Skagit River at Reflector Bar near Marblemount, May 2, 1918.

General.- The gage height of the 1909 flood at this station was fairly closely tied in at this visit by 3 independent methods; first at the Davis ranch Mrs. Davis pointed out where the water came in the 1909 flood (error could not exceed .2 foot). By means of Seattle levelman's level I found (see attached levels) high water of December 29, 1917, 6.15 feet above present water surface and high water of 1909, 8.6 feet above present water surface. In other words, the 1909 flood was 2.5 feet higher than 1917. Since the difference between the present water surface and high water of December was 6.15 feet at Davis' and 6.5 at inclined gage (I read 6.0 May 2; high water mark 12.5) it can be assumed that the 1909 flood at gage was approximately 2.5 feet higher than 1917 Dec. 29.

Second: On left bank opposite gage I sighted up canyon with hand level 600 feet approximately to high water mark of 1917 and 1909, then measured down from sag line of sight to water surface. High water of 1909 12.2 feet above water surface where I stood.

High water of 1917, 9.3 feet above water surface where I stood.

Estimated fall in water surface .3 per 100 feet or 1.8 feet. 1909 flood 10.4 above present water surface at marks and 7.5 for 1917 difference of 2.9 with range of stage slightly greater than at gage, or Davis'.

Third: There is an 18-inch drift log just back of cable tower on right bank 100 feet downstream from gage. Top of log 10.3 feet above water-surface of May 2. Assume that by surge log was thrown so that 1.0 foot was above 1909 high water mark or 1909 high water mark 9.3 above water surface of May 2, 1918 at cable. 1917 flood 6.5 above water surface of May 2 at inclined gage. 9.3minus 6.5 equals 2.8.

Summary: Indications are that 1909 flood fully 2.5 feet above that of 1917.

At power camp gage, high water mark of Dec. 1917, 12.0 feet above water surface of May 1, 1918. Highwater mark of 1909 3 feet above 1917 high water mark 150 feet below power house gage. Power house gage found to be leaning badly; read 6.98 at 3 p.m. May 1, 1918, leaned 1.7 in 9 feet vertical.

Flood notes on Skagit at Reflector Bar May 2, 1918-Continued.

Water surface 7.6 below by hand level (BM) drill bent over in drill hole (high point). In addition to the foregoing data concerning the 1909 and 1917 flood it is of interest to note that the entire right bank of river is river sand where inclined gage, auto gage and cable tower are. This bank has a uniform slope downstream following the slope of a flood crest undoubtedly, also a very marked slope away from the river indicating the overflow of the banks. No humus scarcely has accummulated here indicating a fairly recent overflow. The sand above would indicate an overflow in the last 20 or 30 years; however all drift from this flood has rotted and disappeared. The flood mark is no longer distinguishable on the canyon walls with that of 1909 and 1917. People who have lived in the Skagit Valley since 1888 say floods of 1897, 1909, 1917 are the only big ones of which 1909 was the largest above Marblemount. Therefore we do not know when the flood occurred but I am sure from the look of humus on the sand that it was inside of the last 100 years. The height of overflow at gage is 18.0 feet and if we assume (as we must) that the flood height was somewhat in excess of this, say 18.5, we have a truly enormous flow assuming that practically the same rating held as now. It may be that the river has scoured .5 feet during and since this great flood but not more and probably less since the scour of this portion of the river is held in check by the rock canyon below Davis'. I think the only flaw in the flood flow of this great flood is the possibility of a log jam or snow slide in the canyon below but in a big flood these obstructions would last such a short time that the great amount of sand seen could not have been deposited. Using well gage heights and a Straight line extension of rating curve above 10 feet we have the maximum discharge for the following floods:

Date	Gage height	Discharge.
Unknown flood	18.0	65,500
1897	12.2	38,200
1909	14.7	50,000
1917	12.2	38,200

Mrs. Davis states 1897 and 1917 floods just same height, 1 foot over floor in a small bunk house near where they live.

Assume lowering of channel since great flood balances the amount it topped the bank .

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Copied and checked by J.M.R. 6-30-23.