



DEPARTMENT OF THE INTERIOR,  
UNITED STATES INDIAN SERVICE,

Keams Canon, Ariz. Apr. 10, 1905.

The Honorable,

The Commissioner of Indian Affairs,

Washington, D. C.

Sir:-

I have the honor to report that I sent the well drill to Oraibi and followed it out. After consultation with Prin. Viets the sand was shovelled from the top of the ground till a firm clay, called adobe in the west was reached, and the drill put to work. As none of us were water witches we selected the point that would be the most convenient to the place of the greatest consumption of water and which also would enable us to go to work on clay instead of sand as there was no tubing to protect from caving sand.

We went down a depth of three hundred and seven feet (307) ft the utmost limit of the capacity of the machine. The last few feet we were drilling through a dark shale and were much in hopes that this would be pierced and water found before reaching the capacity of the machine but were disappointed.

There are two other places near the school that it may be advisable to drill. If we have to leave the school any considerable distance or go far below the school on the hillside for a well site it will be necessary to put in a pump and steam engine anyhow and in that case it will be the part of wisdom to go where water has already

been found in abundance and sink a well and pump from there. I realize, as has been claimed, that a long line of pipe and a heavy grade is wearing on machinery, but then it is wearing where the machinery is on the surface and can be watched and repaired, while if we had water and plenty of it at the bottom of three hundred foot hole it will wear machinery to get it out-and wear a pump that is either well down where it can not be watched or resort to some other means of lifting.

Just above the school is a little canon, short and narrow. If this crack in the earth reaches deep enough to have broken through the stratum of clay we have been working in there is probability that there is way down towards the bottom of the sand that the ages have deposited there and resting on the clay and shale-unless they too be broken, in which case still lower down- an accumulation of water.

To reach this, if the capacity of the machine is sufficient- we must begin in the sand, consequently begin using casing as soon as we start.

In order that we may give the plans of Inspector Chubbuck and Mr. Burton a full test and a fair trial we ought to have started with a machine of at least a thousand feet capacity. There is no possibility of getting deeper with this one as the steam power is taxed to the utmost to lift the rope and the drill bit at the present depth. I can not but feel the present trial is much less than a "half done job" and fear we may punch 300 foot holes till we are tired without adequate results. It is my judgment that a fair trial there will be worth as much or more to us than any number of examinations elsewhere, and I am decidedly in favor of getting a machine that will go to the depth of 2000 or 3000 or even 5000 feet

10000 feet and when we are done with a well having a feeling that if there is water below it is too far below to be regarded as useful.

I have an offer of \$300 dollars for the little machine and I beg to recommend that we sell it at that and buy one with a capacity of 6000 feet and go after water in a way that seems earnest by setting up over the present beginning and putting that hole down to water or the limit of the new machine. There is no place we need water more than at Oraibi. There is no place we can't investigate more economically. Coal is but three miles, a well but a mile or mile and a half below from which we can get the water necessary in drilling, workmen can be comfortable close to a trader where subsistence supplies can be gotten and all told there is no place on the reservation where a thorough test can better be made. The strongest objection to it is the fact that it is 35 miles across country from the Agency and consumes two days of my time every time I go out to see how they are getting along.

If it should be impracticable to dispose of the little drill and get one of sufficient capacity to make perfectly satisfactory test then as a secondary recommendation I beg to submit the request that the Chicago Warehouse be requested to buy and ship:

1 additional bit for drill and 300 ft large casing and 300 feet of smaller casing the bit and the smaller casings to work thro the larger after having put the larger down as far as it can be driven

I have this day written the manufacturers of the drill we have for the exact sizes we should use and for quotations on our needs and will make these the subject of another communication to your Office unless you should deem it better to follow the first recommendation and go to work in earnest to make a test of this matter with a machine

capable of making a satisfactory test. In our first attempt we broke up some machinery as was reported by Supervisor Pringle. I put the second man on the job in charge whereupon the man who had been directing before, because of experience in drilling in other countries, refused to go back on the work so I put at the drill a German Missionary here on the reservation who has shown much more than ordinary skill in handling a machine.

Very Respectfully

*Thos. G. Lamm*  
Superintendent.