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Valuable Suggestions by Engineer On Harney Valley Irrigation Plans

Portland, Oregon,
October 23rd, 1924.

Mr. William Farre,
Burns, Oregon.

My dear Mr. Farre:

I have been very much interested in reading in the Burns papers of the work of your Committee, studying the possibilities of pumping water for irrigation. Through the work of our firm as Engineers for the Harney Valley Irrigation District I became very familiar with the situation in your valley and have given close study to the irrigation pumping possibilities. I believe that the Harney Valley will in the course of time see agricultural development far beyond present expectations. This will come about through irrigation and through the adaptation of farm crops which will offer the greatest return to the producer.

On the subject of pumping water for irrigation, I have certain ideas which I have not seen expressed in previous discussions of the subject. I am writing you this letter not as a final opinion, but as a starting point for additional discussion and study that may prove fruitful and of benefit to your valley.

Under-flow not Unlimited

In various discussions of the subject there have been statements giving a very large acreage in Harney Valley subject to reclamation by pumping water. 200,000 acres was the figure quoted in one instance. I am not prepared to say whether this figure is likely to be correct or incorrect, nor to place any definite limit on the acreage which may be irrigated by pumping, but there is a limit to this acreage—probably very much less than the area having soil conditions and surface layout otherwise favorable for irrigation.

From the geological standpoint there is no doubt that the Harney Valley is the bed of an ancient lake, the predecessor of Malheur Lake. The formations in the Valley down to a great depth were deposited under water in the bed of this lake. Around the edges of the Valley the lake bed formations are much coarser than those out in the middle of the Valley around Malheur Lake. The reason for this is evident. The ancient Silvies River, Potato Creek, Preater Creek, Coffee-Pot Creek, Cow Creek and others brought in to the lake a combination of gravel, sand and silt. The coarser and heavier particles carried by these streams were deposited where they first entered the lake, or near the foothills. The finer particles were carried by currents and wave action farther out into the lake, and the very finest remained suspended in the water a long time and finally came to rest in the middle of the lake or out in the vicinity of the existing Malheur Lake. The confirmation of this is found in the fact that the sub-surface formation in the Harney Valley are much coarser around the edges of the Valley than out in the middle. Since it is easier to get water in large quantities from wells driven in gravel, sand, or similar formations, it may be expected that the more favorable locations for developing ground water supplies for irrigation in ample quantities lie around the edges of the Harney Valley rather than out toward the middle. Of course, there are local conditions which will modify this but as a general statement it can not be controverted.

The water bearing formations throughout the Harney Valley have been filled up to the present ground water level through centuries of surface rainfall and sub-surface flow. A few wells, mostly shallow, have been put down but in the aggregate very little water has been taken in the past from this underground reservoir. This is, however, no evidence that the underground reservoir is inexhaustible. The underground water occupies the spaces between the soil particles and it must be remembered that this space is only a fraction of the entire soil volume. In very few cases will the porous space exceed 40 per cent and ordinarily it is very much less. If the porous space in an underground formation averaged 20 per cent and this water were removed for surface irrigation at the rate of 2 acre feet per annum, the water table would be reduced 10 feet every year unless some additional

water were supplied. It is clear that the extent to which irrigation pumping may be successfully undertaken depends entirely upon the possibility of the underground source being replenished from year to year.

The rate of underflow of water is commonly very much exaggerated. Water does not flow ordinarily in sub-surface channels or seams but moves slowly through the soil particles at a rate which depends upon the coarseness of the soil and the slope but is ordinarily only a matter of inches or a very few feet a day. Under the conditions in the Harney Valley, the underground supply would be replenished to a certain degree by the inflow from the mountains to the North and to the South and from the high areas East and west of the Valley. The underground water supply would also be replenished from the winter precipitation and from the absorption through the beds of streams. After you sum up all of these additions to the underground storage reservoir, it seems very unlikely that it could possibly be replenished at the rate the water is removed for surface irrigation purposes. Under the conditions, I seriously doubt whether there is any portion of the Harney Valley where complete irrigation of the surface area would not result in drawing down the underground water level at a rapid rate. For a given section the first wells developed would undoubtedly hold up very well and give promise of permanent success but as the time came when a large solid area of land was completely developed with a well on every 80 or 160 acres and all these wells being pumped for irrigation, the probabilities are that the entire water table would be drawn down to such an extent that none of these wells could be pumped profitably. There is no doubt that a very large total area of land in the Harney Valley can be irrigated by wells but it is very doubtful whether the development of any large solid body in one part of the Valley would be attended by success. From present information it is impossible to say how closely wells might be spaced or what percentage of the area could be furnished with a permanent supply. This must be a subject for later investigation and experiment. To irrigate 640 acres in every section is not likely to be possible. It might, however, be possible to develop 320 or 160 or 80 acres out of every section by pumping and have the wells held up permanently with no great reduction in the water table. I do not wish to discourage the possibilities of well development in Harney Valley. I believe these possibilities are very great and that ultimately you will see many thousands of acres added to your irrigable area in this manner. I simply want to point out the possibility of over-doing the well development and the limiting conditions which govern. It is possible for the Harney Valley to profit from the unfortunate experiences in other localities where the first wells proved a success and were followed by a great wave of well drilling activity which finally resulted in disaster to everybody. I believe that the great advantage to be derived from the work of your Committee is through the thorough, unprejudiced study that you are able to make, and the working out of a definite program, making use of the experience of others.

The Need of Legislation
Prior to undertaking the development of underground waters on any large scale, we need a revision and improvement of our present laws on the subject. We have a fairly comprehensive code governing the use of surface waters for irrigation and this may be construed to also apply to underground waters. It is, however, clearly not adapted to the administration of underground water developments and some revision or additions to our laws should be made.

No man should be prohibited from putting down a well on his property for domestic purposes. The use of water for drinking, cooking, sanitary purposes, and the watering of stock is paramount and no one should be deprived of this. The amount of water used for these purposes is, however, negligible compared to

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MALHEUR LAKE BED PROVES TO BE VERY PRODUCTIVE

Due to fire hazard it was impossible for Mr. Ausmus to take a steam threshing outfit to his farm about one and three-fourth miles inside of the Meander line on the Malheur Bird Reserve, so he persuaded the writer to take the Gas rig owned by the Harney Branch Experiment Station down and thresh out his crop of oats and rye.

The writer was surprised to see the splendid crops produced on the open lake bed surrounded by timber about four to six feet in height. The manner in which the crops were produced proves that the lake bed is very fertile. The yield very similar to that of Tule Lake in Oregon and California, and most any other land in the valley handled in the same manner during this dry season would have resulted in failure.

Mr. Ausmus did not take the trouble to plow or even disc the land, but simply hitched onto his drill, which was more or less of a wreck, and using oats that had not been cleaned or graded, which he said "were so trashy that they would hardly feed through the drill and part of which had to be discarded," sowed about one and one-half tons of oats on 38 acres of land. 194 bushels of oats were threshed from this piece of land and the writer estimates that a temperature of 60 degrees on the 20 and 21 of August reduced the yield about 50 per cent.

On a two acre field separated from the 38 acre piece by a strip of four feet wide Mr. Ausmus sowed one sack of re-cleaned oats and 127 pounds and followed with a spiketooth harrow. The piece lengthwise was 100 feet. From these two acres 128 bushels and 128 bushels of oat straw were threshed. The frost damage this year was easily yielded 50 bushels. The total yield secured was forty five acres threshed bushels of oats and 60 bushels of oat straw.

Signed, OBIL SHAW

PAST MATRONS AND PATRONS FEET

One of the most impressive and beautiful ceremonies the writer has ever witnessed was given by the Mothers of Burns Chapter, No. 49 O. E. S. E. last Monday night when the Past Matrons and Past Patrons of the lodge were the guests of honor. The recitations extended were of a character to impress the guests and make them realize the real esteem of an Order for those who have faithfully performed their duties and given their best to the Order their first consideration. The ceremony showed careful preparation and that those taking part felt a sincere regard for the Order and what it stands for.

The program of the evening began with a sumptuous supper prepared and served at 6:30 by the committee. Each Past Matron was escorted to her place at the tables by the Patron who had served with her. While this could not be carried out literally because of death and absence breaking the ranks, it was surprising to find how many of the Past Matrons and Patrons who served together present. It was a very happy occasion, even though it brought memories of past sorrows as well as joys.

Following the session of the Chapter business the committee presented a one-act comedy that was well produced and staged. It brought much praise from the guests present and was an indication of how thorough the committee and members are with what they undertake in the Eastern Star lodge and plainly shows the secret of the popularity of the Order among the fraternal societies of Burns because of its ability to entertain and interest its members.

H. C. H. S.

The following students are classed as Honor Students having no unexcused absences nor tardy marks and having an average of 90 or better in all subjects taken:

John Biggs, Alfred Brown, Dan Brown, Roy Brown, Robert Brown, Lois Brown, Edgar Dent, Alberta Graves, Sidney Hotchkiss, Frances King, Naomi Moon, Marlan McCullough, Helene Logan, Ruby Pouljade, Wilbur Pouljade, Geraldine Siler, Georgia Simmons, Anna Varian and Eleanor Welcome.

STOCKMEN ORDERLY MARKETING

Executive of Stockgrowers Association Signs up Local Producers to Plan.

For many years brand stock in Oregon, was in Burns this week where the stockmen and disapproved the "Orderly Marketing Plan" without exception. The approval of the plan after it had been explained to the stockmen by the marketing plan has been discussed by the Cattle Raisers Association for two years, perhaps longer. It has been a test in other sections and has proven an entire success in California, where it has benefited both the stock yards, packers, and all concerned. The regulation of the market will prevent a congestion of stock and force the packers to buy at a hardship and the stockmen to sell at a loss.

AUSTIN GOODMAN MEMORIAL FUND

In appointing committees to canvass their respective neighborhoods for the Austin Goodman memorial fund three precincts were omitted in our last issue. These were Warm Springs, where Peter Oblague and Al Cote are the committee; Curry, with W. L. Best and Albert Oakerman as committeemen, and Egli where Link Hutton and Peter Peterson are appointed.

Even though people have been appointed to look after gathering the funds in each community with a view of completing the canvass as early as possible, an organization will be effected to make suitable disposition of the fund. The Times-Herald has received \$10 more during the week, thus bringing the total contributed through this paper up to \$170.50. Those contributing this week are:

Mr. and Mrs. W. F. Oltman \$2.50
Mr. and Mrs. Chas. Brittingham 2.50
Frank Kunej 5.00

Funds for this purpose may be sent directly to either bank in Burns in the name of the Austin Goodman Memorial Fund without coming through this office or given directly to the several committees in the different districts.

MOTHERS CLUB HAS INTERESTING MEETING

The regular meeting of the Mothers Club on Thursday afternoon at the home of Mrs. W. M. Sutton, in which Mrs. Russell Smith joined as hostess, was one of the delightful and entertaining events of the fall season. The house was decorated in Hallowe'en effects and the entire surroundings conformed with the Hallowe'en spirit.

A very interesting program was rendered following the business session which included a saxophone solo by Mrs. Carrico; vocal selection by Mrs. Olsen; piano solo by Mrs. Harris, and vocal solo by Mrs. Weittenhiller with Mrs. Carrico assisting with a violin obligato. All the selections were accompanied by Mrs. Harris on the piano and each number was roundly applauded, the performers responding with encores.

Refreshments were served before the guests departed and the hostesses were warmly thanked for a delightful afternoon. The next meeting will be at the home of Mrs. Claude Brown on November 20.

CHANGE IN MANAGEMENT OF TELEPHONE LINES

The Times-Herald is informed that there has been arrangements made whereby A. H. Graves will succeed J. A. Lakness as general manager of the Central Oregon Telephone Co. the change to be effective from today. Mr. Graves and his son arrived here from Mosier the latter part of this week to be ready to assume the responsibility. He has secured a lease on the Mrs. Esther Schwartz residence and will have his family in Burns within a short time.

Mr. and Mrs. W. B. Howard and her brother, Ray Shuck, arrive here Thursday evening from California and are guests of friends in this city. The Howards are well known in this city where they formerly resided and have many friends who are glad to welcome them.

shipped to the Portland market. The stockmen have confidence in this organization and are readily taking up the proposition and signing the agreement.

Mr. Snow came to Burns unheralded and therefore was unable to meet many of the stock men, but all who were present at a meeting held at the court house on Wednesday afternoon signed up agreements and are convinced it is the best move of this character ever made by the stock men of Oregon. Mr. Snow has arranged to place agreement blanks with both of the banks in Burns for the convenience of stockmen who were not seen during his visit here and The Times-Herald is glad to call their attention to it in order that its stockmen readers and friends may avail themselves of the opportunity to better their marketing possibilities and not only help themselves but their neighbor as well. For it will possibly be the means of saving him from going in on a congested market and selling at a loss.

SUITABLE PROGRAM RENDERED AT LIBERTY THEATER AFTERNOON; ATHLETICS AND DANCE.

Harney County Post American Legion, has decided to arrange for a program to be rendered to Armistice Day, Nov. 11. The boys have arranged for this program to be held in the Liberty Theater in the afternoon at 2 o'clock and have also secured the Tonawama for a dance on that night with Dewey Robinson to play for it.

The program has been tentatively arranged and the following is the outline:

Invocation Rev. Harris
America By Assembly
Remarks Commander Locher
Song Public School Pupils
Address Patrick Donegan
Violin solo Mrs. Carrico
Benediction Rev. Stuart

Following the program at the Liberty there will be some athletic contests on the street for the boys and girls, provided the weather will permit. The athletic program will include:

100 yard foot race, free for all
50 yard race, free for all
75 yard race for boys under 12
50 yard race for boys under 12
50 yard race for girls
25 yard race for girls

Marathon, length of Main street
Bicycle race, length of Main street
Suitable prizes will be awarded the winners of these contests.
It is expected that the service men from all over the county will be in Burns for this occasion.

PIONEER BURIED AT HARNEY TUESDAY

James Pirie, the respected pioneer who died at his ranch home on Cow creek last Saturday morning, was buried at Harney on Tuesday afternoon. Rev. Eugene Howd of the Baptist church conducting the service from the Community church. Interment was made in the Harney cemetery beside his wife who died in 1914.

James Pirie was born in Scotland June 6, 1848. It is not known when he came across to the United States but he resided in Harney valley for 49 years. He was married in 1891 to Maggie Belle and they had made their home on Cow creek continuously until her death and he still remained there up to the time of his death. Mr. Pirie had been in poor health for several years and his sister as looking after him at the time of his last illness. However, he was not confined to his home as he was out looking after his affairs the day before he died and on Saturday morning had risen as usual and gone out to do his chores, returning to his breakfast he complained of not feeling well when his sister suggested the doctor be called. Mr. Pirie attempted to eat some breakfast but partook of but little and retired to his bed and expired almost immediately upon lying down.

Mr. Pirie was a man highly respected by his wide acquaintance. He is said not to have an enemy in all this country.

He is survived by his sister, Mrs. Main, who was with him at the time of his death; also a half brother, John Newlands, of Portland, who came up to attend the funeral; also one sister in Seattle, two sisters and one brother in Scotland.

The following is the monthly precipitation at the Harney Branch Experiment Station by months from January 1, 1924 to September 30, 1924.

January	0.43
February	1.27
March	.18
April	.20
May	.06
June	.02
July	.60
August	.18
September	.21

Total inches.....2.55
The ten year normal for the same period is 5.74 inches.
The showers during the last few days ending Oct. 31 totaled .95 inches.