

# SALT IN CHESHIRE

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Speaking at a meeting of the Manchester Geological Society held in 1897, Sir E. Leader Williams referred to one of the subsidences that had taken place near the Weaver at Witton Brook, and gave an idea of the size of the cavity in the ground by explaining that "when the water got in, the river, instead of flowing down to the sea, sank into the interior of the earth, and this went on for a considerable length of time." Mr Wells, who was Engineer of the Weaver at the time that this mine fell in, said that the ponded area of the Weaver in connection with the mine was about 70 acres, and the area draining into it was 300 square miles or upwards. The mines took in the whole of the water flowing naturally off the ground in the month of December, and they lowered the 70 acres of the pond ten inches. "That is a true measurement," Mr Wells added, "for I had the gauge examined, and it will give some idea of what the cavities must have been."

"One of the most extraordinary of the subsidences that have yet happened," said a writer in "Chambers's Journal" in 1881, "took place at Northwich on Monday, 6th December 1880. About six o'clock on the morning of that day, a rumbling noise was heard in a district on the outskirts of Northwich, known as Dunkirk, which is completely honey-combed with abandoned salt-mines. Immediately the ground seemed to be heaving, and the lakelets in the neighbourhood, varying from half an acre to nearly two acres in area, and thirty or forty feet in depth,

commenced to boil and bubble all over, the water being forced up violently some feet above the surface. The whole area of these lakelets was in a furious state of commotion, and the noise of the bubbling water could be heard 300 yards off. All round, for a space of two thousand feet in diameter, at every weak spot in the ground, air and foul gas were being expelled; and where in its course the gas met with water, it forced it up in jets, usually accompanied with mud and sand. For a space of at least one-fourth of the circumference of the largest lakelet, called Ashton's Old Rock Pit Hole, which covers nearly two acres, there were at intervals regular mud geysers, spouting intermittently to a height of about twelve feet. In one space of about thirty yards in extent, there were at least twenty of these playing at one time. The more violent ebullitions subsided after three or four hours; though in two cases the bubbling and gurgling mud craters continued in action for two days; and the ebullition in the various pits continued on a smaller scale for three days. The whole of this bubbling and boiling was evidently caused by the air that filled the old mines being violently driven out by the inrush of the descending earth and water.

“The cause of this great disturbance could not at first be discovered, although, by those acquainted with the district, it was at once believed that it had originated either in a fall of earth or an inrush of water into the mines below. It soon, however, became apparent that a large rift had opened directly across the course of Wincham Brook. This is by no means a small brook, being from fifteen to twenty feet in width. The rift occurred at a spot where the brook passed through a shallow lake of small size, caused by the subsidence of the land, about one thousand feet from where it enters the large piece of water called the Top of the Brook. This piece of water is about one hundred acres in extent and of great depth, being in one spot more than a hundred and fifty feet deep. Connected with this lake is the River Weaver, which between Barrow's Lock and Saltersford Lock has an area of at least sixty acres. We mention these particulars as having an important bearing on our narrative.

“From six o'clock till nearly nine, there was a steady down-pour of water into the rift; but beyond a gentle flow on the surface, not much was perceptible. At nine o'clock another more extensive rift occurred, and pulled in a portion of the ground belonging to the salt-works of Messrs Ashton & Sons.

A quantity of timber and an engine and boiler were in close proximity, also a large iron salt-pan some twenty-six feet long by twenty-four wide. For the next few hours there was a scene of great excitement, all the men being busily engaged in removing the materials, etc. This they succeeded in doing, but not one moment too soon, as a portion of the land sank immediately afterwards. All eyes were now turned to a fine massive chimneystack, about ninety feet high and nine feet square at the base. This was seen to be perceptibly leaning towards the sinking spot. Up to twelve o'clock the sinking proceeded gradually, there being a perceptible return current from the large lake, the lower portion of the brook having evidently changed its course and begun to run backwards. From twelve o'clock to three, the velocity of the backward flow increased; the huge cavity now formed swallowing up the waters of the Wincham Brook itself, and draining a neighbouring lakelet, three-quarters of an acre in area, and at least ten feet in depth, besides receiving a rapid stream, ever increasing in velocity, from the Weaver and Top of the Brook. From three o'clock to four the scene was grand but terrible; the velocity of the backward flow of water tore away the bottom of the brook from the edge of the huge crater-like cavity for some three hundred feet in length to a depth of ten feet, the brook being previously only about two feet deep. At this time, the banks on both sides were torn down and carried with headlong velocity into the vortex of the crater. Notwithstanding this huge inflowing current, the surface of the eddying waters at the centre of subsidence fell at least twelve feet.

"About four o'clock, a sudden explosion in the neighbouring pool, and a geyser of mud and water thrown up to a height of from twenty to thirty feet, told of another subsidence. The effect of this upon the hundreds of spectators was very alarming, and there was a sudden rush from the immediate neighbourhood. Fortunately, instead of increasing the mischief, this subsidence seemed to choke the original cavity, and the waters gradually flowed in more slowly, till at six o'clock the face of the pool, of more than two hundred feet in diameter, was perfectly calm, and to the onlooker there was no sign of the terrible strife of the previous portion of the day. Shortly before five o'clock, the tall chimney, which had rapidly become more out of the perpendicular, fell with a terrible crash to the ground.

"Scarcely had the original subsidence ceased, when an enormous

sinking of the whole of Ashton's Old Rock Pit Hole and the surrounding land, for an area of over five hundred feet in diameter, took place, leaving two very deep holes. The land was riven and cracked all round, and fell in steps of two feet. Over ten thousand tons of water went down into the subterranean cavities. A huge brine cistern was riven in two, and the brine all lost ; and two large brick kilns cut completely in halves, and the bricks scattered about. The whole surface of the Weaver and the Top of the Brook was lowered fully a foot over one hundred and sixty acres in about four hours ; and if we add to this the whole of the water of the Wincham Brook for twelve hours, we shall find, on a careful computation, that not less than six hundred thousand tons of water rushed below."

On the Sunday afternoon following the subsidence immense crowds of people visited the locality, and amongst them were a small company of local gentlemen who "improved the occasion" by holding a religious service on the verge of a "yawning chasm" in the road. Addressing the crowd, one of the party said, "Now, my friends, the ground you are standing on is the rottenest in the world, and it may all go down with you in a moment while you stand listening to me, and if it should go as suddenly as it did in the awful calamity last Monday, how many of you would go down straight into hell ? When the end of the world does come, it will come as suddenly as this terrible accident, but instead of the water there will be fire."



Marshall's brine shaft; Worthington's & Cheshire Amalgamated; Ashton's pumping water station. The cascade is from an old hole behind the sinking that was taking place, when Ashton's works fell and the water dropped. The water is seen running away from top of brook the wrong way. Photo taken looking across Dunkirk, Northwich.