

News Letter

Issued occasionally by the Superintendent of Irrigation, U. S.
Indian Service, District No. 5.

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T I P S .

The less you require looking after, the more able you are to stand alone and complete your tasks, the greater your reward. Then if you can not only do your work, but direct intelligently and effectively the efforts of others, your reward is in exact ratio, and the more people you direct, and the higher the intelligence you can rightly lead, the more valuable is your life.

-- Elbert Hubbard.

PROJECT THUMB NAIL SKETCHES.

UNDERGROUND WATER DEVELOPMENT.

We have been developing the underground water for the Navajo, Hopi and Pueblo in two ways -- by drilling them wells and by developing and improving the springs and conserving the water.

This is the most important work we are doing although it is not as spectacular as the building of large canals and the construction of big reservoirs for the impounding of water for irrigation.

The development of this water is for stock and domestic water, and if in so doing we can develop a little surplus water for the irrigation of a small patch of ground in addition, so much the better.

The entire Navajo and Hopi Reservations are arid -- almost absolutely desert in places. There is more or less feed for sheep and cattle but the watering places are so few and far apart that only a small portion of the grass area can be used, and much of that part which is used can only be ranged during the winter when there is snow or after the rains when there can be found some water holes which last for a short time only.

It is the policy at present to follow out the most likely places and put down wells at intervals of six to ten miles, that with the development of a small quantity of water an additional area of grazing land may be opened up.

Care must be taken in this water development that it is not overdone. That is, if we put down too many wells or develop too much water at close intervals the tendency of the Indian will be to overstock the range and quickly feed or trample it out. A small amount of water will care for a limited number of sheep and cattle which will be able to subsist on the grass of the region without destroying it is what should be striven for, and this will do the most good for the Indian.

The spring development has been particularly beneficial to the Hopi Indians.

Their range has been limited to the lands immediately adjacent to their villages, and the result has been that the range is practically worn out. They never took much care of the springs and the filth had accumulated in them until it is a surprise that the Indians could use the water and live. The springs used by them for the sheep only, were in such bad condition that, often during the summer when the water was low and the sheep particularly thirsty from the hot weather that the first of the flock would get into the water, stir up the muddy filth, and the balance of the flock would come to the spring and be unable to drink, and often when driven frantic by thirst they would drink of the semi-liquid filth, and within a few minutes lie down and die.

Since the development of the spring water and the drilling of wells further from the villages the Indians have ranged the flocks further out, and because of the distance many of them have come down from the mesa tops and built themselves homes in the valley. The flocks having a plentiful supply of clean drinking water and better feed have increased many fold in the past few years and the prosperity of the tribe has greatly increased.

To show the interest they are now taking in the work, each of the villages have appointed a committee who are to cooperate with this service in the work and to do as much as they can to help themselves along the same line we have been working. This is one of the most important moves the Hopi Indians have taken for their own improvement in generations.

The water development is under the immediate supervision of Foreman A. H. Womack who is located at Polacca, at the foot of the First Mesa. He looks after the spring development, the maintenance of all of the finished wells in the Navajo and Poni Country, and has a general supervision of the well drillers in addition. Anything in the line of water development in either of the reservations is looked after by him.

The records of this office shows that there has been development work done at 28 springs in the Hopi country alone, and a large number of springs have been developed for the Navajos also.

WELL RIG No. 1 is the largest rig and is now working in the Choiska Valley, north of Gallup and is working along the valley through which the Gallup-Shiprock road runs.

Artesian water has been found in this valley and most of it has been found at depths between 500 and 600 feet. The first well, near the head of the valley is a little over a thousand feet deep, and another well, with a small flow, is only a very little over 200 feet deep.

It is hoped that a line of artesian wells may be found clear through to the San Juan, and that later, after the country is explored with the drilling, to come back, and at favorable points to put down larger wells and develop sufficient water for irrigation. Oscar F. O son is the driller in charge.

WELL RIG No. 3. This rig has been operating along the east and north sides of the Black Mountain, and at present is drilling at Kayenta, near the Indian school located there. Ben R. Senter is the driller.

WELL RIG No. 4. has been working down the Chin Lee Valley, and is now working along the south west side of the Black Mountain. Burt S. Cravath is driller.

Working in a desert country it is difficult to tell where a good well may be developed and many failures are the result. And even when a well is developed it often plays out from the fact that it was developed in a pocket in hard material and the water is soon pumped out, and at other places the failure is caused by the

material in which it is developed proving to be quicksand or fine mud which finally stops off the flow of water. Many of the wells have been redeveloped several times, and a number abandoned after furnishing water for a considerable period of time.

Out of 170 wells drilled in the Navajo and Hopi country only 57 are good wells and furnishing water now. Even at that, the value of the water in these wells is incalculable and the area of grazing land, otherwise unavailable, that has been opened up can scarcely be computed, but it is very large.

Constant care in the operation of all of these wells is necessary and two outfits are looking after them all of the time. The Navajo wells are visited several times a month by Noble Dunaway who makes Chin Lee his headquarters, and the Hopi wells are looked after personally by Foreman Worack and his helper Nelson Polacca.

WELL RIG No. 5 has drilled wells in the Pueblos of Acoma, Laguna and the other villages of these people and for the Isletas. Lately it has been putting down wells for the Canyoncito Navajos who live at the foot of Mount Taylor. David L. Miller has charge of this rig.

NEWS AND NOTES.

Word comes from Washington that Chief Engineer Reed is in the field and promises to be in this District toward the last of April.

Mr. John R. T. Reeves, one of the attorneys of the Indian Office has been appointed Superintendent of Irrigation in charge of legal matters. He is with the Chief Engineer and will accompany him to this District.

Thirty thousand dollars has been authorized for protection work at Shiprock to prevent the high water flooding or washing out the school and agency plant. The work will be commenced at once, and is under charge of Mr. Cersbach, who also has the Hogback project and the drainage work at Shiprock.

Last fall very heavy rains did considerable damage to the Zuni canal and plans for protective work in the way of additional drainage across the canal, both water bridges and culverts, has been planned. The plans were prepared by Mr. Ritter and the estimated costs about \$7,000. Approval has been given by the Chief Engineer, and an additional authority given for \$4,000, which with the balance on hand and available will probably do all the work necessary before the end of the fiscal year. Care taker Bruce Pilcher will have charge of the work.

The gate tower at Canado was wrecked the night of Feby. 27. Care had been taken all winter to keep the ice cut around its base to prevent the ice action doing any damage. The last of February was warm and the ice along the shore had melted out for some distance, while the balance of the ice still remained in one sheet and over 12 inches thick.

It seems that the ice had drifted to the north side of the lake and in the night a north wind came up which hurled the entire mass to the south and against the dam, and the tower was caught in the movement and entirely wrecked. The gate was pulled out of its guides and a full head of water went down the ditch which did some damage. Temporary repairs were made and the water shut off by means of planks thrust down in front of the opening reinforced by sand bags, rock and brush.

The frosts of our western rivers are beyond foretelling or even comprehension. Sometimes they are simply amusing or just annoying, but at times they are of grave concern and involve great expenditure of money to rectify. As an example, the San Juan at and above Shiprock has taken to scouring out its bed and lowering its elevation for considerable distance. At the head of the Hogback Canal when the gates were put in the floor was located $3\frac{1}{2}$ feet below the surface of the water at ordinary low water periods. At the present time the surface of the water is just six inches higher than the floor, and to complicate matters the main channel has shifted from a position just in front of the gates to the furthest it can get away and still keep in the valley, and is now about 900 feet distant. This will necessitate the cutting of a channel through a gravel bar for some 1800 feet and turning the water down the old channel. The next high water may throw the river back where it is wanted, and again it may leave it on the wrong side and scour its channel still deeper.

That this is not a local condition only is shown at a point about 16 miles above where an old Indian ditch that was able to draw water from the river two years ago is now high and dry and about five feet in the air above the water surface.

Surveys have been made among the Pueblos lately by Mr. Ritter; at San Felipe, for river protection; at Sandia, for a new heading for their main canal; at San Juan, for a head and waste gate in their main ditch; at Jerez, for ditch extension and repairs; At Santa Clara, for river protection work, and at several other places. Most of the proposed work has been approved and work will commence at once.

The Indian Appropriation bill lately passed carries about \$100,000. less for irrigation than formerly, which will necessitate cutting down work at some points. It also carried a provision for increase in pay for most of the Indian Service employees, but just whose cannot be told until the Office works out the details. It takes effect with the new fiscal year.

On the drainage work at Shiprock, all of the drain tile has been delivered, and all that stands in the way of a speedy completion of the work will be shortage of funds, as the costs have run higher than expected and more money has been asked for to complete the work.

The oil engines for the Well drilling rigs have been shipped, and will be sent out to the rigs as soon as possible.

All roads in the District have been very bad for travelling and freighting, but it would seem that with the spring weather coming on they will speedily be in much better shape.

"The man that is afraid of bitin' off more than he can chew" sez Joe Harper, is more than likely t' go t' the other extreme an' become a chronic nibbler."

"No one is a fool always, but every one gets a whack at the job sometimes."