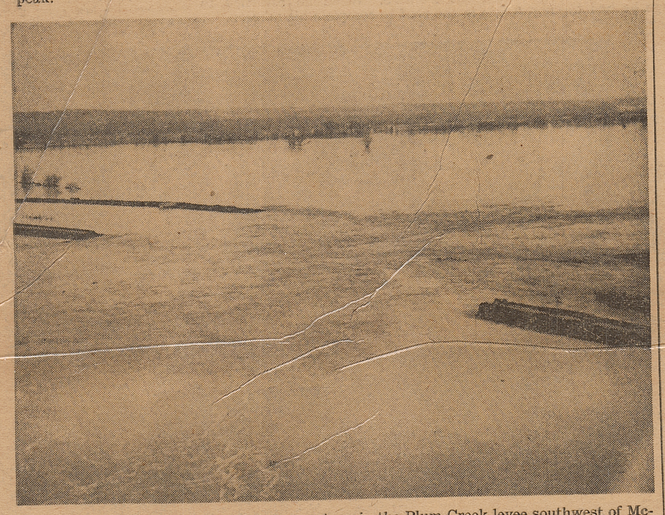
Miles of Flooding After Levee Breaks

Water Plant Saved—Plattsmouth, Neb., put up a terrific fight to save its water plant. It succeeded. This is a scene as the fight, with sandbag weapons, reached a peak.



Plum Creek Break—A 150-foot gap torn in the Plum Creek levee southwest of McPaul, Ia., flooded a wide area south to Hamburg, Ia. About two thousand workers had been ordered off the levee only an hour before it broke.

—World-Herald Photos.

McPaul Goes Under—Water rushed through this little Iowa community toward the Plum Creek levee break. From the break the water rushed over an area 15 miles wide and 27 miles long.

The Flood of '52—Chapter One:

Snow, Ice, Crazy Weather Conspired with the Ornery Mizzou

The Missouri River flood of 1952 took a long time to build up.

Its ingredients were the heavy snowfall of the upper plains area, the capriciousness of the prairie climate and the geography of the Missouri River itself.

The Missouri's ladder-shaped layout of tributaries is in a region where prairie climate is at its most extreme and perverse. Temperatures jump around wildly, seemingly independent of season or precedent.

The main stem of the Missouri, in its sweeping loop from Montana into North Dakota, flows through what the Weather Bureau recognizes as the nation's "cold trough." This is the pathway of weather moving down from the Arctic.

Temperatures go away down and cold lingers late. Winter's ice remains thick and unbroken in the river long after it has melted elsewhere.

As a result, unseasonable thaws often melt tributary streams to send their water piling into the unbroken ice of the main stream. The weight of the water tears and wrenches the ice loose and prods it downstream. Ice dams form. Water backs up behind. Local flooding results. Thus 1881. And thus, in its first phase, the flood of 1952.

Snow came early, fell heavily and lingered late throughout the upper plains area. Heavy in extent, it was heavy also in water content.

Pierre, S. D., measured 21 inches of snow which contained nine inches of water. The nine inches were 460 per cent of normal.

In the surrounding 90 thousand square miles, the moisture was 200 to 300 per cent of normal. In the Montana section of the upper Missouri watershed, the moisture was 135 per cent above normal.

Accompanying this heavy snowfall was weather that, even by Great Plains standards, was abnormally cold. The snow stayed in place. The wind packed it. It was compressed by its own weight. Gradually pressure formed a sheet of ice next to the ground that sealed off the snow and kept any of its moisture from percolating into the earth.

[illegible] situation didn't look [illegible] snow cover was heavy too. [illegible] ual melting and a model behavior of the ice break-up resulted in virtually no flooding then.

Snow sampling crews covered the plains area in 50-mile grids. They weighed the findings against past performances of the weather. On March 5 came the first analysis:

"A cover of unusually moist snow upstream provides a possible Missouri River flood threat when the spring thaw comes. But there is no reason for undue alarm."

The cold hung on. The season came when days should be warm though nights would be cold. The time was at hand when the snow should be gradually lowering, trickling into soil that ordinarily soaks up moisture.

But normal things didn't happen. Winter's temperatures hung on. In mid-March, temperatures for the week averaged as much as 13 degrees below normal throughout the plains country. Every day of lingering cold increased the possibility that when the snow did go it would go suddenly.

Sampling crews went out again. This time they found more snow than three weeks before.

Said the analysis on March 25:

"The threat of Missouri River flooding this spring is more serious than it was a month ago."

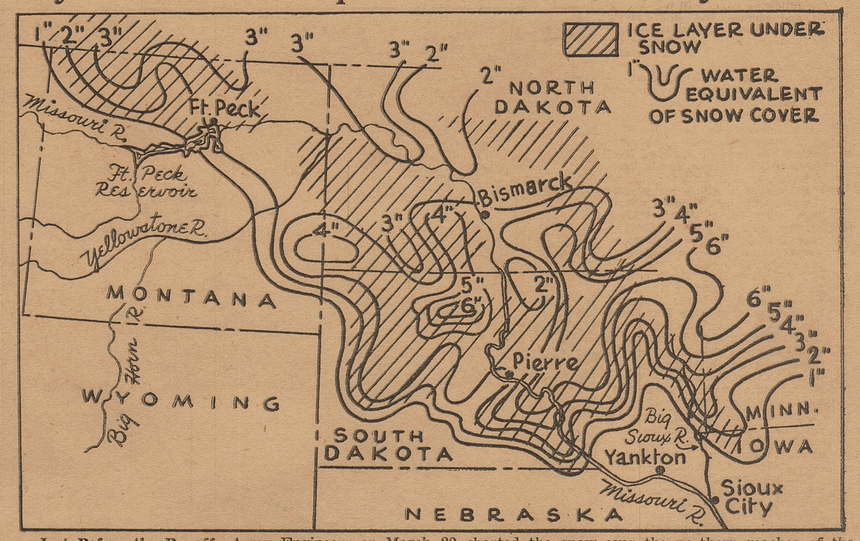
The gun was loaded. A quick thaw was the trigger that would set it off.

Nature pulled the trigger.

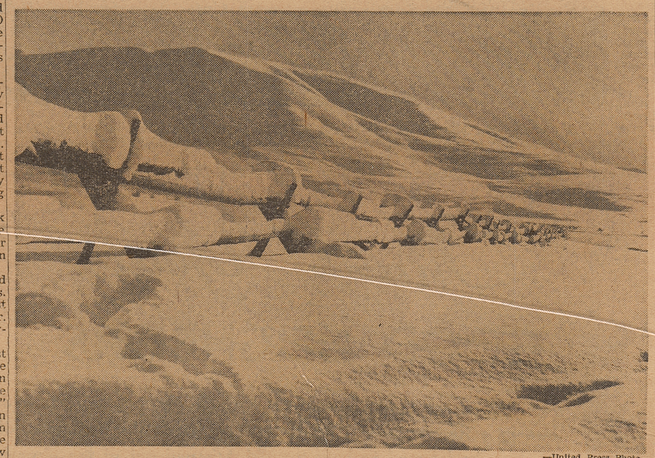
Spring busted out all over the upper watershed of the Missouri. It came violently. Throughout the upper reaches temperatures mounted into the seventies and stayed that way day after day. Great Falls recorded 75 degrees. It was the highest temperature ever that early in a locality where spring ordinarily does not come until late May.

The snow turned to water. The ice beneath kept it from soaking into the ground. It trickled down the coulees and creeks. It raced into tributaries and hit the Missouri River at a gallop. In one week the snow melted.

From Glacier Park down, the warnings went up. First it was a pattern of repeated jams as the ice was torn out of the Missouri.

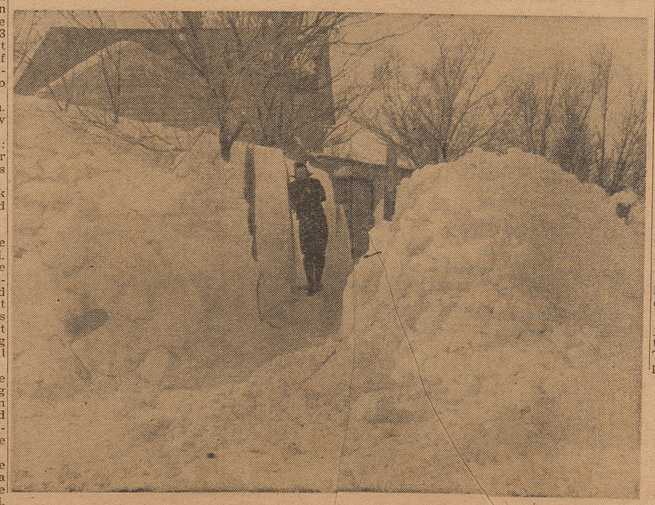


Just Before the Runoff—Army Engineers on March 20 charted the snow over the northern reaches of the Missouri Basin. Most of it was underlaid with ice. Water content of the packed mass ranged to six inches. When it melted it headed for the nearest streams. The lines, which look like contours, indicate not the depth of the snow but its water equivalent in inches.



—United Press Photo.

Beautiful, But Loaded—Snow over the mountains and over the Northern Great Plains last winter had engineers and weather observers worried. They thought the stuff might carry dynamite for the farms and cities downriver on the Missouri.



—AP Wirephoto.

Jam. Flood. Then, breaking loose, the water flowed again to re-jam and flood again.

The ice was stripped from the river. The snow melt hit the stream from those rivers of romantic names—the Knife, the Heart, the Cannonball, the Little Missouri.

The character of the flood changed. No longer was it a series of local ice jam floodings. It had become a generalized flood, the worst ever, with a crest that was to stretch out for a hundred miles.

Downstream, men whose life's work is the river looked at the tide upstream.

Army Engineers scarcely paused to shift gears as they went from Phase One to round-the-clock, all-out Phase Three alert.

Before Bismarck, the Weather Bureau predicted an Omaha stage of 26 feet—1.4 feet over the 1881 crest. When the crest hit Bismarck, 745 miles upstream, the reading was boosted to 28 feet. When Mobridge felt the river, the prediction went up to 30 feet.

The river rolled.

At the famed river experiment station at Clinton, Miss., Army Engineers put the flood through a full-scale model of the Missouri River. They measured its performance and studied its behavior.

At the Weather Bureau's river forecast center at Kansas City, the experts turned to a mechanical brain for help. Into it they fed all the data—volume, channel size, wind and rain factors—in all probable combinations.

At the Omaha Weather Bureau office, workers did it the hard way. They balanced the flood against past floods and worked out the calculations.

The findings, separately arrived at, checked. They were sent to Army Engineers, whose know-how was the framework upon which the flood fight was built.

An aid brought in the slip with the penciled figure as Brig. Gen. Don G. Shingler was holding a press conference.

The general studied the figure. Silence stretched out the moment before General Shingler turned back to the reporters.

He looked out over the top of his glasses, a habit when he is deadly serious.

"Gentlemen," he said. "I have just received a new river prediction from the Weather Bureau. They have boosted it to thirty-one point five."

At Left

Fifteen Feet of Snow—This trench into the Charles Kindopp ranch home southwest of Pierre, S. D., was six feet deep, but drifts sloped upwards to 15 feet.