

REPORT OF SURVEY MADE ON TWIN AND CEDAR CREEKS,  
SANPETE COUNTY, UTAH

From May 25, 1923, to July 1, 1923.

Some five or six miles Southeast of the City of Mt. Pleasant, there are two small creeks, known as Cedar and Twin Creeks. The waters of same are divided at various points, and used for irrigation of lands in and about the vicinities of Mt. Pleasant, and Spring City. Some twenty years ago, possibly at a time when the waters of said streams did not reach the high stages of flow as they do at present, but perhaps their flow was more constant than at present, a decree was rendered by Judge Johnson, the District Judge. In this decree some 24 classes of water were granted. The first class to be known as Primary and the next 23 as Secondary. A duty of 70 ac. per sec. ft. was putlaied. Individuals holding and using was the determining factor in the adjudicating of same which is as follows:-

Spring City, a municipal corporation representing some 24 individuals which is now known as the Cedar Creek Irrigation Company was to receive  $6 \frac{9}{40}$  sec. ft. from the water of Cedar Creek when its flow does not exceed  $12 \frac{9}{70}$  sec. ft. when the flow of said Creek was under  $12 \frac{9}{70}$  sec. ft. then the Cedar Creek Irrigation Company should receive one-half of the flow, but when the flow is over  $12 \frac{9}{70}$  sec. ft. then the Cedar <sup>creek</sup> Irrigation Company shall only receive  $6 \frac{9}{140}$  sec. ft., the remainder of same to go to the Twin Creek Irrigation Company.

Twin Creek Irrigation Company, a corporation and acting trustee for Mt. Pleasant, a municipal corporation and some 24 other individuals is to receive  $29 \frac{18}{70}$  (29.25) sec. ft. from the joint waters of Twin and Cedar Creeks, the above two parties are considered as primary users.

Whenever the flow of both Creeks, Cedar and Twin, shall exceed  $35 \frac{45}{140}$  (35.31) sec. ft. then the second class right, or the decreed

ft. the L. W. Atkin appropriation was to receive  $1\frac{1}{2}$  c.f.s. and to increase along with decreed water until the 4 c.f.s. was filled. Furthermore the prior user stated that they wanted all decreed water doubled before any appropriation was to receive water (L. C. Rasmussen appropriation included). Discussion followed. During the course of discussion A. H. Poulsen leaves. Very little accomplished in discussion, other than agreeing that attempt should be made for distribution of water on ac. ft. basis. The Old Field would not consider anything, other than where their interest would be doubled. Hi Water men stated they wanted a little more time to think the matter over. According to C. W. Sorensen the prior users had held several meetings previously, consequently they wanted a similar privilege. Spring City (L. W. Atkin) Twin Creek, Cedar Creek Company sign an agreement dated June 8th, meeting adjourned. On way out C. W. Sorensen informed that he would instruct me when the Cedar Creek Hi Water were desirous of water, - he also stated that possibly Poulsen would want his at any time.

On June 11, Cedar Creek Hi Water people held meeting, the writer being present as a guest. C. W. Sorensen explained purpose of meeting was to come to some agreement as to whether or not they should permit the decreed water users to double their amounts before appropriations received any sentiment was questionable. C. W. Sorensen stated that he would inquire and learn of the standing of their Appro. right in respect to those people lower down the river. Meeting adjourned. Again C. W. Sorensen informed me that he would tell me when to turn water out for appro., but as far as Poulsen was concerned he could not say.

June 15th A. H. Poulsen, Lawrence Peterson and Hasler informed me they wanted their Appro. waters to use so long as there was any. The Cedar Creek Hi Water Company never requested to have their water turned to them.

#### DITCH CAPACITIES

Old Field, generally speaking the main ditch and laterals in the

old field would be plenty large to easily handle double the decreed water if they were kept clean, but under such conditions as prevail, where the waters carry much sediment and drift wood, clogs and jams are very frequent.

On the upper lands where every thing in the line of ditches are new and the fall is excessive, trouble caused through sedimentation and clogging by willows are particularly eliminated. The chief trouble on these upper lands is with the main laterals. They are not built large enough. The actual carrying capacity of the Cedar Creek Hi Water Company lateral is not greater than 14 c.f.s. This figure does not permit of any free board allowance. The cross section area of ditch varies greatly (3.00 - 8 sq. ft.) Vel. of course having the same variation. In so much as no ditch can carry more than the amount that will pass its smallest section, its smallest section is its capacity. There are about as many small sections as large ones, with a small amount of work the ditch might be readily enlarged. The measuring gates at head are also inadequate, - for illustration: We have a  $2\frac{1}{2}$  & 5' Cpl. Wier at the Hi Water and Cedar Creek division. The 5' one will easily care for the 16.05 C.F.S. which is to go for the Cedar Creek Irrigation Company and the L. C. Rasmussen and L. W. Atkin app. but if another 6 sec. ft. are to be added it would be small.

The Cedar Creek Hi Water Company have the  $2\frac{1}{2}$  ft. Cpl. wier in their ditch from Cedar Creek. This, however, is much too small. In the ditch from Twin Creek this same Company has a 5' wier, but for the season just past there was no occasion to use this one.

In the Poulsen, Peterson and Hasler ditch, there are  $1\frac{1}{2}$ ,  $1\frac{1}{2}$ , and 1 ft. wiers respectively. These and ditches are plenty large to handle their .91 and 1.70 c.f.s., but in the case of A. H. Poulsen, his ditch is somewhat small,  $3\frac{1}{2}$  c.f.s. is the maximum it possibly can carry for the first 150 or 200 yards. His appr. calls for some 4.50 c.f.s.

### USAGE

The chief crops grown are alfalfa and grain. Due to a shortage of late water not many cultivated crops such as sugar beets, potatoes and etc. are grown.

The waters are put to use from April to October if it is there. Everyone is more than anxious to get all the early waters possible for from experience they know that after their three weeks or a month of high water is over, the supply from then on is limited. As a matter of fact the writer feels that too much early cold water is applied and as a result the crops growth is stunted.

The soil on the upper lands is more or less of a sandy loam, with considerable rock. The thickness varies (12 to 36 inches). In general one is safe in saying it is shallow. This shallowness also covers most of the old field, but as one gets nearer to the old river channel a soil of more or less clay and fewer rock is found, shallowness again prevails.

Throughout the entire section there is excessive fall for irrigated lands. This fact is possibly the chief cause of so much run off. However, one should not blame it all on the land, for in many instances, carelessness on the part of the irrigator is the cause of much waste. When run off is considered, there is not much grounds for selection as to which is the worst, the "Old Field" or the newer "Upper Lands". They are about equal, more close attention would no doubt eliminate a considerable amount of run off.

### RECOMMENDATIONS

More suitable measuring devices should be installed. The writer would suggest that wide gates be installed so that danger from clogging will be minimized also greater accuracy in measurement accomplished due to elimination of velocity. Water should be delivered on a quantity basis and not on time, as at present. At present, a schedule based on so much per share is allowed. With this system, when the stream

fluctuates so greatly, one man may receive 2 or 3 times the quantity of water as his neighbor and yet he is only entitled to the same amount.

In the determination of rights it seems to me that the prior holdings should be given more than their decreed amount. <sup>?</sup> The writer thinks there is no question but what they have been using it. Then to, it is an impossibility to attempt to raise crops on the decreed amount of water where the stream fluctuates so greatly. If that decreed amount was constant for the entire irrigation season it would suffice but with 30 to 50 days it will not. Personally the writer feels that the soil is the determining factor in the adjudication of rights on these crops. It is their only possible reservoir under present conditions, consequently they should be permitted to fill it. The water holding capacity of the soil should be the basic factor in determining the amount of water required.

Then again the greater and more beneficial use of water could be had if the small users like Poulsen, Barton, Lee and Raymond would pool their interests and use a larger stream part time in the place of having a continuous flow of a small one, a saving of time and water would result with a more economical use. Ditches should be cleaned at least once a year and more cultivation practiced.

The following pages show a daily discharge of Twin and Cedar Creeks.

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Engineer.