion

was a problem and they were willing to do all they could to help their farmers control it. We had very good cooperation from the county extension agents in this area. As a result, it was not difficult to organize soil conservation districts. In this area here we had excellent cooperation from the county agent who was down on the firing line and we had excellent cooperation fron the civil leaders — bankers and people like that. They helped greatly.

HELMS: How did World War II affect conservation?

KAISER: I told you about the effects of getting the hilltop plantings, the steep slopes alfalfa planting, the gully seeding plowed out in order to put them into grass. That is not good practice in the Palouse. I know of fields in tha Palouse that raise as many as three of four crops of peas in succession. That was not only hard on the soil from the erosion standpoint, but from the weed standpoint. It was just plain dynamite. The extra tillage to control the weeds contributed heavily to erosion.

HELMS: Have there been any differences in the amount of SCS personnel and money allotted for the Palouse through the years?

KAISER: We got a lot more work done thirty years ago in getting soil conservation on the ground because we had more people right out in the communities meeting everyday with the farmers, going over the land with them and talking with them. We lost in the way of getting soil conservation on the ground when we retrenched and pulled our fewer and fewer technicians into central offices. Conservation is sold by *personal contact.* Unless you get out and make that contact, you are not going to sell conservation. However, right now the biggest limited factor in getting conservation on the land in the Palouse is *not* lack of technical assistance. If we use the technical assistance that the Service has made available, use it wisely and put it out there on the ground with those farmers — there is not a farmer in any of this area who *wants* to practice conservation that cannot get the know-how that he *needs.* The problem is the lack of *motivation of the farmer* to do the job on his land.

HELMS: Has the fact that most of the generation of the thirties who got converted to these methods either are not farming or are not alive anymore?

KAISER: We have a gap. We had a group of farmers who believed sincerely in conservation in the very early days, who did the job on their ground. Their sons and grandsons are continuing to do it. There was a gap about the time of World War II when we didn't get new farmers con-

verted; when people who came in and farmed land, rented land with the attitude of "get the money" without regard to conservation. Now we have got another group of *young* farmers, the grandsons of the original ones who I think are taking a much more critical look and I think they are going to say, "Now is the time to do something about it." I have that feeling.

HELMS: You havae done some campaigning on getting some of the commodity programs changed, have you not?

KAISER: That is another thing. Wes Cornwall and I fought a lot of battles side by side on that. Let us get at it this way. A farm commodity program has to be a *national* program. *National programs do not fit local soil conditions.* The Palouse has some conditions that some of the things that nationally are okay are just plain dynamite here. A specific one is the practice of summer fallow. It got in this allotment program so that it was financially rewarding to a farmer to summer fallow his ground because he was limited on the amount of wheat he could raise. He got paid for his deverted acres on the *yield per acre.* He got the highest yields per acre on wheat that was summer fallowed. It was just plain common sense to summer fallow your ground and get your yields up and then comply with the required diverted acres with summer fallow. Eighty percent of soil that we lose in the Palouse comes from summer fallowed fields on the steep slopes in that field. If we could eliminate fallow in the Palouse country, we could cut erosion by two-thirds, right there.

HELMS: In most of the Palouse, was annual cropping always feasible?

KAISER: In this area that I have delineated as the Palouse, when there are no wheat allotments, 80 percent of the area *raises a crop almost every year.* They raise at least two crops in every three. Back in the height of the allotment programs, even in the highest rainfall areas, we saw as much as 25 percent of that land summer fallowed. You go out in the same areas today and there is not more than 3 to 5 percent of it summer fallowed, because the allotment is off. There are *other* reasons for fallowing. Some do as a weed control measure. It is an easy way of farming.

HELMS: What periods in the SCS history that you have observed has maybe the SCS gone into the direction that it should not have done?

KAISER: I think one started with the middle forties. The chief, in going to Congress for annual appropriations, got in the habit of saying, "We have got this percent of the job done." In soil conservation you *never* get the job done. It is a *continuous* thing. I think Congress got the wrong idea from that. I would say that is about the only error that I ever saw the old chief make.

HELMS: SCS has lost personnel within the last two decades. Did that hurt the effort in the Palouse?

KAISER: Yes, it did because the easiest offices to close were the smallest offices which were the "one man stands" where the technician was out working with farmers.

HELMS: Did you think enough effort has gone into the research or should more personnel have been in the field?

KAISER: We had a good balance on that. We did tremendous good with the research money and the plant materials money that we had in the early days. This grass nursery out here [Pullman] was directed by Dr. Hafenrichter. "Hafey" saw to it right from the start that the Soil Conservation Service cooperated with the land grant universities and your crop improvement associations so that all of the seed that came out from there was labeled as a *joint* effort and it was blessed by everybody concerned. As a result, more than twenty-six important varieties of new planting materials that were useful in soil and water conservation came out of this station. That was money well spent.

HELMS: When did you start getting reduction in burning of stubble in the Palouse? What is the high point?

KAISER: By the end of World War II, there was more stubble saved in the Palouse than was burned. By the sixties the original trend of burning 95 percent of the pea residues and 75 percent of the wheat residues was reversed. Ninety-five percent of the pea residues were saved and 75 percent of the wheat residues were saved by the early sixties.

HELMS: When did you start getting minimum tillage in the Palouse, no tillage or any of those systems?

KAISER: We tried to start it right from the beginning and many farmers did. But there is probably a more widespread effort at minimizing tillage and converting from moldboard plows to chisel-type plows within the last eight to ten years. "No-till" is more recent than that. "No-till" in the Palouse region is about six or seven years old.

HELMS: Why are crop rotations so important other than for conservation and. . .

KAISER: The same reason if you sit down at the table and eat one kind of food every meal that you sit down there. You get in trouble.

HELMS: The productivity drops?

KAISER: The productivity drops. Your soil organisms get in trouble. Crop diseases build up. Weeds build up. Rodents build up. One of the big problems with "no-till" is there are so many field mice out there that chew off the grain that grows.

HELMS: It is not a problem of moisture?

KAISER: One of the best ways of getting moisture in the ground is to leave the stubble standing over winter which you do in "no-till". You put moisture in the ground. It is an excellent erosion control measure. If you do not stir that soil up and leave that stubble over there, why you control erosion.

HELMS: There is very little prospect of the Palouse being used for anything other than wheat growing?

KAISER: Wheat is the most important crop. Someday, [you and I will never live to see it] if the world needs other kinds of food greatly enough they are not going to leave the Palouse country on the steep topography as it is now. They are going to *level* the Palouse country. They are not going to leave the limitations that the steep slopes impose on them. That is my personal opinion. But I will never see it. You will never see it. Wheat is the best adapted crop that we know of now.

HELMS: How has livestock and its demise in the Palouse been related to conservation?

KAISER: In total it has reduced the conservation on the ground because of several things. One obvious reason is that during the time that we farmed with horses, we had to raise grass and hay to feed the horses. And grass and hay planted on these steep slopes controlled erosion. When the horses went and the tractors came, those grass seedings were all plowed out. That is one thing. The second thing and possibly more important, is the fact that we no longer have barnyard manure to put up on these eroded hilltops to help modify the soil physical condition. Regardless of where you go in the United States, the highest yielding plots in any research station are plots that have a periodical application of barnyard manure. That is true anywhere you go.

HELMS: What is the percentage of tillage erosion compared to water erosion and wind erosion?

KAISER: Let us take the last question first. Wind erosion is a very minor problem in the Palouse country. We do have some wind erosion but it can easily be controlled and we do not need to worry about it. Tillage erosion on some sites of the hill — that is on the steepest slopes and on the sharp hilltops — probably has taken two times, three times as much soil away from those slopes as has water erosion. On lower slopes where the slope is more gentle, the reverse is true. Water erosion has taken much more soil in the way of gullies and deep rills.

HELMS: You think the training may have fallen down in the Service a little bit? I am not asking you to critize it. I am looking for trends in the history.

KAISER: I have the feeling that we have lessened our *technical training* at the expense of what we call *"middle management training"* and things like that. I do not mean to say that they are not important but I do know that a lot more time goes into the jobs that are connected with *paper* management than with *soil* management.

HELMS: From your point of view, did losing the regional organization of SCS hurt the effort? Did that make any difference one way or the other?

KAISER: I believe that we had the strongest effort of soil and water conservation when we had our regional offices. However, I see many advantages to the state organization. Better cooperation between the land grant universities and the other agencies and so on. However, there is too much duplication of many types of services, where each state is an entity unto itself. In the old regional offices, we got away from that.

HELMS: Do you recall the emphasis SCS one time had on the neighborhood group approach?

KAISER: I very definitely do, because we had started it to some degree before it became a national policy. We profited greatly by the experiences of the SCS back in the midwest and all. Out here whenever we would go into a community to try to get the farmers in that community to start conservation we would find out who the neighbor leader was — the *natural* leader. There is a science to doing that which we were taught by our own people. Dr. Shay was with the Soil Conservation Service out of the Washington office at that time. Once we identified the leader, then we found out which group of farmers naturally "neighbored" together and who "respected" each other. Out of that, *groups* 4, 5, 6, up to maybe 10 or a dozen farmers emerged. Once we had those identified, we would hold evening meetings with them during the period of the year when they were not involved in actual farming — a series of meetings in which we would go

through all the technical aspects of why land erodes? — What you could do to stop it? — What grasses and trees are adapted? — What kind of structural measures can you use, etc.? Usually there were at least four meetings on periods of weekly intervals with each of these groups before we ever went out with the farmer to help him plan a conservation program on his land. *We never tried to plan conservation in group meetings.* You cannot do that. Conservation can only be planned between the technician and the farmer on the farmer's land. We felt that and we got a much better understanding of the whole thing by this procedure than just going out and taking a farmer here and a farmer there.

HELMS: Did emphasis on that type approach diminish later in SCS?

KAISER: Well, it did. That is an important point in itself. In the early days of conservation when the farmer had control of what he could do with his land and the way he could raise whatever crops he wanted, he could use whatever rotation he wanted. It was important to him to plan a program so that his rotation would give him so many acres of each of the kinds of crops that he really wanted to raise each year. When you put green manure crops into the rotation, planning became quite important with the coming of the allotment program, *the farmer is no longer "the manager"* of his farm. The U.S. Department of Agriculture manages his farm for him by telling him how much he can raise. The real needs for conservation planning has been diminished because of this "regimentaton."

HELMS: Those allotment things went in about the time. . . ?

KAISER: The big wheat allotment started in 1953. That is when it really started. Since 1953, the real value of a conservation plan for the average farmer has really diminished. The value to the individual farmer like Wes Cornwall, who is conscientious and wants to do the conservation job, is still there.

HELM: Historically the allotment provided an income, cut down on production, and provided some stability to agriculture. Now what we had happening before was that you got diminishing returns and you planted more acres to try to recoup an ever diminishing profit.

KAISER: I do not have enough facts and figures to say this with absolute certainty, but I have always felt that when we started raising too much wheat in the Palouse country, too much cotton in the South, too much tobacco and corn, the one sure way of reducing production on land was to *take it out of those crops and put it to grass.* I mean if it is in grass it is not going to be raising wheat and cotton and corn. I would far rather have seen

the public put its input into *that* program; into putting the most critical erosion areas in grass which originally built the soil. We would be *rebuilding* the soil. When you plant grass, you commit yourself because by the very nature of the thing it takes one year to *establish* the grass and the grass does not provide benefits to the soil unless it is left in at least two or maybe three years. So there you are in for three to four years. There is another vicious thing about the allotment programs in the early days. We wanted to reduce production so we told the farmers in essence, "Okay, if you will take 10 percent of your land and not raise wheat on it, we will subsidize at an elevated price, the price per bushel of the wheat that you *do* raise. We will also give you a "diversion" payment on the land where you do not raise wheat." Any farmer is smart enough to know that the more bushels per acre that he raises is going to give him a higher subsidization. So here is a USDA program that set out to *curtail* production that rewards the farmer that *raises the most wheat!*

HELM: Barley growing. Is that worse for conservation than wheat?

KAISER: No. In many ways it is better because wheat in this country — to make it profitable — has to be planted in the fall and grow through the winter. We can make a profitable crop of barley by planting in the spring. Which means that we can cultivate our ground in the fall and leave it rough over winter that it absorbs moisture. Then go in in the next spring and work up a seed bed and plant our spring barley. So in many respects barley is a *better* conservation practice than wheat. We could cut the erosion in the Palouse country in half — a third to a half — if we would simply shift from *winter* wheat to *spring* wheat or barley.

HELM: What did you like most about your career with the Soil Conservation Service? Are there any particular regrets about it?

KAISER: No, I have no regrets really. Yes, I do have a regret. I regret that we did not get the job done in the Palouse. We believed when we started forty-five years ago that we would see the time and that we would have the Palouse tied down. And we have not. That is my regret. The good thing about it is the many, many dozens of farmers who really believe that the soil is theirs in *title only*. That if they do not leave the land as good as the time they got it or better, why they are not doing their job. That is a reward.