

A COMPLETE HISTORY  
OF THE  
**GREAT FLOOD**

AT SHEFFIELD

ON  
MARCH 11 & 12, 1864

BEING

A True and Original Narrative,

FROM AUTHENTIC SOURCES

COMPRISING NUMEROUS FACTS, INCIDENTS, AND STATISTICS  
NEVER BEFORE PUBLISHED.

TO WHICH ARE ADDED

**OFFICIAL LISTS OF THE DEAD AND MISSING,**

GIVING THE NAMES, AGES, AND RESIDENCES OF ALL THE VICTIMS, WHEN AND  
WHERE FOUND, AND WHERE INTERRED ;

**OFFICIAL RETURNS SHOWING THE NUMBER OF BUILDINGS AND  
HOUSES DESTROYED AND INJURED IN EACH LOCALITY ;**

MR. RAWLINSON'S REPORT TO GOVERNMENT ON THE CAUSES OF THE FLOOD.

FULL REPORT OF THE INQUEST ;  
MEASURES OF RELIEF, THE WATER COMPANY & ITS LIABILITY,  
&c., &c.

ILLUSTRATED WITH TWENTY VIEWS  
OF THE PRINCIPLE SCENES DESCRIBED, TAKEN FROM PHOTOGRAPHS.

BY SAMUEL HARRISON.

With a new Foreword by

MARY WALTON

EVANS & LONGLEY ASSOCIATES

3 Station Road, Earlsheaton, Dewsbury, Yorkshire

First Published  
S. Harrison. London and Sheffield 1864

Republished 1974  
Evans & Longley Associates  
3 Station Road, Earlsheaton,  
Dewsbury, Yorkshire  
England.

New foreword ~ Mary Walton 1974.

## FOREWORD

At the time of the major air raid on Sheffield in 1941, there were jokes around which rather shocked some people about it being “the only exciting thing which had happened in Sheffield since The Flood”. It is not really at all unnatural to find a disaster exciting; and indeed the combination of stunned horror and counteracting frenzy of activity were alike at both times.

Certain it is that “The Flood” (which was the most destructive event of its nature in England) has always remained in the collective consciousness of the people of Sheffield as a matter of interest and almost of pride.

There is no need to mention here the nature and extent of the devastation which followed the breaking of the embankment of the Dale Dyke Reservoir on the night of 11th to 12th March 1864; it is the purpose of Harrison’s book to relate these circumstances. Some details about the author are, however, both pertinent and demanded by justice, for Samuel Harrison was a man worthy of some remembrance.

He was born in Somerset in 1826, the son of a Wesleyan minister. The child of a Methodist manse moves about a good deal, and it was from Woodhouse Grove School, Bradford, that he came to Sheffield as an apprentice to the printing trades. His masters are given by two authorities as William Challoner of Church Street, and William Saxton of High Street, but in fact these two men combined their businesses during Harrison’s apprenticeship in the High Street premises. Here also was the bookshop which Harrison managed in connection with the business (such an association was usual in those days) and the office of *The Sheffield Times*, a weekly paper. He taught himself shorthand and obtained a post as reporter on this paper; a fellow reporter was Henry Pawson.

Both young men were successful in their new businesses, and when the owner of the newspaper, William Willot, retired in 1854 they went into partnership to buy it from him. But Pawson was really more interested in commercial printing and stationery than in newspapers; the partnership was dissolved in 1857 and Harrison shortly afterwards left High Street for new premises in Bow Street. This building was described by a contemporary as “imposing”; it was destroyed to make way for the Telephone Exchange. opened in 1926. now itself deserted as being too small.

Harrison was now a respected man of business with a family and a published book; in 1853 he had married Mary Gardner from Kineton in Warwickshire, and about the same time published “The Last Judgement”, a poem in couplets, which went into four editions. At Bow Street he was introducing new techniques which helped to revolutionise newspaper printing. His type-high stereo plates made quicker production possible and were copied everywhere. These factors increased the circulation and standard of *The Times* so much that Harrison was able to take over, as they declined, the *Iris*, the *Sheffield Mercury*, and the *Argus*.

His tireless energy did not make old bones. He died on 21st February 1871, at “Oak Villa”, Broombank (the western of the two houses in Clarkehouse Road joined together to make what was for many years Sister Needham’s nursing Home, and now occupied by a department of the University), of “a fever” followed by bronchitis which was his first illness as well as his last. To the many people in the town who admired Harrison’s success as the product of honest industry his death

came as a real shock; at forty-four he should have been in his prime, and his ten children were all under twenty.

His great pride, "The Last Judgement", is now forgotten; his "History of the Sheffield Flood" is a much more suitable memorial, for it illustrates not only his contribution to the history of newspaper publishing and reporting, but his capacity for taking pains, and his judgement on what interests readers.

At the time of the disaster, Harrison the printer and Leng the editor had already ensured that news should come quickly to the public. Leng edited *The Sheffield Telegraph*, established as the town's first daily paper in 1856, and his use of the electric telegraph, and of bands of reporters sent out like a military expedition in the middle of the night, ensured that the people were able to read at their breakfast tables a lengthy and reasonably accurate report of the event much as we do now. Frequent editions throughout the day completed the tale and the newspapers of other towns had the story with surprising speed. *The Sheffield Times*, being a weekly appearing on Friday, was already set up, but even so Harrison got a half-a-column of late news conveying the gist of the tale to his readers; and a full supplement was included with the following Friday's issue.

It is also typical of the two men that it was the quietly industrious Harrison and not the brilliant Leng who followed up all the reporters' tales, appearing at intervals as the stories of distress, relief, enquiry and compensation unrolled, and checked, corrected, expanded and completed them to form a narrative of events from the building of the embankment to the passing of the Act, on 29th July 1864, which enabled the Water Company to raise money for the payment of compensation.

The result was a book which has held the attention of Sheffield for more than a hundred years. Copies have been cherished in households where it was kept because the family had endured the hardships related in it. It has been sought for eagerly by people moving into the areas most affected, where even now there are places where the narrative can be checked and the scenes of the time easily recreated in imagination. It has a good claim to be Sheffield's favourite book; and indeed in its way it is a classic.

MARY WALTON

---

## PREFACE.

An event of such tragic and painful interest as the great Flood at Sheffield, demands a more complete and permanent record than the fragmentary and imperfect accounts which have appeared in the local and other newspapers. The object of the present publication is to furnish a consecutive, authentic, and original narrative of the Flood and its incidents. To accomplish this no labour has been spared. While all the accounts which have already appeared have been examined and collated, nothing has been taken for granted. All the ground has been thoroughly gone over, the truth or otherwise of almost every particular has been investigated, and a vast number of facts have been collected on the spot, from the parties actually concerned in them, so that what is here placed upon record may be depended upon as having been obtained from the best and most reliable sources. The whole narrative has been re-written, and it is believed that its perusal will convey the impression of novelty and freshness even to those who have read all that has previously appeared upon the subject.

## CONTENTS.

---

General Description of the Loxley and Don Valleys.....	9
The Dale Dyke or Bradfield Reservoir.....	10
The Crack in the Embankment. — The First Alarm.....	11
The Night Journey to the Reservoir.....	13
The Flood. — the Bursting of the Dam.....	14
The First Narrow Escape. — Annett House.....	15
The Destruction at Bradfield.....	16
The Flood at Bradfield Described by an Eye-Witness.....	16
The Alarm at Bradfield.....	17
The First Victim of the Flood.....	17
Narrow Escape of Mr. and Mrs. Nicholls.....	18
A Remarkable Dream.....	19
Extraordinary Scene at the Bradfield Miller's.....	19
Miscellaneous Incidents at Bradfield.....	20
A Farm House Swept Away and Narrow Escapes.....	20
The Opinions of the Bradfield Villagers as to the Cause of the Disaster.....	21
Below Bradfield.....	23
Roebuck House. — Extraordinary Escapes.....	23
Damflask.....	24
The Warning at Damflask.....	24
Extraordinary Escape at Damflask.....	24
A Neglecter of the Warning Drowned.....	24
How an Old Woman Saved her Cat and Dog.....	25
How the Damflask Miller Saved his Cows but did not SAVE his Corn.....	25
Three Men and a Boy Drowned at a Wire Mill.....	26
Storrs Bridge.....	26
Loxley Old Wheel.....	27
Shocking Death and Perilous Escapes.....	27
Rowell Bridge.....	27
An Industrious Grinder Washed Away.....	28
Extraordinary Escape of a Family.....	28
Olive Paper Mill and Wheel,.....	28
Little Matlock.....	29
A Whole Family Washed Away.....	29
A Child Lost and Marvellous Escape.....	30
One Taken and the Other Left.....	30
From Little Matlock to Malin Bridge. — Destruction of Wheels and Tilts, and Two Lives Lost.....	30
A Farmhouse Swept Away and its Ten Inmates Drowned.....	31
Three Families Drowned and Extraordinary Escape of Two Men.....	34
The Destruction at Malin Bridge.....	35
A Whole Row of Houses Swept Away at Malin Bridge. — Extraordinary Incidents.....	35
A Man Swept Through a Bedroom Window and Rescued.....	36
A Family of Twelve Persons Drowned.....	36
The Stag Inn at Malin Bridge Destroyed and Eleven Lives Lost.....	37

The Cleakum Inn — Extraordinary Spectacle.....	37
File Cutters' Shops Destroyed.....	38
Extraordinary Escape of a Row of Houses at Malin Bridge.....	38
Incidents at the Limerick Wheel,.....	39
The Destruction at Hill Bridge.....	40
Extraordinary Escape of a Family at Hill Bridge.....	40
A Family Floating About in a Bed.....	41
How a Little Girl was Saved while her Friends were All Drowned.....	41
Heroic Rescue of a Family.....	41
A Man Jumps out of a Window and is Killed.....	42
The Destruction at Hillsbro'.....	42
Extraordinary Escape in Brick Row, Hillsbro'.....	43
Further Incidents in Brick Row.....	44
An Old Bachelor in a Box. - a Comic Incident.....	44
The Hillsbro' Toll Collector Drowned.....	45
Miscellaneous Incidents at Hillsbro'.....	45
The Destruction at Owlerton.....	45
A Shocking Death and a Narrow Escape.....	45
Thrilling Incidents at Owlerton.....	46
Narrow Escape of two Watchmen at Owlerton.....	46
The Barracks Injured and Two Lives Lost.....	47
Junction of the Loxley and the Don.....	48
A Silver Mill Nearly Destroyed, and Narrow Escapes.....	48
A Man Swept Away on a Boiler.....	49
Incidents at Farfield.....	50
Narrow Escape at a Tannery.....	50
Shock Deaths, Narrow Escapes, and Destruction.....	50
Gallant Rescue of Several Families.....	51
The Flood and the Court of Probate.....	52
The Destruction at Neepsend.....	52
A Family of Eight Persons Drowned at Neepsend.....	52
Shocking Death of Three Children.....	53
Shocking Deaths, Perilous Escapes, and Gallant Rescues at Neepsend.....	53
Adventures at the Merchant Works, Neepsend.....	55
Great Destruction of Manufactories, and Other Property at Neepsend.....	56
The Flood Described by a Little Girl.....	56
Destruction in Harvest Lane and Neighbourhood.....	57
Loss of Life, and Narrow Escapes in Harvest Lane and Neighbourhood.....	57
The Destruction at Hillfoot.....	58
The Flood at Bacon Island.....	58
Gallant Rescue of a Family by a Watchman.....	59
Shocking Death of a Family and Extraordinary Escape of a Child.....	61
The Incidents at Bacon Island Described by an Eye Witness.....	61
Destruction of Property at Philadelphia.....	63
An Incident at Philadelphia.....	64
Destruction and Loss of Life at Waterloo Houses.....	64
Destruction of Property in Green Lane and District.....	65
Shocking Deaths and Perilous Escapes in Green Lane and the Neighbour- hood.....	65
Three Men Rescued through a Window.....	67
Destruction at Kelham Island.....	67

A Fire in the Flood, and Narrow Escapes at Kelham Island. ....	68
A Man Loses his own Life in Attempting to Save his Pig. ....	68
The Flood at the Sheffield Workhouse . — Interesting Incidents. ....	69
Extraordinary Escape in Cotton Mill waLk.....	70
Two Children Saved in a Cupboard.....	71
Shocking Death of a Widow.....	71
A Horseman Drowned in the Flood.....	72
The Destruction between Corporation Bridge and Lady’s Bridge.....	72
Narrow Escapes in Millsands.....	73
Destruction in Nursery Street and District.....	73
Loss of Life near Nursery Street.....	74
From the Lady’s Bridge to the Midland Railway Station.....	74
From the Wicker Station, Sheffield, to Rotherham.....	75
The Flood at Rotherham.....	76
The Flood at Doncaster.....	76
The Morning After the Flood.....	76
Finding of the Dead Bodies.....	78
The Identification of the Bodies.....	79
The Interment of the Dead.....	80
The Miseries of the Sufferers.....	80
The Conduct of the Police.....	81
Visitors to the Scene.....	82
List of the Dead and Missing.....	82
The Destruction of Property.....	86
MR. RAWLINSON’S REPORT ON THE FLOOD.....	88
THE INQUEST.....	95
The Coroner and the Jury at the Reservoir.....	97
Correspondence between the Coroner and the Government.....	97
The Adjourned Inquest.....	98
Evidence of Mr. J. T. Leather.....	99
The Velocity of the Flood.....	111
Thursday, March 24th, 1864.....	111
Evidence of Mr. M. B. Jackson.....	111
Mr. Gunson Recalled.....	117
Mr. Leather Re-called.....	119
Evidence of Mr. Rawlinson.....	119
Evidence of Mr. N. Beardmore.....	123
Verdict of the Jury.....	125
MEASURES OF RELIEF.....	125
Preliminary Meeting at Sheffield.....	126
Public Meeting at Sheffield.....	129
Meetings of Working Men in Sheffield.....	132
The Queen and Royal Family.....	134
Help from Other Towns.....	135
The Subscriptions.....	135
Sanitary Measures.....	135
Proceedings of the Relief Committee.....	136
The Water Company and its Liability.....	137



# History of the Flood at Sheffield

On Friday, March 11, 1864, exactly at midnight, a calamity, appalling, and almost unparalleled, occurred along the course of the river Loxley, and the banks of the Don, where it passes through the town of Sheffield. An overwhelming flood swept down from an enormous reservoir at Bradfield, carrying away houses, mills, bridges, and manufactories, destroying property estimated at half a million sterling in value, and causing the loss of about two hundred and forty human lives.

We propose to narrate the history of this fearful catastrophe in as intelligible and consecutive a manner as possible. Before commencing the narrative it will, however, be necessary briefly to describe the general features of the country where the calamity occurred.

## GENERAL DESCRIPTION OF THE LOXLEY AND DON VALLEYS.

The small stream or river known as the Loxley rises in a desolate and mountainous waste on the borders of Derbyshire, and about a dozen miles from Sheffield. For some distance, in the early part of its course, it is known as Dale Dyke, and is little more than an insignificant rivulet or brook. Nevertheless, as the hills rise on all sides to a considerable elevation, the quantity of water which flows down into the mountain gorges is very great, and the stream soon assumes the form of a torrent, dashing rapidly along its rocky bed, amid scenery most beautiful and romantic.

The first village the river reaches is Lower Bradfield, which is situated in the bottom of the valley. Here was a good bridge across the stream, a corn mill, a chapel, a school, and a number of houses inhabited by the village trades-people and others. On the top of the hill, far away from the reach of a flood, are the fine old church and the village of Upper Bradfield.

Proceeding down the stream, we meet with scattered hamlets, sylvan nooks of rare loveliness, villages nestled under the shelter of the hills, and so shaded by overhanging woods that the stranger hardly suspects their existence until close upon them. Rather more than a mile below Bradfield is Damflask, where were a corn mill, several cottages, and other buildings. Proceeding further down, we come now and then upon grinding wheels, worked by water power, and which were erected and in operation long before the application of steam to the general purposes of industry.

About a mile below Damflask is Loxley, from which the river takes its name for the rest of its brief course until it falls into the Don. The scenery for the next few miles is exceedingly picturesque and lovely. The river runs through a narrow gorge where ages ago it has scooped out for itself a channel through the rocks, which in some places rise in precipitous crags, which have evidently been laid bare by the force of the current. On the banks of the stream and on the hill sides, groves and woods add a charm to scenes which an artist or poet might delight to portray. Yonder is little Matlock so called from its resemblance to the romantic scenery on the river Derwent, in Derbyshire. Further down are several grinding wheels and then, at Malin Bridge, the valley opens, and widens into a rather extensive plain. Here the Rivelin, another romantic stream celebrated by the poet Ebenezer Elliott, falls into the Loxley, adding to its width and volume of water. Malin Bridge is, or was, a large village, with a population of several hundreds of people. Further down

still is Hillsbro', where were two good stone bridges, a number of cottages, and several buildings of some pretensions. We next come to Owlerton, a large and populous village, where the Loxley bends in a very circuitous manner, and then falls into the river Don. The country about Owlerton, and all along the route of the Don through Sheffield, is very flat, and the valley wide and open. We need not in this place describe the course of the river through Sheffield any further than to say that it passes amidst a populous district, and that along its banks many large works have been erected for the sake of the convenience which the water affords. After passing through Sheffield the Don proceeds to Attercliffe, thence to Rotherham and Doncaster, and at last it falls into the river Ouse.

#### THE DALE DYKE OR BRADFIELD RESERVOIR.

The reservoir which burst its banks on the 11th of March, is situated rather more than a mile to the west of Bradfield, and about eight miles from Sheffield. It is the property of the Sheffield Waterworks Company, and was one of a series of reservoirs from which the company intended to supply the increasing wants of the town.

The Sheffield Waterworks Company has been in existence more than thirty years, and had previously to this disaster conducted its operations with great and uniform success. It had constructed eight or more large reservoirs in different parts of the neighbourhood, and was preparing to form several more, in order to provide for the rapid expansion and increasing demands for water supply of the town of Sheffield.

The Bradfield reservoir was formed by throwing an embankment across the gorge, thereby intercepting the moorland stream which gradually filled up the whole of the valley to nearly the level of the top of the embankment. The "first sod" was turned on New Year's Day, 1859, Mr. Leather, of Leventhorpe, near Leeds, being the consulting engineer, Mr. Gunson the resident engineer, and Messrs. Craven, Cockayne, and Fountain severally undertaking the contracts. The reservoir was intended to provide the compensation water which the Company was bound to supply to the mill owners on the Loxley, and the surplus would have been available to meet the requirements of the town of Sheffield. It was therefore made of vast capacity, and in addition to intercepting the waters of the stream called the Dale Dyke—which becomes what is called the Loxley at Lower Bradfield—it was intended to hold the drainage from a gathering ground of not less than 4,300 acres. The reservoir was of great extent, covering about 76 acres. From the dam-head to the embankment, the sheet of water spread out for more than a mile in length, and a quarter of a mile in width. In the centre the depth was between 80 and 90 feet, and the reservoir would contain 114,000,000 cubic feet of water, or 691,000,000 gallons. It was nearly completed, but had never been used for the supply of water to the town of Sheffield. The intention was to have given from this reservoir a supply to the mill owners of ten cubic feet per second, night and day, during the whole year, Sundays excluded; or about 4,500,000 gallons per diem. It was calculated that when filled the reservoir would, without any addition, supply the mills on the Loxley for twenty-two weeks, and, with the aid of the surplus, the directors of the Company expected to be able to give the inhabitants of Sheffield a regular supply of twelve hours per day during the summer months. The embankment at its base was 500 feet wide, 100 feet high, and 12 feet wide at the summit. In order to secure a perfectly sound foundation an excavation was made to the depth of 60 feet, This vast work stretched itself across the valley for the space

of 400 yards. In the embankment, there were about 400,000 cubic yards of material. The weir that was provided to carry off the overflow was sixty feet wide, and it conducted the water down a stone channel into the Loxley. The Bradfield dam was only one of a series of immense reservoirs which the Company were constructing or intending to construct in that neighbourhood. One of them, the Agden Reservoir, is situated a mile nearer Sheffield. It intercepts the Agden brook, and was intended to contain the drainage of an area of gathering around about equal to that which supplied the Bradfield dam.

#### THE CRACK IN THE EMBANKMENT. — THE FIRST ALARM.

Friday, March the 11th, was a very stormy day. Admiral Fitzroy had issued a notice that heavy gales might be expected; and, seeing this in the newspapers, Mr. Gunson, the Sheffield Water Company's resident engineer, proceeded to the Bradfield reservoir, where he arrived at about three o'clock in the afternoon. The water at that time was only from three to six inches from the top of the weir, and the wind was blowing direct down the valley with extraordinary violence. Mr. Gunson examined the dam, and saw the wind-driven waves dashing on the embankment, but all appeared quite safe, and he returned to Sheffield at about four o'clock.

At about half-past five, William Horsefield, a workman employed by the Water Company, had to cross over the embankment to go to the house where he resided. The wind was so strong that he could not walk on the top of the embankment, where he would have been exposed to its full fury, and therefore he went across the side at some distance down, where he was sheltered by the embankment from the blast. As he was proceeding along, he noticed a crack in the side of the embankment. The crack was at that time only about wide enough to admit a penknife, but it extended along the side of the bank, about twelve feet from the top, for a distance of about fifty yards. Horsefield thought it was a frost crack, such as he had often seen in the earth in winter, and he did not think it indicated danger. Nevertheless, he told another workman named Greaves, and asked him what he thought about it. Greaves told Samuel Hammerton, a farmer, who lives on the north side of the valley opposite the dam and who had frequently occasion to cross the embankment to go to some land which he occupies on the other side. Hammerton then went to look at the crack, and without loss of time informed Mr. G. Swinden, one of the Water Company's overlookers. This was at about seven o'clock in the evening, when it was nearly dark.

Mr. Swinden, and a number of the neighbours, then took lanterns and went to examine the crack. Amongst those who went were Mr. Joseph Ibbotson, Mr. Richard Ibbotson, Mr. William Ibbotson, Mr. Nichols, and Mr. Thomas Robinson. There were also several labourers, and Mr. Fountain, one of the contractors for the construction of the dam, came in a short time. There would be altogether perhaps two dozen persons examining the crack.

The scene was one of painful interest and excitement. In the darkness of the night, the surface of the lake shone like a mirror, while its waves dashed against the embankment, tossing the spray hither and thither like snow-flakes, with a noise that would have been startling, had it not been almost drowned by the loud howling of the blast as it swept down the valley with a violence which seemed almost irresistible. First one light was blown out, and then another, till all the lanterns were extinguished, and the anxious group of workmen and neighbours were left in total darkness, until a fresh light was struck, and the lanterns again cast

their flickering rays on the silvery stream which flowed beneath, and on the deep and ominous crevice which had occasioned all the alarm.

The crack was about wide enough at this time to admit a man's fingers, and it appeared to descend perpendicularly. No water issued from it, nor was any seen to come out of it at any time subsequently.

A conversation now took place amongst those who had come to examine the crack. One of the Mr. Ibbotsons said, "What do you say is the cause of this crack?" Mr. Fountain and Mr. Swinden said that they thought it arose from the inner part of the embankment, between the puddle wall and the water, subsiding a little, owing to the water penetrating it, making the top of the embankment incline over a little to the water. Mr. Ibbotson said, "If this theory be correct there may be no immediate danger." Mr. Fountain and Mr. Swinden both said there was no danger, and they continued to express this opinion almost up to the last.

Mr. Fountain sent his son, Stephenson Fountain, on horseback to Sheffield, to tell Mr. Gunson to come to the reservoir as soon as possible, as there was a crack in the embankment; and off the young man rode as fast as the darkness of the night, the fury of the tempest, and the mountainous nature of the road would permit.

Mr. Fountain and the men under him now set to work to adopt such measures of safety as appeared practicable. The double set of pipes for drawing off the water were both closed, and the water was a few inches below the level of the waste weir. It was a work of great labour to open the valves, which were situated at the bottom of the embankment, of course on the outside. Four or five men were nearly half an hour in opening the pipes, which they did by raising the sluices by means of a screw. The tremendous pressure of the water no doubt rendered the operation very difficult. The noise and tremor of the pipes when the sluices were being lifted are described as being terrific. The ground shook and trembled, and the water roared as it rushed out of the pipes with a noise like the discharge of artillery.

After the pipes were opened, the crack was again examined, and no change in it was noticed; but it was observed by Mr. Joseph Ibbotson, that the water seemed considerably lower on the inner side of the embankment than the crack on the outer side. The darkness, however, would render it very difficult to come to any certain conclusion on such a point. The water could not have been escaping at this time, except through the opened pipes, because the concurrent testimony of all parties goes to show that there was no considerable rise in the river till some two or three hours afterwards.

Between nine and ten o'clock, most of those who had gone to examine the crack returned home, on the assurance of the contractors and workmen that there was no danger.

Meanwhile, young Stephenson Fountain was on his way to Sheffield to fetch the engineer. When he reached Damflask, about two miles from the reservoir, his horse's saddle-girth broke, and in order to get it repaired he had to alight at the Barrel Inn, kept by Mr. Jonathan Ibbotson. While waiting at the inn for a few minutes, young Fountain mentioned that there was a crack in the embankment at the reservoir, and that he was going to Sheffield to inform Mr. Gunson. The report was at one time current that young Fountain was specially sent to Damflask, and down the valley to warn the inhabitants of an expected inundation. But from inquiries made upon the spot, the conclusion at which the writer of these pages has arrived is, that neither young Fountain, nor any other person, was sent to Damflask or elsewhere to warn the people, until the embankment was just about to burst, or

had actually bursted, as will be hereafter mentioned. At the village of Lower Bradfield, most of the families were aware that there was a crack in the embankment, and that there was more or less danger. They had heard the news not from any special messenger, but from the Ibbotsons, and the other residents at Bradfield who had been up to the dam, and who had afterwards returned home. The few residents between Lower Bradfield and Damflask never received the slightest warning, and had no intimation whatever of any danger. At Damflask the warning was accidental, and arose from the breaking of the saddle girth of young Fountain's horse, as already mentioned. Had that not occurred, it is probable that young Fountain would have passed through Damflask without saying anything about the crack, because at that time neither he, nor the other contractors and workmen had any idea of what was about to occur. However, the news spread at Damflask, and thence for some distance below, and, as will hereafter be related, good use was made by some of the inhabitants of the warning which they had received.

After young Fountain left Damflask, it does not appear that he again stopped, or that he made any communication whatever to the people who lived lower down the valley. For this he is not to be blamed, as his business was to go to Sheffield for Mr. Gunson, and not to raise the cry of danger, which he did not believe was at all imminent.

#### THE NIGHT JOURNEY TO THE RESERVOIR.

Between half-past eight and nine o'clock on the Friday night, Mr. Gunson received the message, brought by young Fountain, that he and Mr. Craven, the contractor, were to go up to the reservoir immediately, because one of the men had observed a crack in the embankment. Without loss of time a gig was got ready, and Mr. Gunson and Mr. Craven started off with all speed on their eventful night journey to the reservoir.

They are not long driving through the streets of the town, and now they are on the high road leading to the river. As they pass the barracks, the sentry comes out of his box, and looks to see who are they who are travelling in such haste on this stormy March night. Now they cross the bridge over the Loxley at Hillsbro'. They glance hurriedly up the stream, but notice nothing different from what they have observed on some previous occasions. The waters are dashing rapidly over the rocks, and the white foam on the crest of the waves glimmers out through the darkness. The wind comes howling down the valley almost with the force of a tornado and the travellers bend down their heads to escape its full fury and to steady themselves in their vehicle. Now they reach the village of Malin Bridge, which is reposing in quiet, except that the cottager's dog comes out to bark at the travellers whose gig makes such a terrible rattle over the rough and uneven road, and except that a group of jovial bacchanalians may be seen through the windows of the Stag Inn, which, in the course of three short hours, will be swept from the face of the earth.

The travellers now ascend the hills to Loxley and on towards Damflask. Ever and anon they glance upwards to the sky to see if the storm is likely to abate, but all they can notice is the clouds drifting sullenly along, while the young moon, only three days old, is now and then visible, like the thin edge of a burnished scimitar, amid the darkness which its feeble rays are not strong enough to relieve or dissipate. As the travellers proceed they look down into the ravine where the water flows like a silver thread between the hills and woods which rise darkly on

each side. All that can be discerned is here and there a flickering light in some of the grinding wheels or rolling mills, where industrious workmen are engaged in their nocturnal labours, heedless of the tempest, and singing catches of song to cheer the dreariness of the scene. Now the gig descends the steep hill to Damflask, and as they pass through the village the travellers notice an unusual commotion. People are seen moving about on the roads, some driving their cattle up the hill sides, and some carrying away in carts those who are unable to walk; for the inhabitants have received warning that a flood might be expected during the night. Very soon Bradfield is reached, and there too lights are seen in some of the windows, and the inhabitants are astir, notwithstanding the coldness of the night and the tempest which blows down the valley.

It is about ten o'clock, and the travellers come within sight of the embankment of the reservoir. They can just trace its dim black outline, and see lights moving about on its outer side. Now they are met by a labourer who is on his way home, and who tells them it is a false alarm, and that the dam is all right and safe. Nevertheless, they proceed onwards, and soon reach the dam, where they find a number of workmen engaged, by the light of lanterns, in inspecting the outer side of the embankment.

#### THE FLOOD. — THE BURSTING OF THE DAM.

Mr. Gunson and Mr. Craven, with all speed, hasten to the spot where the flaw had been discovered. They see the crack, which is wide enough to admit a man's hand, but still they do not apprehend danger. Such is their confidence that they walk right across the embankment over the spot where the crack occurs. They are now on the very centre of the bank, and if the dam bursts while they are there, they must inevitably be swept away and carried far down the valley. However, they cross over in safety, and reach the waste weir on the opposite side. The water does not run over, which shows that the dam is not yet filled to its utmost capacity.

Mr. Fountain says to Mr. Gunson, "If we don't relieve the dam of water there'll be a blow up in half an hour." Thereupon, as a measure of precaution, Mr. Gunson decides to diminish the pressure of water by blowing up the weir with gunpowder. The gunpowder is brought, and is deposited in a hole made for the purpose in the masonry of the weir. A train is laid, the match is applied, and all run out of the way of the expected explosion. For some reason the powder does not ignite. Perhaps it is wet, or perhaps the darkness has prevented it being laid in a proper manner.

Before making another attempt, Mr. Gunson and Mr. Swinden go back with lanterns to the crack to see if it shows any symptoms of enlargement. They try to measure from the top of the embankment to the crack to ascertain if it is above or below the surface of the water in the reservoir. Mr. Gunson stoops with a lantern to examine. All seems to be about as before; but when they get to the end of the crack, Mr. Gunson raises his head, and just as he does so he sees that the water is foaming, like a white sheet, over the embankment. It comes down to Mr. Gunson's feet, and drops down the crack. Mr. Gunson still thinks there may be time enough to examine the valve house to see what quantity of water is escaping, and to get there he creeps down the slope of the embankment as cautiously as possible! Mr. Swinden, with more foresight, sees that it is dangerous to remain in the valve house a moment longer, and calls upon Mr. Gunson to come out instantly. Mr. Gunson comes out, and no sooner does he cast his eyes upwards than he sees an opening, about thirty feet wide, at the top of the embankment, and the water

rushing out in an immense stream . The catastrophe is now inevitable. Mr. Gunson exclaims to his companion, "It's all up, the embankment is going !" In an instant they run across the embankment to escape for their lives. Just at this time they hear a loud explosion, caused by the going off of the charge of powder intended to blow up the waste weir. The water is now gushing forth in a huge volume, and seems to be following so rapidly and fearfully on their track as somewhat to bewilder Mr. Gunson; but his companion, with great presence of mind, seizes hold of his friend, and drags him out of the path of the water. All this occupies but a moment. The chasm extends, the centre of the embankment sinks, and the pent up flood of one hundred and fourteen millions of cubic feet of water, rolls like an avalanche down the valley, with a noise like thunder, and sweeps before it houses, mills, men, cattle, trees, rocks, and whatever impedes its march of destruction and death.

"All in a moment, crash on crash,  
 From precipice to precipice  
 An avalanche's ruins dash  
 Down to the nethermost abyss;  
 Invisible, the ear alone  
 Follows the uproar till it dies;  
 Echo on echo, groan for groan  
 From deep to deep replies."

The time when the waters burst the embankment was a few minutes before midnight —

"At midnight, when mankind is wrapped in peace And worldly fancy feeds on golden dreams."

There does not appear to have been any gradual escape of the waters, but a sudden and overwhelming rush. Some of those who saw the flood say that after the first avalanche, there was a second terrific burst, as though an additional portion of the embankment had been carried away a few minutes after the first breach had taken place. As the gap was at least one hundred and ten yards wide at the top and seventy feet deep, it would not take very long to empty the reservoir. It has since been calculated that the velocity of the flood was eighteen miles per hour, and this rate would empty the reservoir in forty-seven minutes. The force of the water was tremendous and almost inconceivable. The velocity of the flood was awful, and, to use the words of Mr. Rawlinson, the Government inspector, after the dam burst, "Not even a Derby horse could have carried the warning in time to have saved the people down the valley."

#### THE FIRST NARROW ESCAPE. — ANNETT HOUSE.

The flood dashed down the valley for about three quarters of a mile without doing any particular damage, there being for that distance no houses near the bed of the river. nevertheless, the force of the inundation is very apparent even here where it had not acquired the velocity it gained further down the valley. Trees are torn up by their roots, and carried down the stream. The sides of the valley are washed away, and huge rocks torn off and borne down the gorge.

One stone which has been thus dissevered from the mountain side, or torn up from the river bed, is supposed to weigh nearly sixty tons, and of course it still lies in the bed of the stream, where it will probably remain. This stone is 36 feet long, 9 feet broad, and in some parts 3 feet thick. The water has undermined the road, and a considerable portion of it has slipped down into the valley, so as to be quite impassable. Annett Bridge, built of stone, was carried away.

The first human abode which the flood reached was the small farmstead of Mr. John Empsall, called Annett House. It was situated quite in the valley, and near the course of the river. It is swept away so completely that no one could tell that its site had even been occupied by an erection of any description. House, out-buildings, and garden are all entirely gone. The inhabitants happily escaped, in the following manner, as narrated to us by Mr. Empsall himself. The following is his own statement:—

About seven o'clock on Friday evening I went to the dam, as I had been told there was a crack in the bank. The people there said there was no danger—it was only a frost-crack, and I came away. My wife, my three boys, and a lodger named William Rose, who works for the Water Company, went to bed. I sat up, because I had promised to wait for another lodger who works for the Company, and he did not come. A little before twelve at night, Thomas Fish, a labourer, who also works for the Company, came running down, and shouted "It's coming ! It's coming !" He said Mr. Gunson had sent him. I called up my wife, my three children, and the lodger, and got them out. 'they had not time to put on their clothes, but they carried them on their heads, and put them on when they got on to the road. The night was dark, very windy, and very cold. I had a cow and two calves, which I got out. The pig would not come out in time, but it and the donkey were found safe the next morning on the bank side, where they had been carried by the flood. We had not been out of the house five minutes when the flood came, and swept everything entirely away. My wife slipped down and hurt her knee. I saw my house going with everything in it. Mr. Gunson came just then, and said: "The house is going ! the house is going."

#### THE DESTRUCTION AT BRADFIELD.

At Lower Bradfield the destruction of property was very Considerable. A good stone bridge, near the Wesleyan Chapel, was completely carried away, as was also another strong Stone bridge a little lower down, and called the School Bridge. The blacksmith's shop of Mr. Elliott was destroyed. Mr. Joseph Ibbotson's corn mill, a three-storied building, built with heavy ashlar stone in the lower part, resisted the flood until it reached the roof, but it was ultimately swept down, not a vestige being left to mark its locality. Its owner saw the water rise around it, and the roof peering just above the top of the flood; but when he looked again just as the water subsided, the mill was gone with all the valuable stock of corn and flour which it contained. A wheelwright's shop, occupied by William Wilson, was much damaged. A large school room, and a new two-storied stone-built schoolmaster's house, were swept away entirely from the face of the earth. The school premises had been partly rebuilt only the summer before at a cost of £260. A farm house, occupied by Martin Hawke, was also completely demolished. The destruction at lower Bradfield is so thorough that the rock is torn up from under the foundation of the buildings.

#### THE FLOOD AT BRADFIELD DESCRIBED BY AN EYE-WITNESS.

The following is a description of the Flood as given by Mr. Joseph Ibbotson, of Bradfield. He says: My house stands fifty or sixty yards from the mill, on rocky ground, higher than the roof of the mill, facing across the valley. On hearing a noise and a shout "The flood is coming !" I instantly leaped out of bed, and looked

out of the window, from which we have a view of more than a mile of the river's course. I could hear the roar, and just discern the rushing water up the valley. At this moment the water was passing over our mill weir in its ordinary course. The bridges and the buildings adjoining the river were all standing. I ran out of the house down to within fifteen or twenty yards of the flood. Language cannot convey any just description of the awful thundering, crashing roar of the torrent. It was as if the earth itself was being rent asunder by the impetuous stream, which appeared from floating objects to rush along at 3 racehorse speed down the centre of the valley. I fondly imagined and repeatedly exclaimed, "This must be a wild dream; it cannot be reality." It seemed as if the bowels of the earth were being torn up, or as if some unheard-of monster were rushing down the valley, lashing the hill sides with his scaly folds, crunching up buildings between his jaws, and filling all the air with his wrathful hiss. Trees snapped like pistols, mills and houses stood and staggered for a moment, and then disappeared in the boiling torrent. Within the short space of five minutes, the bridge, the triple-storied mill, the school-house, and the master's house, were standing unharmed, and before the minutes were out they had all vanished. The flood swept by in all its majesty—a mighty wall of water running on a level with the roofs of the three-storeyed buildings it demolished, and sweeping away everything in its path so completely that not a trace of the well-built bridge remains, and of the large millstones and massive ashlar pillars of the Bradfield mill not one has yet been found.

#### THE ALARM AT BRADFIELD.

It has already been mentioned that several of the inhabitants of Bradfield went to the reservoir on Friday evening to see the crack; but on the assurance of the contractors and work-people that there was no danger they returned home, and most of them retired to rest as usual, though perhaps not without some misgiving. One of those who saw the crack was Mr. William Ibbotson, and he appears to have been the only one who apprehended immediate danger. At about nine o'clock he said to a neighbour, "I can't learn that this cracking in a new embankment is a common thing. Danger or no danger I don't go to bed; I shall keep my clothes on, ready for off." A little before twelve o'clock, when the wind was roaring tremendously, William Ibbotson heard some labourers shouting. At first he thought it was only a drunken freak; but he listened again, and went out to see what was the matter. He then heard men shouting "It's coming ! it's coming ! look out !" There was no one in that house but himself. He immediately called up the neighbours, and helped to get them out before the flood came.

#### THE FIRST VICTIM OF THE FLOOD.

The first victim of the flood was an infant, only one day old, the child of Mr. Joseph Dawson, of Lower Bradfield, the village tailor. Mr. Dawson's house is the end one of a row at the bottom of the valley, about twenty yards from the bed of the river. Mr. Dawson was one of those who had been up to the reservoir to see the crack; but he had returned home, and gone to bed, in the belief that there was no immediate danger. The following is Mr. Dawson's own account of the loss of his child, and of the narrow escape of the rest of his family:— We had all been in bed about half an hour, when my wife awoke me, and said, "What is that noise ? What is that shouting ?" My wife had been confined only the day before, and she was

awake. I thought it was some men on the spree making a disturbance for fun, and I said so to my wife. I then jumped out of bed, and ran to the window. I heard some men shouting "It's coming ! it's coming, !" I ran into the back chamber and told my brother to take my eldest child, about four years old, to Mr. Joseph Ibbotson's on the hill, for, said I, "The dam's burst." It was the talk of the village the night before that the dam was going to burst. Of course my wife was in bed with the child, and incapable of any exertion, having, been so recently confined. I thought I could not carry my wife and child safely, so I ran for assistance. As I was going I met a man, and asked him to help me, stating the condition in which my wife was at the time. The man said, 'You must run for your life, and save yourself—I cannot assist you. I have enough to do to save my own life.' I then went back to my house, and ran upstairs, and told my wife that the water was coming, and that she must take the child in her arms and I would try to carry them both away. I had not time to dress, but I had managed to slip on my trousers. My wife took the child up, and I wrapped them both in blankets, and carried them down stairs, and out of the house. Of course my wife had nothing on but her night dress, and the weather was dreadfully boisterous and cold. I had carried my wife and child about twenty yards from the door when the flood met us, and knocked us both down, when we were between Mr. Gill's and Mr. R. Ibbotson's. We were both covered by the water, and I was obliged to let my wife go. I did not see the water before it knocked us down. I managed to get up, and again seized hold of my wife and child. My wife said "Turn back again to the house." I did so, and just as I got to the door the flood caught us again, and washed the blankets and my child away, and left my wife naked in my arms. I got my wife inside the house, and pushed her a little way up the stairs. I was obliged to leave the child to its fate, or I could not have saved my wife, for the flood was in the house. Directly after I had pushed my wife upstairs, and as soon as I had got up a few stairs myself, the flood, which had gone round to the back of the house, rushed in simultaneously both at the back and front, bursting open the back door, and the water met from both ways in the house. If we had been down stairs at that time escape would have been impossible. Even upstairs I did not feel safe. I opened the back chamber window, and tried to place a mattress across to connect the window with an embankment there is at the back of the house, whence we could get on to the hill-side out of danger. The mattress was too short to reach across and it fell down. I then shouted out for help. My brother, who had been to Mr. Ibbotson's, came to the window in a short time, along with Thomas Robinson. They brought a ladder, and laid it across from the window to the hillside. My wife was still undressed, but I put her out of the window, and she was carried across and taken to Mr. Joseph Ibbotson's, where she was clothed, put to bed, and carefully attended to. The body of the child was found in the coal cellar a few days after. My house was six feet deep in water and was much damaged.

#### NARROW ESCAPE OF MR. AND MRS. NICHOLLS.

Mr. Nicholls was the village schoolmaster at Bradfield, and occupied the school-house, which was situated with only a small garden between it and the river. Mr. Nicholls had been to see the crack in the embankment, but on the assurance of Mr. Fountain that there was no danger he went home again. Mr. Nicholls was anxious to go to bed, but his wife was not wishing to do so, as she thought there might be danger. After they had been sitting in the house for some time Mrs. Nicholls said, "Let us go out and see if the river is increasing." They went on to the School Bridge, close by. That was about five minutes before the

flood came. They did not see much chance, but thought there was more water than usual. At that time, of course, the water was flowing through the two eighteen-inch pipes which had been opened. They returned into the house, and Mr. Nicholls said, "Now, Jane, let us go to bed." Mrs. Nicholls threw some coal on to the fire, and said, "I shall not go to bed till this fire is burnt down." They then walked to the window which looked out upon the river, and Mrs. Nicholls said, "I see the water's rising, it's getting up to the trees by our garden hedge." Just at this moment Mr. William Ibbotson came and "thundered" at the door, and called out, "Escape for your lives ! the flood's coming !" They rushed across the road, and up some steps into a field, Mrs. Nicholls going first. When Mr. Nicholls got to the bottom of the steps he recollected that he had left his overcoat in the house, and he ran back to fetch it. Mrs. Nicholls screamed out with fright when she saw her husband running back into the house, for as soon as she had ascended the steps into the field, she saw the flood coming in an immense volume many yards high. Mr. Nicholls secured his overcoat, and rushed back up the steps leading into the field on the hillside. As he got on the steps he felt the spray of the flood blown on to his face, Had he been one moment later he would have been swept away. The house and school, as already stated, were carried away with their very foundations, and everything in them, including all the books and educational apparatus of a school which accommodated about eighty children.

#### A REMARKABLE DREAM.

Amongst those who had narrow escapes at Bradfield was Mr. Richard Ibbotson. He removed five of his children to a place of safety some hours before the flood came. His house was flooded, and he had to carry his wife and child in blankets to the house of his brother. On the night before the flood his wife had a very peculiar dream. She dreamt that she was in a flood, and that she had a very narrow bridge to cross, but with great difficulty she managed to get across. It was in consequence of this dream that the five children were removed before the flood came. Mr. Ibbotson says that his clock stopped at two minutes past twelve, and that, as the clock was right to a minute, that was the time of the flood.

#### EXTRAORDINARY SCENE AT THE BRADFIELD MILLER'S.

The scene at Bradfield, when the flood came, is described as having been most extraordinary. Not only did those whose houses were within reach of the water rush out of their houses, but the whole population of Lower Bradfield turned out, in their night clothes only, shrieking and screaming, and running up the hills and fields, not knowing the extent of the inundation, or where safety could be depended upon. Probably such a scene was never before witnessed as the whole of the people of a village, men, women, and children, running about at midnight, almost in a state of nudity, and uttering such discordant noises as their fright and anxiety dictated. Many of them sought refuge at the house of Mr. Joseph Ibbotson, the village miller already mentioned. Here were assembled more than five families, some partly dressed, some in their night clothes only, and some in almost every stage of dishabille that can be imagined. Here were Mr. and Mrs. Dawson, a brother, and their eldest child; Mr. and Mrs. Nicholls; Mr. and Mrs. Gill and their child; Thomas Robinson, a labourer; Mr. and Mrs. Richard Ibbotson and their three children; besides the family resident in the house; making altogether about

thirty people. It is right to say that clothing was provided for such as required it, and everything was done to render them as comfortable as possible under the circumstances.

#### MISCELLANEOUS INCIDENTS AT BRADFIELD.

The house of Mr. George Hobson, at Bradfield, was a good deal flooded and damaged. In the house were Mr. Hobson, his wife, six children, and an old infirm man, named Benjamin Hobson. They had all gone to bed, and at midnight Mrs. Hobson heard a loud roar, upon which she said to her husband, "Oh dear, there's a dreadfully loud storm." Mr. Hobson jumped out of bed, looked out of the window at the water, and called all the family up. The water was five feet high in the house. The stables were knocked down, and one horse, one cow, and two pigs, were drowned. Five tons of turnips were also swept away. The family were unable to get anything to eat till something was brought by the neighbours, as they could not go into the lower rooms of the house in consequence of the presence of the water. Mr. Hobson had seen Mr. Ibbotson on the evening of the flood, and had been told that Mr. Fountain said that the dam was quite safe, so the family went to bed without anticipating danger. Mr. Hobson was at the dam at a quarter past eleven, and had only just got into bed when the flood came. The old man, Benjamin Hobson, had a narrow escape. He always slept on the ground floor, as he was too infirm to get upstairs. The water came up to his bed, and some of it went right into his mouth. He stood up with the water nearly up to his head, and at length managed to escape on to the stairs.

George Wilson lived near the river, with his wife and two children. He did not go to bed, but went to the Plough Inn. He was expecting the flood, and saw it coming, whereupon he ran to his house and took his wife and children out in safety. The house was partially destroyed.

Mr. Hartley lived near the river, with his wife and two children. When the flood came Mrs. Hartley said to her husband, "Come along, come along, let us be saved." He refused to leave the house, and said, "If it takes all I have it might as well take me too." Mrs. Hartley then went in her night dress only across the fields to the Plough Inn. The flood did not come quite up to Hartley's house.

#### A FARM HOUSE SWEEPED AWAY AND NARROW ESCAPES.

Martin Hawke, farmer, lived in a house by the river side, a little below Bradfield. Mr. Hawke's grandson had been told by Samuel Hammerton that the dam was likely to burst, and the grandson went on purpose to give his grand-parents warning. But they had a lodger who worked at the dam, and he said he had been there, and there was no danger. The lodger said the dam would not burst, and if it did it would give them warning. Mr. and Mrs. Hawke and four lodgers had gone to bed, but a little before twelve o'clock they were called up by George Smith. They dressed, and went out on to the hill-side. They had not been gone more than five minutes when the flood came, and swept the house and the outbuildings entirely away. Had not the inmates been warned in time they would assuredly have been all drowned. Their cow was carried down the river to Hillsbro', a distance of five miles.

THE OPINIONS OF THE BRADFIELD VILLAGERS AS TO THE CAUSE OF  
THE DISASTER.

As the inhabitants of Bradfield saw the dam during the progress of construction, and were well acquainted with the character of the strata in the locality, their opinions as to the cause of the disaster are deserving of great attention. From inquiries made upon the spot, we found that the general impression was that the foundation on which the outside of the embankment was built, was not good, and that it gave way, causing the earthwork to slip, thus weakening, the support of the water to such an extent that the puddle wall was pushed down by the pressure of the water. Some were also of opinion that the workmanship of the embankment was not good, and that the materials of which it was composed were too porous and destitute of solidity. The impression prevails in the district that the engineers were aware that the foundation was defective, but that they resolved to run the risk, as so much money had been expended.

Upon this part of the subject we quote the following letter written by Mr. Joseph Ibbotson, of Bradfield. He says:—

“In the first place I will try to explain as well as I can the extent of this slip, and its situation with reference to the site of the embankment. Very shortly after passing the farm homestead on the right, immediately below the reservoir, the high road enters on this slip and crosses it diagonally a distance of some hundred yards, until it reaches opposite the north end of the embankment. Standing on the road below the huts facing up the valley to the right, there is abundant evidence of disturbances by slips for perhaps a third of a mile, and below right down to the river bed, the effects are clearly visible, where the moving material has formed a natural but very treacherous embankment, nearly across the valley.

“This portion of ground is included in that purchased by the Company, and I believe the engineers proposed in the first instance to sink their puddle trench and form the embankment across this part of the valley, but on testing it by sinking a shaft, it was found very much to resemble a mass of shifting quicksand, and in consequence they moved higher up, and commenced cutting the puddle trench in solid rock, a short distance above the higher margin of the land slip.

“In cutting and blasting through this rock to form the trench, they had an immense quantity of water to contend with, which issued from fissures in the rock; keeping two steam engines and three pumps at work day and night during the progress of the work.

“When they commenced cutting this trench, a considerable spring of water was rising through the bed of the reservoir some distance higher than the site of the embankment. During its progress this spring ceased to flow. I think it probable that this pumping incessantly for so long a period might drain off the water from the measures from a long distance up the valley and the adjoining hill sides.

“My brother Richard along with myself were in the bottom of the trench the day they commenced puddling. The greater portion of the trench was composed of solid impervious rock. But in one part, near to where the pumps were at work, a strong spring of water rose through the bed of the reservoir and continued to flow.

“May we not presume from this fact, that there was a communication between the water in the dam and the bottom of the puddle trench, where the spring arose. Supposing this to be the case, may I ask the engineers to calculate the amount of hydraulic pressure brought to bear against the puddle in this part from the eighty feet of water and sixty feet depth of puddle trench as well as from the

unknown distance and height up the valley from where the water was drawn by pumping.

“Another important fact, well known here, but which I have not so far seen any inquiry into is, that a large spring of water issued from the foot of the embankment where the breach has occurred, and was conveyed away by a drain. Is it possible that this spring found its way from under the puddle through the narrow portion of rock severed by the cutting of the trench from the mass above, and into part of the loose earth and clay of which the slope consisted, and on which the outer part of the embankment rested ?

“In my opinion, it was a great engineering error to place any part of this immense embankment on such a basis, as I can easily imagine the weight of the material itself would be sufficient to cause the ground to yield under the pressure, independently of the water in the dam and the springs.

“I may allude to the plan adopted at the commencement of forming the embankment, viz., the “tipping” down from a great height, at each end of the bank, the material to form it, and forming a joining in the middle, which, from being less consolidated than the ends, would, we may suppose, be the weakest where the greatest pressure of wind and water would bear upon it.

“I visited the bank at daybreak the morning after the flood, which was then much different to what it now is. That part of the north bank which has settled down was then nearly level with the firm part, and the chasm had more the appearance of a clean cut out, and the opening was much deeper than now, which I think rather favours the supposition that the foundation has yielded here.

“On Saturday last I visited the place, and I found large fissures in the ground adjoining the road; and at the farm-house, some two hundred yards from the north end of the bank, the walls are cracked, and the stone door-head broken, and the flags in the floor are sinking in one part perpendicularly, as if one part of the buildings was standing on the solid and the other on the shifting ground.

“I also made inquiry as to whether any crack had been observed between the house and the dam previous to the bursting. I understand that several months previously a large opening appeared along the high road between the huts and the farm house, sufficient to admit a man’s leg, which was repeatedly stopped with sods.

“The question whether the present embankment is properly puddled and laid together, I leave for others better qualified to decide; but I think no great engineering skill is requisite to satisfy any person possessing common sense that the best-formed embankment that engineering skill can devise, and human labour put together, if placed on a yielding foundation, cannot be safe.

“From what I have seen and felt of the power of a gale of wind blowing down the length of the reservoir, at an elevation of ninety feet, I certainly should not feel confidence in an embankment of similar construction and strength to the present one resisting the pressure, though placed on the best possible foundation.

“I saw nothing when assisting to draw the valves in the pipes under the embankment to lead me to suppose they have burst or leaked at the joints so as to cause the breach, though I by no means think it safe to place the outlet pipes in such a position.”

## BELOW BRADFIELD.

Below Bradfield the high road is swept away for a considerable distance, the rocks are torn up, and many huge stones lie scattered about the bed of the river. There are several extensive land-slips, and in some places the hill sides are washed away.

## ROEBUCK HOUSE. — EXTRAORDINARY ESCAPES.

At the foot of a steep declivity, embosomed amid trees, lies what is called Roebuck House. It is situated about a mile below Bradfield, and half a mile from Damflask. It consisted of two stone cottages, with the usual out-buildings of a small farm. In one of these cottages resided William Marsden, his wife, and a child about two years of age. They had no warning whatever of the approach of the flood, and were all in bed at the time when it swept down the valley. Mr. Marsden, hearing a strange noise, got up, and had just returned to his bed when the water crashed in the house with a noise which he describes as resembling thunder. He said to his wife, "We shall all be drowned." At this time the water had burst into the house, and was rising up into the bedroom. Mr. Marsden, with great presence of mind, broke a leg off the dressing table, and with this improvised instrument knocked a hole through the ceiling of the bedroom. He then got up the hole, and thence escaped to the roof of the house. His wife, standing upon a table in the room, threw the child up to him. He caught it in his arms, and carried it into a wheat field on the side of the hill, where it was out of danger. He then returned to the rescue of his wife, pulled her up the hole in the ceiling, and carried her also to the field already mentioned. As the ground here rises very rapidly, the roof of the house, and the hill side are nearly upon a level, so that there was no difficulty in escaping from the roof to the field beyond, and there they remained in safety until they were able to proceed higher up the hill to the Rock Farm, where they were comfortably accommodated for the rest of the night. Of course they had no time to dress, except that Mr. Marsden just slipped on his trousers, and his wife threw over her some garment which was nearest at hand. Their condition and the sufferings they endured, when exposed to the cold blast of the rough March wind as they stood up on the roof of their house in the darkness, and as they trudged up the hill side, may readily be imagined. Had they remained in the house, it is hardly possible that they could have escaped with their lives. Their house was greatly damaged, a portion of the farm building was destroyed, and some domestic animals were drowned. One large pig was saved. Its sty was swept away, but the sagacious brute found its way up the hill side sooner than its owner, who found it there, alive and well, when he bore his wife and child to that place of safety. The foot-bridge at this place was of course entirely swept away.

In the other cottage lived Mr. Tittcomb, his wife, two sons, and four lodgers. When the flood came, Mr. Tittcomb broke a pole off the bedstead, and made a hole in the ceiling, through which all the inmates escaped on to the roof, and thence to the hill side. One of the lodgers, in jumping off the roof, fell to the ground, and was somewhat severely hurt, but not so seriously as to be unable to walk up the hill along with the others who had made their escape.

## DAMFLASK.

This village is situated on low ground, where several valleys meet, and it experienced the full force of the flood. The bridge, a good stone structure, connecting the two sides of the valley, and over which there was a large amount of traffic, was entirely swept away. The Barrel Inn, occupied by Mr. Jonathan Ibbotson; a cottage behind, occupied by Mr. Joseph Walton; the house of Thomas Kirk, and that of Henry Horsfield, were entirely destroyed, and scarcely a vestige remains to mark the spot where once they stood. The river here has shifted its bed a considerable distance, and the stream now flows over the site of some of the houses destroyed. Huge stones are scattered about, having been torn off from the rock on the banks of the stream, and carried down by the force of the flood. Some of the stones would weigh eight or ten tons at the least.

## THE WARNING AT DAMFLASK.

The circumstances under which the inhabitants of Damflask were warned of the approaching danger have already been mentioned. Young Stephenson Fountain, when on his way to fetch Mr. Gunson broke the saddle-girth of his horse, and stopped at Damflask to have it repaired. He was asked the nature of his errand, and he replied that there was a slight crack in the embankment, and he was going to Sheffield to fetch Mr. Gunson. Upon this Jonathan Ibbotson, the landlord of the Inn, went round to the neighbours and warned them. He also sent word to Shaw's mill, a little lower down the valley. Afterwards Jonathan Ibbotson sent two men up to the dam on purpose to inquire as to its condition, and they came running back saying that it was sure to burst.

## EXTRAORDINARY ESCAPE AT DAMFLASK.

One of the houses swept away at Damflask was that of Mr. Joseph Walton, which was situated just behind the public house. His wife had a very narrow and extraordinary escape. She had two children, the eldest not being two years old, and the youngest having been born only four or five days before the flood. Mrs. Walton was of course confined to her bed in a very weakly condition. Her husband received notice between seven and eight o'clock that the flood was coming, and he went for a cart and horse to take his wife away. The neighbours said it would kill her to take her away in a cart, and she herself was unwilling to go, and said, "You might as well let me go down in the flood as kill me in taking me away." The cart, however, was fetched, and at about twelve o'clock Mrs. Walton and her children were put in it on a bed, and conveyed to a place of safety. They had not been gone more than ten minutes, when the flood came, and swept the house away entirely.

## A NEGLECTER OF THE WARNING DROWNED.

In the house of Thomas Kirk, at Damflask, lived Henry Burkinshaw, better known as "Sheffield Harry." He was a labourer employed at the Agden reservoir of the Sheffield Water Works company, and he had lived at Damflask about three weeks. He had that day been working at the Agden dam, and when he was told that the Bradfield reservoir was going to burst, he laughed at the idea, and did not believe

it. He went to bed at his usual hour. Just before the flood came he was aroused by the other inmates of the house, but he said he believed it to be all false, and he would not get up for anything. In a few minutes the water poured down the valley in a mighty volume, and "Sheffield Harry" was again called to escape for his life. The men shouted, and the women screamed, but "Sheffield Harry" said he did not care. He got out of bed, however, and had just put one stocking on, when the flood came, and swept the house and all it contained completely away. The body of "Sheffield Harry" was found next morning, about half a mile below, in a frightfully mutilated state. The river has here changed its bed, and now flows over the very spot on which "Sheffield Harry" lived.

#### HOW AN OLD WOMAN SAVED HER CAT AND DOG.

Mrs. Kirk, with whom "Sheffield Harry" lodged, had a very narrow escape. She had also gone to bed, but got up at once when the warning was given, and hurried out of the house and across the bridge, with nothing on but her night dress. At this moment she recollected that her cat and dog, both favourite animals, were in the house. She ventured back to fetch them, and returned across the bridge with the cat under one arm and the dog under the other. She had not been out of the house more than a minute or two when the house and bridge were swept away.

#### HOW THE DAMFLASK MILLER SAVED HIS COWS BUT DID NOT SAVE HIS CORN.

At Damflask lived Mr. Joseph Hobson, the village miller. His mill was situated close to the river, and his house some thirty or forty yards on one side. He heard that a young man had gone for Mr. Gunson and Mr. Craven, and he also saw those gentlemen when they were on their way to the dam. Mr. Hobson took the alarm, and made the best use of the time from ten till twelve o'clock at night in preparing for the expected flood. He first went down to his mill, and drew up all the sacks of corn and flour from the ground floor on to the chamber, thinking that the flood could not possibly reach so high as the second story. He then went home, and took his wife away to a place of safety higher up the hill, and also drove his horse and two cows to a place where they would be out of danger. When the flood came, it washed the mill and all its contents entirely away, so that the miller did not save his corn although he had raised it to the upper room. His cows and horses, and his wife, were, however, saved, through his timely precautions. The house was flooded to the height of six feet, and was considerably damaged. A drain which led from the house to the river was torn up with great violence, and in an extraordinary manner. A pig, weighing twenty-seven stones, was drowned in its sty, and a large fitch of bacon was carried out of the cellar along the drain and washed away. The garden was swept off, and a large hole, many yards in diameter, and about twelve feet deep was formed in the ground by the action of the water. Many similar holes were to be seen in the course of the river, and it could hardly be believed that they had been formed by the flood, though that such was the case was beyond all doubt. Probably the action of the water was like that of a whirlpool, and was caused by some obstruction, or by the water working its way underneath the soil.

## THREE MEN AND A BOY DROWNED AT A WIRE MILL.

A little below Damflask is the wire mill, occupied by Messrs. Shaw and Co., and the property of Mr. Tasker, of Sheffield. Here it was usual to keep up work all night, and at the time of the flood three men, named John King, Charles Platts, and William Longden, and a boy named John Ibbotson, were engaged in the mill at their ordinary occupation. Part of the mill was swept away, and all four were drowned. As there was no one beside themselves at the mill that night, no particulars as to how they met their fate can be ascertained; but there is little doubt that they were at work in an upper room, which was partly destroyed. Had they had the presence of mind to run to the other end of the room, they would probably have escaped, as that part of the building did not sustain much damage. Most likely they were taken quite on a sudden, and had not time even to think what was the course most proper to be adopted.

Mr. Shaw's house is situated on the hill, and sustained no damage. On the evening before the flood came, a man went to Mr. Shaw's, and said that the news had been received at Damflask, that the dam was going to burst. Mr. Shaw then went to Damflask, and saw "Sheffield Harry," who said he had been to the dam, and it was all safe. Mr. Shaw then went home, and went to bed, believing that there was no danger.

About a quarter of a mile below the mill might be seen the large boiler, about eighteen feet long, in the middle of the stream, where it had been deposited, after being carried down by the flood.

A little lower down was the Stacey Grinding Wheel. It was completely swept away, and no trace of it was to be seen, except the foundation stones and the water wheel. No one was working there at the time of the flood.

## STORRS BRIDGE.

We next reach Storrs Bridge, where was a forge for making and rolling steel, about half a dozen houses, and a brick kiln. The latter belonged to Mr. William Crapper, and consisted of kilns, a large shed, in which was a boiler of considerable size, a large stock of bricks, and various appurtenances. Part of the buildings were in course of construction, and were not quite finished when they were washed away by the flood. The whole place was completely carried away, and all that could be seen after the disaster was the large boiler, which had been carried some distance down by the force of the water.

On this side the stream was Storrs Bridge Forge, the property of Mr. Benjamin Tingle, of Grenoside, and occupied by Messrs. George and John Dixon. These works are extensive, and the machinery very costly. The damage here was smaller than at any similar place on the river. Nevertheless, the goit was ripped up and filled with rubbish, and the machinery injured. The dam itself was not destroyed. The works were stopped for about three weeks in which time all necessary repairs were executed, and operations were then resumed.

The half dozen houses which are situated here were flooded and the furniture damaged, but not seriously. One of the inmates described to us the approach of the flood. When it came he thought it was a storm. It came suddenly and quickly, and the water subsided rapidly. It had settled down in about twenty minutes.

The scene here after the flood was one of great desolation and ruin. Huge stones were scattered about, and trees torn up by their roots lay in and near the

stream, some embedded in the mud, and others covered with hay and rubbish of every description.

#### LOXLEY OLD WHEEL.

The Loxley Old Wheel is situated amid a scene of romantic beauty, the hill sides being crowned with trees, and several rivulets flowing down to join the Loxley. The Old Wheel and the adjoining buildings are the property of Samuel Newbould, Esq., and are, or were, occupied by Messrs. H. and E. R. Denton, and also by Mr. Higginbottom. Messrs. Denton's tilt and forge was greatly damaged; the goit was knocked down, the water wheel smashed, and the machinery displaced and injured. A waggon, which contained three tons of coal, was broken. The stable was knocked down, and two horses were drowned; a third horse escaped by swimming.

The grinding wheel here occupied by Mr. Joseph Higginbottom was greatly damaged, and a good deal of machinery spoiled.

Two rows of stone houses were considerably injured. The inmates were placed in great peril, as the flood reached to the chambers in which they were sleeping. They all got up, and were in great distress till the morning light enabled them to ascertain that there was no further danger.

#### SHOCKING DEATH AND PERILOUS ESCAPES.

At the Loxley Old Wheel one life was lost, and several others were placed in imminent peril. When the flood reached this place, at three minutes to twelve, Joseph Denton, aged 14, son of Thomas Denton, one of the occupiers of the forge, and also his brother John Denton, aged 11, together with a man named Robert Banner, were working at the tilt, where it was usual for work to be kept up all night. The flood came upon them without the slightest warning, and only making a noise like a rushing wind; it burst open the doors, and knocked them all down. Banner managed to climb up the chimney, thence he got on to the beams, and made his way to a skylight, through which he escaped on to the roof. John Denton got up the shuttle pole, and stuck to it till the flood subsided a little, and then he escaped on to the roof of the building. Joseph Denton was not so fortunate; he was carried down the stream and drowned.

A wooden bridge which here crossed the river, was swept away. A haystack belonging to Mr. William Bancroft, was brought down from the Stacey Wheel, a distance of one mile, and deposited in the dam of the Loxley Old Wheel. The stack was entire and unbroken, as though it had been built in the centre of the dam. A pony in a stable here had a narrow escape. The stable was nearly full of water, but the pony managed to stand or swim with its head above the water. On the other side of the stream the fire-brick works of Mr. Thomas Wragg were washed away, with all the stock of bricks, sheds, kilns, and other appurtenances.

#### ROWELL BRIDGE.

The next place in the course of the flood was Rowell Bridge, which is situated at the foot of a steep hill, and where the water seems to have swept along with great fury. The grinding wheel of Messrs. Darwin and Oates was completely swept away, not one stone being left upon another to mark its position. The grinding

wheel of Messrs. Elliott and Pitchford shared a similar fate, except one portion which is left standing in a ruinous condition. About sixty persons were employed at these grinding wheels; all their tools were carried away, and they themselves thrown out of work.

The bridge over the river was completely washed away, the bed of the stream torn up, and large stones were scattered about in the utmost confusion.

#### AN INDUSTRIOUS GRINDER WASHED AWAY.

At Rowell Bridge Wheel was employed a grinder named Wm. Bradbury, who, being anxious to make a good wage on Saturday night, had stopped behind his companions, and was working all night. The last man, except Bradbury, had left the wheel at half-past eleven, only half an hour before the flood came, and another had left at half-past ten. No one saw what became of Bradbury, but he has not since been heard of, and there is no doubt he was carried away by the flood. His body has not been recovered, or at least it has not been identified.

#### EXTRAORDINARY ESCAPE OF A FAMILY.

At Rowell Bridge is the Inn which takes its name from the place, and which is kept by Mr. John Waters. Part of the building is also used as a flour mill. Mrs. Waters, in the middle of the night, was awoken by the roar of the advancing flood, which, she says, sounded like a clap of thunder. She awoke her husband, and the inmates of the house. The water had burst through the doors and windows, and filled the house up to a considerable height. There was no time to dress, and, just as they were, the inmates all escaped through a door which leads from the house to the flour mill thence they proceeded to a hayloft, and got on to the roof. The buildings being situated at the foot of a steep hill, they easily escaped from the roof to the hill side, ran up the hill, and sought shelter at a neighbour's house. There they dressed themselves, as best they could, got some refreshment, and went back to see what was the condition of their own habitation. This was about one o'clock, and as they were going, down the hill, they were met by a grinder named John Stanley, who asked them for a light, and said he was going to work at the wheel where he had left Billy Bradbury. Poor Billy Bradbury had been swept away, and had John Stanley been one hour sooner, he would probably have met a similar fate. Mine host of the Rowell Bridge Inn had three twenty-four gallon barrels of beer washed away, beside which the house and mill were much damaged. In the stable were two pigs; one of them was drowned in the place, and the other was carried down the stream a mile into a wood, where it managed to swim to shore, and was afterwards discovered by its lawful owner not much worse for the adventures of the night.

#### OLIVE PAPER MILL AND WHEEL,

The next point is the Olive Paper Mill, the property of Mr. Woodward. The mill is considerably damaged, some of the machinery spoiled, and a vast quantity of paper swept entirely away. For miles below, after the flood, the banks of the river were strewn with paper which had been washed out of this mill. Mr. Woodward's house and garden adjoin. The house, though situated at some little height on the hill, was entered by the water, and flooded to a considerable extent. The garden and grounds

were greatly damaged, and many choice plants in the conservatories were destroyed.

Here also were Kenyon and Hibberd's grinding wheels, which were swept away. Nothing remains to mark the spot, except the water wheels, which are embedded in sand. About thirty men were employed here; their tools were destroyed, and they are thrown out of work. No one was working here at the time when the flood occurred.

#### LITTLE MATLOCK.

We now reach Little Matlock, one of the most romantic and picturesque scenes in the neighbourhood of Sheffield, a place to which, it is said, Robin Hood and Little John used frequently to resort. At the bottom of the valley, near the bed of the river, were the tilts and forges of Messrs. Chapman, and of Mrs. Denton, and also a row of strongly-built and good-looking stone houses inhabited by the Chapmans. The grounds of Little Matlock, and the Rock Inn, lie above, on the precipitous and finely wooded declivity of a steep hill, a scene of beauty unsurpassed in the neighbourhood, and which in summer attracts thousands of visitors to enjoy the sequestered walks, to ramble among the rocks, or to descend into the beautiful valley where the river Loxley ripples and foams along in its rocky and shady bed.

It was at this point that the flood came down in all its fury, sweeping everything before it, and spreading out into the valley opposite to the Matlock crags. The bridges were washed completely away, trees were torn up by their roots, walls knocked down, and fields submerged beneath water and mud. Here the tilt and rolling mills of Messrs. Thomas and Daniel Chapman, and of Mrs. Denton, were completely destroyed; heavy masses of iron and machinery were torn from their places, broken into fragments, and scattered about in confusion. Very little remains to mark the spot where these works stood.

#### A WHOLE FAMILY WASHED AWAY.

In the middle of the valley stood a row of five good stone houses, and here unhappily occurred one of the most thrilling and melancholy incidents of the flood. The first of these houses was entirely washed away, not one stone being left upon another, except the top part of a chimney stack, which adhered to the wall of the next house. This first house was fortunately uninhabited at the time. Twenty loads of potatoes had been placed in it, and these of course were entirely swept away. The next house was occupied by Daniel Chapman, aged about 29, his wife, his young child, two apprentices, a child of his brother Henry, and a servant girl named Alatheia Hague. The whole of the inmates of this house were swept away and drowned. In all probability they were carried off while asleep, and without knowing what was the nature of the catastrophe by which they were overwhelmed. All accounts agree that the flood came in full force all at once, that there was no gradual rise of the river; but that a mighty cataract and avalanche swept down the gorge of the valley in one tremendous billow of mountainous height, which nothing could resist, and which passed away almost as rapidly as it came.

## A CHILD LOST AND MARVELLOUS ESCAPE.

The next house to Daniel Chapman's was occupied by his brother Thomas Chapman, his wife, four children, and a servant girl. They were aroused by the flood, and by the water rising in their bedrooms and lost no time in looking about for means of safety. Thomas Chapman, seeing that his son William was in danger of being carried out of the window by the flood, seized hold of him with all his might; but just at that moment a falling beam struck him on the abdomen, and compelled him to unloose his hold of his son, who was then swept out of the window before his father's eyes, and carried away and drowned. Thomas Chapman then broke a hole through the wall into his brother Daniel's house; but found that the inmates were all gone, and that the house was in ruins. In a short time a man named Harrison Marshall and a companion came to the rescue of Thomas Chapman and his family. The landlord of the Rock Inn at the top of the hill was up at the time, and says that he both saw and heard the flood coming. Marshall heard some one shout out, "The dam's burst, and they'll all be drowned." It was half an hour before Marshall durst venture over the water to Thomas Chapman's house; but at length he did so, and found them all in the bedroom, in their night clothes. Marshall and another man carried them on their backs, just as they were, across the water, and up the hill to the Rock Inn, where they stopped for the remainder of the night, and in the morning they were provided with clothes and refreshment.

## ONE TAKEN AND THE OTHER LEFT.

Two apprentices, named John Bower and John Denton (son of Mrs. Denton), were working all night at Chapman's wheel. Just before the avalanche of water came, Bower, had gone to the door for a breath of fresh air, when he heard the noise of the approaching flood. He called out to his companion, but could not go to his rescue, as the water was now rushing into the wheel. He ran up the hill to his house, and escaped; but young Denton perished at his post, and was next morning found buried under the ruins of the wheel at which he had been working.

The houses which we have mentioned as occupied by the Chapmans were much damaged, walls being knocked down, and doors and windows washed out. In a stable at the works was a cow; the stable was carried away, and the cow drowned. In another stable, where the water rose to the roof, were two horses, but they escaped by swimming with their heads out of the water.

FROM LITTLE MATLOCK TO MALIN BRIDGE. — DESTRUCTION OF  
WHEELS AND TILTS, AND TWO LIVES LOST.

Descending the stream from Little Matlock, the valley is some what narrow, and the sides, in most places, are rather steep, for the distance of about a mile and & half. In the bed of the river here there were no dwelling-houses, and only a few on the hill sides, most of them being out of the reach of the flood. There were, however, a succession of wheels and tilts, some of which were entirely destroyed, and all were more or less damaged.

Ashton Carr Wheel, just below Little Matlock, the property of Montagu Burgoyne, Esq., and occupied by Mr. J. Proctor, is entirely washed away. The next is the Green Wheel, occupied by Mr. E. Denton. This place stands on the hill side,

on somewhat high ground, and was very little damaged. It is about the only wheel in the valley that has escaped.

The next is what is called the Glass Tilt, belonging to Messrs. Wilson, Hawksworth, and Co., and occupied by Mr. Taylor. The damage here was very great, but no lives were lost. A man had been working in the place, but he had just gone out, and another man, who had to take his place, had not arrived when the flood came, but he was there a few minutes afterwards. Above the Tilt are a few small houses with gardens. The latter were flooded, but the houses escaped. A stable between the tilt and the river was swept away, but a horse which was in it was found, uninjured, in a field at the top of the hill about a hundred yards away from the site of the stable. Lower down was Mr. Thomas Harrison's Tilt and Forge, which was swept away, and its site was only marked by the water wheel, which was left exposed and surrounded by huge stones which had been brought down by the current. At this tilt two young men lost their lives, Joseph Gregory, aged 20, and Walter Booth, aged 16. They were working all night as usual, when the flood came and swept them away. Nothing further than that simple fact is or can be known, because no other person was there, and no one saw or heard them at the time they perished. The body of Gregory was found about half a mile below, but the body of Booth has not been recovered, or at all events has not been identified. Mr. Harrison, the occupier of the tilt, and who lives a little higher up, was awoke by the flood in the middle of the night, and immediately got up; but he could not get out of the house, much less do anything towards rescuing the young men in the tilt, because his house was flooded, and a good deal damaged.

Close to Harrison's Tilt was Broadhead's Wheel, which has disappeared entirely. The bed of the river widens at this point, and the rocks are torn up and scattered about in extraordinary confusion. Lower down is the Scythe Wheel, belonging to Mr. W. I. Horn. One part of the building is still standing, but the portion nearest to the river is knocked to pieces, the water wheel and ponderous machinery being laid bare, and massive iron castings being scattered about in the vicinity. The scene here is one that excites wonder. It could be hardly be believed that such masses of metal and of rock could have been tossed about like play-things by the force of the water.

Wisewood Works, also belonging to Mr. Horn, are or were a little lower down the stream, but they have been swept away completely, except that immense water, fly, and other wheels are to be seen in the ground half covered with the mud and the debris of the flood, looking as singular and out of place as the Sphinx partially submerged beneath the sands of Egypt.

Near Wisewood Works, amid other large stones, is one which attracted much notice. It is of immense size, and is supposed to weigh about twenty tons.

#### A FARMHOUSE SWEEPED AWAY AND ITS TEN INMATES DROWNED.

The fate of Mr. James Trickett and his family, forms one of the most melancholy and striking incidents of this sad narrative. Mr. Trickett's house stood upon a promontory near the junction of the rivers Rivelin and Loxley. It was a substantially-built residence and had extensive stables and outbuildings, all of stone. In front of it was a small lawn, and between it and the river Loxley were beautifully laid out gardens, containing fruit trees and ornamental shrubs. Mr. Trickett was a farmer of respectability and of some means, though not above working with his own hands at the operations of agricultural industry. He was well known in the neighbourhood, and was much esteemed for his various good

qualities. His family consisted of himself, his wife, his daughter Jemima, aged nearly 13, his son James, aged 11, and his son George, aged 5. In most of the lists published, it is said that he had four children who perished in the flood; but this is a mistake. The fourth child died about two months before the catastrophe which removed the rest of the family. There were also in the house at the time of the flood, Mr. Thomas Kay, aged between seventy and eighty; Mr. Joseph Barker, aged 27; two men servants, and one maid servant. This made the number in the house ten, and not one of these escaped to tell the sad story of that awful night.

The old man Kay was the father of Mrs. Trickett, and up to the day of the flood he used to live in a house of his own at View Fold, on the other side of the hill. On the Wednesday in the same week, he buried his wife, and, having no one to live with him or keep his house, he gave up housekeeping on his own account on Friday, and went to live with his son-in-law, Mr. Trickett. On the very same night the flood came, and swept him away. It is melancholy to think that his domestic bereavement and change of residence should have been so immediately followed by the loss of his own life.

The case of young Mr. Barker is equally extraordinary. He was the son of Mr. Barker, of Arbourthorne, Sheffield, and was in partnership with Mr. Johnson, at the Limerick Wheel, which is situated near Malin Bridge. Mr. Barker was a young gentleman of respectability and of very good business position and prospects. In order to be near the works he was obliged to take lodgings in the neighbourhood, and for two or three months before the flood he had been one of the inmates of Mr. Trickett's farmhouse, where he possessed comforts and conveniences equal to anything that could be obtained in the immediate locality. On the afternoon before the flood he had been to Sheffield to see his parents, and also to obtain a considerable sum of money to pay the wages of the men at the works on the next day. It was the last night he intended to remain at Mr. Trickett's house. In consequence of the old man Kay going to live at his son-in-law's, young Barker could no longer be accommodated, and he had made arrangements to remove the very next day to Mrs. Bower's, at Malin Bridge, where he used to lodge before he went to Farmer Trickett's. On the Saturday he was to have left Mr. Trickett's, but on the Friday night the flood came, and carried the house and all its inmates away without a moment's warning.

The manner in which the Tricketts met their fate can only be matter of conjecture. Their habits were regular, and they generally retired to rest for the night at about half past ten. It may be that the flood came upon them while they were all sleeping; but it is more probable that they were aroused by the noise of its approach, and that they got up in haste to see what was the cause of the uproar. We have ascertained beyond doubt that the neighbours saw lights in the chamber window just before the house was swept away, and it was not the practice of the Tricketts to keep lights burning all night. If the inmates of the house were all awake and alive to their danger the scene must have been most harrowing. The consternation which would seize upon them may be imagined as they saw the flood coming nearer and nearer, like an avalanche of snow, till it entered the house, rose up to the chamber floors, and continued to rise, while the inmates sought refuge by standing on beds or tables, and shrieked aloud for that help which none was able to afford. They would naturally suppose that the house was the place of greatest safety, and that its strong stone walls could never be destroyed by the force of the inundation. Besides, escape by running out of doors was impossible, for the waters surrounded the house to a considerable height. For a few moments the house withstands the power of the flood; but now it totters, the

foundations are giving way, it is lifted up for an instant on the crest of the waves, and seems to swim down the stream; but in another moment it falls to pieces, its stones are swept down by the flood, its inmates are all engulfed beneath the waters, and swept along after they have ceased to be conscious of the appalling fate by which they have been overtaken. A neighbour named Mrs. Corbett, who lives about fifty yards from where Trickett's house stood, said that she got up when the flood was coming, and saw it approach, like a mountain of snow; she heard the shrieks of the drowning, and saw the lights in Trickett's windows. For a moment the house seemed to be swimming upon the flood, and the lights were still visible; but a second burst of water came, and the house immediately sank, the lights went out, and all was silence, except the roar of the flood as it passed down the valley on its work of destruction and death.

The scene presented next morning was one of extraordinary ruin and desolation. The farmhouse was gone to its very foundations, a large hole in the earth only marking the position of the cellar. The stable was also demolished, except a portion of one wall, which stood out in rugged dilapidation, and attracted great attention from its picturesque appearance, as well as from the melancholy incidents of which it constituted the memorial. Several horses were drowned, and their carcasses were found scattered about in the vicinity. Eleven cows, six calves, and a pig were rescued. Most of them were in the barn, which was not materially injured. The water here seems to have almost missed a field by the river side, and to have made a circuit round the barn, a very large door in which it burst open, to which fact its escape is probably to be attributed. The water, finding a vent through the barn door, would not bear with such force upon the building itself; but it passed on to the house, taking it both at the back and front, and sweeping it away as already described. On the upper side of the field which nearly escaped is a stone wall, against which the debris were washed in a heap, forming a barrier to the progress of the water, which was thus forced further up the hill directly against the farmhouse of Mr. Trickett.

The garden was entirely destroyed, and what was once a scene of luxuriant beauty and verdure was transformed into a sandy and rocky waste, with no sign of vegetation except a slender weeping ash, stripped of its bark, and bowed down by the force of the flood as if weeping over the desolation of the scene of which it was once the ornament. Even this tree was not allowed long to remain, but was taken away piece by piece by visitors who wished to preserve some relic of so appalling a calamity.

The body of Mr. Trickett was recovered, and suitably interred. The body of his wife was found at Aldwark. A large number of the bodies were never identified, the reason being that in many cases entire families were drowned, no one surviving who could recognise the features of corpses which were recovered. Miss Trickett was found, as was also the servant girl, the former having on one stocking and a petticoat, the latter both stockings. From this it is inferred that at least some of the family had begun to dress when the flood came; but even if this were so it is evident that they had time to put on only a very small portion of their clothing.

The house was well furnished, and next day many of the articles of domestic use were seen strewn about in the adjacent fields and roads, but most of the furniture was carried down and broken to pieces. It was an extraordinary sight many days after to see men dragging the river, and bringing out bedposts, mattresses, broken tables, chairs, and every conceivable article of furniture and dress. It is supposed that a considerable sum of money was washed out of Mr.

Trickett's house, as he was a farmer in good circumstances, and young Barker had in his possession at the time he was drowned the money which was to have paid the wages of the workmen at Limerick Wheel on the same day.

As showing the distance to which some articles were carried, it may be mentioned that an interesting relic of the Tricketts was picked up about twelve miles lower down the river. It consisted of a piece of ornamental worsted-work of the old-fashioned kind known as a "sampler." Its date was 1815, and it was the work of "Ann Trickett." The sampler is bordered with a running pattern of vine leaves and grapes. At the top of it are some roses growing in crimson pots. Beneath the pots, and as side ornaments to the verses, are two trees. Under the verses is Ann Trickett's name in a wreath of flowers, and on each side of the name are some flowering plants in baskets. Below the wreath are two birds, coloured like parrots; and under them is a large house, with a row of trees in front of it. At the bottom of all, worked on a dark ground, there are waterfowl swimming in a pond, and on the right of it are two peacocks and two sheep, while on the left of it are two deer, one spotted dog, and four sheep. The verses, already mentioned, occupy the centre of the "sampler," and are the well-known version of the 23rd Psalm, beginning—

"The Lord my pasture shall prepare  
And feed me with a shepherd's care."

There is a melancholy contrast between the scene of rural peace and loveliness described in the verses, and that awful night when house and "sampler" were washed away—between the "peaceful rivers soft and slow," which "amid the verdant landscape flow," and that terrible torrent, loud and rapid, which rushed down amid the desolation and ruin which everywhere accompanied its track—between the wilderness transformed into a fairy scene, "With sudden greens and herbage crowned," and the quiet beauty of the Loxley valley suddenly changed into a howling desert, rent into deep chasms and strewn with fragments of rock. The "sampler" is now in the possession of the finder, George Froggatt, Warren Vale, near Rawmash, and when found had in it one tack of the many which had been used in securing it to the frame. The frame is, of course, gone, and there is a rent on the right hand side of the verses, but in other respects it is entire.

### THREE FAMILIES DROWNED AND EXTRAORDINARY ESCAPE OF TWO MEN.

Close to Mr. Trickett's premises were three cottages, which were swept completely away. The one nearest the river was occupied by Mrs. Hannah Spooner, her sons Jonathan and Henry, her brother-in-law Benjamin, a little grand-daughter, and a young man named Charles Wood. All were drowned except Henry Spooner and Charles Wood, who had a very narrow escape. Wood was lying awake, and heard the noise of the water coming. When it rose in the house he said, "It will blow the house up if it goes on in this fashion." Just as he uttered the words he was swept out of the window with the bed upon which he was lying, and carried across the Rivelin, which here joins the Loxley, into a field on the opposite bank. He shouted out for help, which came in a short time, and he was removed to the Anvil public house in a very exhausted condition. Henry Spooner was also carried across the Rivelin, and rescued in a similar manner. The other two cottages close by were occupied by a married couple named James and Mary Bagshawe, and a family consisting of John Hudson, his wife, and three children. All were drowned.

## THE DESTRUCTION AT MALIN BRIDGE.

The populous village of Malin Bridge experienced the full fury of the flood, and suffered to an extent which is truly appalling. Within a distance of only a few hundred yards more than twenty houses were destroyed, and no less than one hundred and two lives were sacrificed. Standing near the site of Mr. Trickett's house, and looking down the stream, the spectator beheld such a scene of ruin as has seldom been equalled. A bombardment with the newest and most powerful artillery could hardly have proved so destructive, and could not possibly have been nearly so fatal to human life. The two bridges which here crossed the rivers were completely swept away; the rocks were torn up; whole rows of cottages were demolished; grinding wheels and workshops were destroyed; and the land on which houses stood was transformed into a vast quagmire of mud, interspersed with stones, trees, wrecks of houses, machinery, furniture, barrels, mattresses, and every conceivable article scattered about in the wildest confusion. Here might be seen an iron bedstead, on which had recently reposed some one who had been swept off perhaps while yet asleep. There lies a kitchen dresser, and yonder a broken perambulator, while bits of oil-cloth, and fragments of crockery, tell of the way in which houses have been invaded, and the apparatus of domestic life demolished. Here in the mud lies an enormous pig, and yonder a horse which has been washed out of its stable, while not far off, half embedded in mud, is a wagon, upside down, and minus one of its wheels. The stones were mostly separated from one another, but the adhesive properties of mortar are visible in the large pieces of brick walls which have held together, notwithstanding the hydraulic pressure to which they have been subjected.

It might at first be supposed that the flood, after having travelled some four or five miles, would have expended a good deal of its force, and have lost something of its volume. The very contrary, however, was the fact. From the reservoir to Malin Bridge the ravine in which the river flows is generally very narrow, and the descent rapid. At Malin Bridge the valley widens out considerably into an extensive plain, upon which the flood poured with augmented velocity, and with volume increased by the contents of the numerous dams which, to use the expression of the Government inspector, it "licked up" in its downward career. Those who saw the flood coming say that the only description they can give of it is that it was indescribable; and that the noise resembled a thousand steam engines letting off their steam simultaneously. The flood lifted up the houses, turned them over, and then rolled across the ruins. Houses were falling, trees were cracking, the wind was howling, women and children were shrieking, and all dismal sounds were commingling as though Pandemonium itself were holding its jubilee.

A WHOLE ROW OF HOUSES SWEEPED AWAY AT MALIN BRIDGE. —  
EXTRAORDINARY INCIDENTS.

On the left hand side of the river, facing downwards, stood a row of twelve cottages and two shops, the whole of which were washed away so completely that no one would have imagined the site had ever been occupied by human dwellings. Among the families drowned here were Joseph Crapper, shoemaker, his wife, and a child, Mrs. Etchell, a widow, who kept a school; Joseph Goddard, his wife, and two or three children; William Sellars and wife; Henry Jevisson, his wife, and son; George Barrett, shoemaker, his wife, child, and a lodger named Ann Pearson.

Mr. Price, who lived in a house beyond the end of this row, was a general shopkeeper, and supplied the village with goods of almost every description. There was the old man and his wife; and the son and his wife, his children, and two servants, in this house. There was also a visitor from Mortomley, named Hannah Hill. She was a fine young woman, about seventeen years of age, the daughter of Jacob Hill, of Mortomley. She was a relative of the Price's, and only a day or two before the flood she had been sent for to wait upon the younger Mrs. Price. The male servant or labourer was Walter Damms. He was a grinder by trade, and came from Hampden View. Young Mrs. Price had been confined only two days before the flood came. The infant was washed out of her arms, and the mother was found dead among the ruins on the road. The water struck the foundations of this house, and it was down in an instant. All its inmates were drowned. Some days afterwards a gold watch which belonged to Charles Price was picked up in the neighbourhood. It got into honest hands, and was given up to the friends of the deceased.

Ann Mount, a small shopkeeper, lived in this row. She had not gone to bed, and the watchman on his round spoke to her at the door a few minutes before the flood came down the valley. He saw the water coming, and he said to Mrs. Mount, "What is that coming ? It must be a flood." Mrs. Mount then went into her house for safety, and shut the door. The watchman ran up the hill to the Yew Tree public house, and had a very narrow escape of losing his life. Mrs. Mount was drowned, and her house demolished entirely.

#### A MAN SWEEPED THROUGH A BEDROOM WINDOW AND RESCUED.

William Watson, who lived in the same row of houses, had a most extraordinary and perilous escape. His house was destroyed, and he, his wife, and two children, and his wife's father, John Oakley, were washed down by the flood. They kept near together for some little distance; but soon Watson's wife and children were separated from him, and he was carried down some hundreds of yards below to a house occupied by Mr. Widdowson and family. Against this house the flood had piled up trees and debris to a considerable height and Watson, who had all this time been holding on to a balk of timber, was floated on to the top of the heap of debris, right against a window. He called out for help and alarmed the inmates. They came to the window, but it could not be opened, as it only went on to a staircase. A bedroom window above was, however, opened, and Watson was pulled in, naked as he was, and in an almost exhausted condition. Watson's wife and children and father-in-law all perished.

#### A FAMILY OF TWELVE PERSONS DROWNED.

In a detached house near the row already mentioned lived Thomas Spooner, his wife, seven children, and an old man, aged 70, named William Wolstenholme, the father of Mrs. Spooner. There were ten persons in the house, and not one survived. Mrs. Caroline Sellars was the daughter of old Wolstenholme; she and her husband were also drowned, making twelve in one family who were swept away by the flood.

### THE STAG INN AT MALIN BRIDGE DESTROYED AND ELEVEN LIVES LOST.

The Stag public house was situated opposite the row of houses which were destroyed at Malin Bridge. The following is a list of its occupants, who were all drowned—Eliza Armitage, aged 67; William Armitage, aged 37; his wife Ann, aged 42; five children of William Armitage; a servant named Elizabeth Crownshaw, and two lodgers, named James Frith and Henry Hall. The house was swept away, and all the inmates were drowned. The body of Mrs. Armitage was found with nothing upon it except a pair of stockings. The servant, Elizabeth Crownshaw, had been there only a few days. Her brother, Joseph Crownshaw, who lives near Wisewood Works, higher up the valley, had just got home from Sheffield when he saw the flood coming. He immediately thought of his sister at the Stag Inn, and resolved to set off to her rescue. When he had proceeded only a few yards the water knocked him down, and he fell on his back. He managed to get up again, and it was all he could do to save himself.

At the back of the Stag Inn, several cottages were demolished, and in them were drowned Thomas Bates, his wife, and two children; Thomas Bullond or Bullard, and his wife; also Greaves Armitage, his wife, and two children. Greaves Armitage was brother to Mr Armitage, of the Stag Inn; so that there were twelve of this family drowned.

### THE CLEAKUM INN — EXTRAORDINARY SPECTACLE.

Nearly opposite to the Stag Inn stood the Malin Bridge Inn, better known as the Cleakum public house, occupied by George Bisby, his wife, and four or five children, who were all drowned. The ruins of this place attracted the notice of all visitors from its very picturesque and extraordinary appearance. A strong chimney stack, which formed the centre of the house, was left standing with a small portion of the walls of the building. The interior was completely exposed, the floors of the rooms were hanging down supported only at two sides, and altogether the ruins were such as to strike the mind of the visitor with wonder that the destruction should have gone so far and yet have stopped where it did.

In some of the accounts which have been published the singular ruins in question are mentioned as belonging to the Stag Inn. This is a mistake. The Stag Inn was destroyed except some outbuildings. The Cleakum Inn was left standing upright to the height of three stories, so far as regards the chimney stack and a portion of the walls.

The following anecdote is related in connection with the Cleakum Inn. Some days after the flood a girl named Bisby, about seventeen years of age, the only survivor of the family, she having been from home at the time of the flood, was seen near the wreck of her father's house, apparently in great distress. "With eyes red with tears, she was searching the ruins for mementoes of her lost family, gathering together teacups and saucers and other relics which overhanging stones had preserved more or less completely from destruction. Sympathising visitors clustered round her, to console her distress offering shillings and sixpences for relics not worth a straw. Apparently the poor girl cared nothing for the money, but she allowed the visitors to have their way as regarded all but a few relics to which she clung as too precious to be parted with. Brawny men were to be seen cramming saucers, cups, &c., thus purchased, into their pockets, declaring with tremulous voices their intention to preserve them as mementoes of the sad

calamity, but evidently caring more about helping the poor girl in this delicate way than about the relics themselves.”

#### FILE CUTTERS' SHOPS DESTROYED.

Between the Stag Inn and the river was a row of five or six file cutters' shops, occupied by John Eyre, Thomas Howe, William Coates, Mark Fairest, Edward Harper, and J. W. Ibbotson. In these shops three file makers and eighteen file cutters formerly pursued their operations. The buildings were swept entirely away, except that two or three stocks, at which the file cutters worked, might be seen in the midst of the vast plain of mud and sand and the debris of the flood. The river here has changed its course considerably, and now flows over the site of some of the file cutters' shops which were destroyed. At the top of Malin Bridge, on the river bank, the grinding wheels of Messrs. Butler, Wilson, and Co., and of Mr. John Wilson, have entirely disappeared.

#### EXTRAORDINARY ESCAPE OF A ROW OF HOUSES AT MALIN BRIDGE.

In some of the accounts which appeared at the time, the village of Malin Bridge was represented as having been entirely swept away. This was an exaggeration in a case in which the real facts were sufficiently sensational and appalling. Besides several detached or partially detached houses which escaped, a whole row of about twenty four stone houses, called Holme Row, was left standing. They were all very much flooded, and in some cases doors and partition walls were knocked down, but the external walls were nearly uninjured, and there was no loss of life in this row. There were, however, several narrow escapes. Mrs. Howe, the wife of Thomas Howe, was lying on a sofa down stairs waiting for her husband when the flood came. The water rose to nearly the ceiling; but she managed to escape on to the stairs. An apprentice in the same house escaped in a similar manner. John Eyre, who lived in the same row, came down stairs, and the water rose up as high as his mouth. He then burst a hole through the wall into the next house, and was rescued.

The escape of this row of houses is attributable partly to the force of the water being broken by the adjacent buildings, and partly to the houses being more substantially erected. The first house in the row, occupied by Mr. Scholey, tailor, was less flooded than any other. One cause of this was that the cellar grate had been closed up, and another was that the front door had been firmly wedged up, so that the water could not burst it open. In this house there were only seven inches of water in the cellar, and four inches in the house. All the other houses were completely flooded, the doors were burst open, and some of the furniture was swept away or destroyed. Mr. Scholey is of opinion that if the water had got into his cellar and house to the same extent the whole row would have been completely demolished. In the wall at the gable end of Mr. Scholey's house a piece of wood has been forced by the water between the stones so deeply and tightly as to be immovable and so as to form part of the building. This is regarded as an extraordinary proof of the force of the current.

The inhabitants of this row were in a position to witness the full horrors of the flood. They say that the water came at once and went at once, and continued at its full height about a quarter of an hour. Most of them got up and put on their clothes, but they could not leave their houses in consequence of the water being in the lower rooms. At the windows of the houses the inmates were shrieking and

crying out, not knowing the extent of the disaster, and expecting every moment that they too might be overwhelmed. A long and dreary time it seemed before the morning came.

“Too slowly move the hours, with leaden flight And sluggish pause,  
through all this dreadful night !”

And when morning did come what a scene of desolation and ruin presented itself !  
Where houses and buildings stood the night before, was a sandy desert, strewed  
with stones and debris of every description; while the bodies of friends, relatives,  
and neighbours lay scattered about, without clothing, and covered with mud —

“Swept ignominious to the common mass  
Of matter never dignified with life.”

#### INCIDENTS AT THE LIMERICK WHEEL,

We now pass from Malin Bridge across the river to Limerick Wheel. Limerick wheel was occupied by Messrs. Johnson and Barker, and was a crinoline wire manufactory. The destruction of property here was very considerable. The end of a solid stone building was driven in, and the machinery damaged or destroyed. The boiler house was swept away, and two large boilers were left exposed and entirely stripped of their covering. The river banks for a considerable distance below were strewed with rolls of crinoline wire, pieces of machinery, iron castings, and the heavy tools of the workmen. stable was swept away, except one wall, which seemed tottering to its downfall. The damage to these works, including the loss of property in the course of manufacture, is estimated at more than £10,000. One of the partners was the Mr. Barker who lodged at Mr. Trickett's, and the particulars of whose melancholy fate have already been narrated.

There was one life lost at the Limerick Wheel. Some months previously the men had been working here day and night, but on the Friday night when the flood came there was fortunately only one man in the place. His name was William Bethel or Bethney, and he came from Masbro'. He was on his way home on the night of the flood when he met the carter going to the works with a load of steel. The carter said Bethel must go back to soften the steel that night, or it would keep the other men out of work for some days. Bethel then went back, and was preparing the steel for the subsequent processes of manufacture when he was overtaken by the flood. His body was not found till some weeks afterwards, when it was discovered in the works beneath a heap of rubbish. It was frightfully disfigured and scalded. It is believed that the works were destroyed more by an explosion than by the force of the water. In one furnace there were thirty hundredweight's of steel, and a large quantity in four other furnaces, all red-hot, and when the water came in steam would be at once generated to an extent that would cause a fearful explosion, the report of which was actually heard by persons who lived near.

Just above Limerick Wheel are two cottages, which were occupied by persons named Storrs and Middleton These were flooded nearly up to the roof, but the inmates escaped by going into the chambers and keeping as near the ceiling as possible till the water had subsided.

## THE DESTRUCTION AT HILL BRIDGE.

A short distance below the Limerick Wheel, on the same side of the river, is Hill Bridge, where were a good stone bridge across the river, and more than twenty small houses. The bridge was swept away entirely, four or five houses were totally destroyed, and about twenty more or less damaged. Most of these would have been swept away had it not been for the protection afforded by a barricade formed of the accumulation of trees, chairs, sofas, and other articles brought down by the flood. In several of these houses the water rose nearly to the ceilings, and as two of them, occupied by persons named Steward and Crapper, were white-washed outside, a mark was left showing the height to which the water had risen. The water line was nearly on a level with the top of the second storeys, and was looked upon with much interest by visitors, who could not imagine how the flood had risen to such an elevation.

In one of the houses near, George Mills and his wife were drowned, and in another house George Snape, a table blade grinder, and his wife, met the same fate.

## EXTRAORDINARY ESCAPE OF A FAMILY AT HILL BRIDGE

One of the most extraordinary cases of narrow escape was that of the family of Henry Whittles, of Hill Bridge. The gable of his house was swept away, exposing the interior. In one of the bedrooms, which rested only upon a corner of the building, two of the walls having been washed down, was a stump bedstead. On that bed Whittles placed his wife and five children, and held them firmly upon it, while he supported himself with one hand against the wall. The following is the account given by Whittles himself of this extraordinary escape. He says :- I was awoke by the flood breaking open the doors and windows. I thought at first it was some one breaking in to rob the house. I jumped out of bed, and set off to go down stairs. The first step I took I was in the water. I ran back, took my wife out of bed, and also the two children who were in the same bed. One of the children was only nine days old. When I had taken them out of bed, the outside walls of the house went directly, and the bed on which my wife and children had been lying was swept away. Another little boy, two years old, I snatched from the bed, just as it was going down, and flung him over my head into another corner of the chamber, which hung by a piece of the wall, and where was a mattress. The whole house was then swept away, except the corner on which I had placed my wife and five children, on the little bed. The corner stood, and I held them there a long time. They were covered with water, and of course were quite undressed. The water tore my shirt off my back, and left me naked. I held my wife and children on the mattress in the corner for more than an hour. While I was holding them, I saw two persons float past in the water, so near to me that I could have touched them both; but if I had attempted to do so I should have lost my wife and children, as they were only kept where they were by my holding them on. The water smelt awful, like a grave that had been newly opened. In about an hour and a quarter George Allen, of Hillsbro', saw grinder, came to see what was the matter. When he saw the house had been destroyed he cried out to his companions that we were all lost. When I heard him say that, I cried out, "No, we are safe in the corner." I reached the children down one by one, and they were all taken out of the house, and conveyed, just as they were, to a place of safety. The water ran clean over the bed, and they had all to stand up on the bed to keep their heads out of the water. We

were all very much exhausted, but we all recovered, even the baby which was only nine days old.

#### A FAMILY FLOATING ABOUT IN A BED.

In another house at Hill Bridge lived Robert Graham, his wife, and six children. They were awoken by the water breaking into their bedroom. They got up as soon as possible, but in a few minutes a brick wall of the house fell upon them, and knocked them down into the water. Robert Graham, by very extraordinary exertions, managed to get his wife and children out of the water, and place them all upon a bed which was in the room. The water raised the bed off the floor, and floated it about. Graham had great difficulty in preventing his wife and children from tumbling out, but he begged them to keep quiet, and not to try to escape. They remained where they were, in the bed, floating about, till the flood subsided, and the bed again rested upon the chamber floor. Graham himself was partially covered with water, but he maintained his self-possession. At length assistance came, and all the family were rescued.

#### HOW A LITTLE GIRL WAS SAVED WHILE HER FRIENDS WERE ALL DROWNED.

Very near to the house of Henry Whittles at Hill Bridge, was the Masons' Arms public house, kept by William Pickering. The house was almost destroyed, the interior exposed, and all the furniture swept away. In the house at the time of the flood, besides Pickering himself, were his wife, his sister, a lodger, and a little girl, a niece, eight years of age. All were drowned, except the little girl. She slept by herself in a bed in a chamber on the top storey of the house, higher than the line to which the water rose. When the neighbours went to the house on the morning after the flood, they found that nearly everything had been swept away, but on going to the upper chamber they were astonished to find the little girl in bed and fast asleep. They awoke her, and took her to a place of safety. The house was swept away except a little corner on which the girl's bed stood. Upon being questioned she said— "I heard a noise in the middle of the night. I thought the gas was blowing up down stairs. I heard my uncle go down stairs, and thought he was going to see if the gas had blown up. I then heard my aunt go down, and call out for help. Her sister went to her, and I then heard them both cry out for help. I heard nothing more, and went to sleep soon afterwards."

#### HEROIC RESCUE OF A FAMILY.

In another house at Hill Bridge, lived Thomas Booth, his wife and four or five children, and in the next house lived a man named Proctor. Being sensible of the peril to which the Booths were exposed, Proctor broke a hole through his own bedroom into the bedroom of the Booths, and rescued Mr. Booth and all his family.

## A MAN JUMPS OUT OF A WINDOW AND IS KILLED.

At Bower's Row, Hill Bridge, on somewhat higher ground than that occupied by the houses whose destruction has been described, lived a man named William Crookes. When the flood came, he heard the roar of the water, and the screams of the neighbours. He was so alarmed that he thought his own house was going to be swept away; and so to save himself, as he thought, he jumped out of his bedroom window on to the road. His wife tried to prevent him from adopting such a course, but he was so frightened that he could not be persuaded to stay in the house. The water flooded the chamber, but not to such an extent as to imperil the lives of those who were in it. When Crookes jumped out of the window, he of course fell into the water and a quantity of it got into his mouth and down his throat. The water was thick with mud and dirt brought down from the embankment. Crookes was soon got out of the water, and taken into the house again; but he died next morning from the bruises he had received, and from mud getting into the organs of digestion.

## THE DESTRUCTION AT HILLSBRO'.

The scenes just described took place on the right bank of the river, coming down the valley. We must now resume the narrative on the other side of the stream a little higher up. Between Malin Bridge and Hillsbro' the flood made a clean sweep across the fields and road, obliterating the landmarks, knocking down and carrying away the walls, tearing up the trees by their roots, and covering a large tract of land with a thick layer of mud, embedded in which were fragments of houses, pieces of furniture, bedding, machinery, rolls of wire, casks, fire irons, boots, shoes, and articles of almost every description. There were no houses on the left bank for a considerable distance from the river. The first houses were a row of three-storied buildings, of modern construction and respectable external appearance. They were called Brick Row. Down the back and front of these houses the flood poured with great impetuosity. They were submerged to the top of the ceilings in the bedrooms, and the mud upon them showed that the water had risen from sixteen to eighteen feet above the roadway. The first house was partially destroyed. Its remains presented a very extraordinary appearance, and greatly attracted the notice of visitors. A portion of both the end and the side wall was swept away, leaving the interior exposed. The next house was similarly damaged, though not so seriously, and all the houses in the row suffered greatly. The doors and windows were burst open, partition walls knocked down, and the cellars filled with water and mud. In one of these houses it was noticed that a clock had stopped at twenty-seven minutes past twelve, so that the flood had been rather more than half an hour in travelling from the reservoir to this point. The partial destruction of these houses disclosed the mode of their construction. They had evidently been run up, by contract, on the cheapest scale, and in the slightest manner. What with five-inch walls, and floor-joists to match, the wonder is that the whole row did not fall to pieces. Lower down several houses were wholly or partially destroyed. The Hillsbro' Inn, a strong stone building, was damaged, the water rushing into its lower stories, forcing up the flooring, and bursting out at the doors and windows. Much of the furniture was ruined. Across the road, the premises of Mr. Woodcock, maltster, were flooded and injured. Next door is the Shakespeare Inn, in which the cellars were filled with water, and the lower rooms were covered with mud. The Flood swept large trees and stones across the Wadsley and Langsett turnpike road,

and piled them up in front of the national school and by the side of the police station.

The strong stone bridge at Hillsbro' was greatly damaged the walls and parapets being swept away, and part of the structure itself being destroyed. The force of the water was shown by the distance to which the immense stones on this bridge were carried down the stream.

It is stated, on good authority, that an entire brick house, with its walls, roof, and flooring all complete, was carried down as far as the bridge, and that it held together for some hours.

We must now relate some of the more striking incidents which occurred in this locality.

#### EXTRAORDINARY ESCAPE IN BRICK ROW, HILLSBRO'.

The first house in Brick Row, Hillsbro', was occupied by Joseph Dyson, his wife, five children, a lodger named Samuel Senior, an apprentice named Richard Snape, and Dyson's brother. All were drowned except the last, whose escape was very extraordinary. He was sleeping in the top bedroom, and was awoken by the roar of the flood as it struck against the building. Finding that it was impossible to escape by going down stairs, he smashed a portion of the lath and plaster partition, got on to the joists beneath the roof, then broke through the slates, and got on to the roof of the building, where he remained, cold and naked, and in the dark, for two hours before assistance arrived. The hole in the ceiling and roof through which Dyson's brother escaped, was much noticed by visitors to the scene.

In Brick Row, the houses are single, and Dyson's was at the back. In the front lived a man named Joseph Hides, with his brother and sister-in-law. They were awoken by the noise of the approaching water. Hides lighted a candle to see what was the matter, and was going down stairs when the flood struck the gable end of the building, and cut it in two, leaving an opening into Dyson's house, which was in great part demolished. Hides had a narrow escape from falling into the foaming and raging waters below. As it was, his light was extinguished, and one of his fingers was broken. It was some moments before he recovered from the shock; but when he did so, he went up stairs to the rest of his family, who were screaming for help. The house shook dreadfully, and seemed as though it were about to fall. Seeing this, Hides wrenched off a bedpost, which he used as a battering ram against the partition wall of the next house, into which he soon effected an entrance, and was there joined by its terrified inmates, who were alarmed not only at the roaring flood, but also by the fierce bombardment to which their house had been subjected. Hides and his companions did not even then feel safe, as the houses were still rocking as though they were about to tumble. They therefore broke into the next house, and so on through the walls of four houses, taking along with them the inmates of each house through which they passed, until, when they stopped, there was an assemblage of four or five families, all in one chamber, of both sexes, and all ages, most of them having nothing on but their night clothes. A strange and motley group they were, screaming, and shrieking, and calling out for help, which did not come till some hours afterwards.

## FURTHER INCIDENTS IN BRICK ROW.

There were several other narrow escapes in Brick Row, and also great loss of life. In one of the next houses to Dyson's, the inmates, named Cooper, saved themselves by escaping to the garret, above the reach of the flood. Mr. Cooper himself, after the flood had subsided, seeing some of the neighbours out in the street, asked them how they had got out. They replied that they had got down the stairs. Upon this Cooper attempted to go down stairs, his wife following him, with a little girl in her arms. When Cooper had got down a few steps he fell right into the cellar, the staircase having been swept away, which he did not discover, it being still dark. He was covered with water and mud, but managed to get out. When his wife saw her husband fall, she screamed out, and ran back into the garret, where she remained until help arrived.

In one of the houses in Brick Row was a family named Birks. Mrs. Birks had been confined only about three hours when the flood came. Her bed floated about in the water, which was nearly four feet deep in the chamber. Her husband held the poor woman in bed while it floated about the room. Mrs. Birks, though greatly excited did not sustain any material injury.

In another house near Brick Row, two children named Atkinson were carried out of the window along with the bed on which they were lying, and were both drowned. James Atkinson, his wife, and three children, were drowned, as were also William Atkinson and his family, together with George Atkinson and his wife. Isaac Drabble, his wife, and two children, met the same fate. Two families, one named Turner, and one named Taplin, were also swept away, along with their houses.

## AN OLD BACHELOR IN A BOX. - A COMIC INCIDENT.

The most serious events will occasionally be relieved or varied with a touch of the ludicrous. So it was in the case of Joseph Chapman, of Hillsbro'. This old gentleman—a tailor by profession, and a bachelor by choice—lived entirely by himself in a miserable little hovel near Brick Row. When the flood came, his hut was partially destroyed, and all his furniture was swept away, together with all his clothing. In this plight he continued until Benjamin Siddons, George Siddons, Thomas Moore, Alfred Coates, and Morgan Earnshaw went to his house to see what had become of the old gentleman. They were astonished to find him crouched up in a large box, with nothing upon him except a fragment of a shirt round his waist. Siddons got up to the window, and offered to convey Mr. Chapman on his back to a more commodious shelter than the bare sides of the box afforded to its shivering tenant. "This is a nice predicament !" exclaimed the old gentleman, at the same time gathering about him to the best advantage the scanty fragment of clothing in which he was only very partially enveloped. It appears that Mr. Chapman, having no other means of escape, got into the large box, and floated about until the waters had somewhat subsided. Or he had perhaps placed himself in that position in order to shelter himself, as best he could, from the rude blast which was blowing so keenly down the valley. After a short time he was conveyed to the house of Mr. Peter Pearce, of Hillsbro', where he was provided with clothing and other requisites.

### THE HILLSBRO' TOLL COLLECTOR DROWNED.

Near the Hillsbro' Bridge, in a toll house, a small building, lived the toll collector, named Thomas Winter, aged 70. The house was swept away, and Winter, who was its sole occupant, was drowned. His body was found near Peace's rolling mill, some distance further down the river, and was identified by a son, who resided at Chesterfield. When post time at morning arrived, a letter came for him from his daughter, but the poor fellow was no more.

### MISCELLANEOUS INCIDENTS AT HILLSBRO'.

Mr. John C. Appleby, who kept a shop near to Mr. Woodcock's, was drowned, along with his mother and sister. The house was a good stone building, but it was partially destroyed. The Old Blue Ball Inn, kept by William Cooper, was a good deal damaged. The stable and other outbuildings were destroyed. Cooper and his family escaped by getting up stairs. In a house close by lived George Cooper and his wife. The house was nearly knocked down, the gable end and other parts being washed away. A tree was washed into the oven in the kitchen. Cooper and his wife escaped by getting to the top of the house, and after the flood had subsided, they waited in the chamber till some persons came and took them to another house.

### THE DESTRUCTION AT OWLERTON.

Owlerton is a long straggling village, extending from Hillsbro' for a considerable distance in the direction of Sheffield. Upper Owlerton suffered most severely. Here was the rolling mill of Mr. Hawksley, part of which was demolished, and the machinery injured or destroyed. Mr. Hawksley's house is on the other side of the road. The walls and railings in front of the house were knocked down, and the garden was covered with mud and debris; the only thing which appeared uninjured being a miniature statue of praying Samuel. Mr. Hawksley's kitchen and ornamental gardens were greatly damaged, and a large wooden summer house, with stained glass window, was carried bodily across the road, and deposited in the middle of a dam, where it long remained an object of interest and curiosity to visitors. Against the side of the house was an immense accumulation of ruins, amongst which several dead animals were observable. The surgery and other buildings of Mr. Roberts were also injured, and the inmates had a narrow escape. Several cottages and other buildings were destroyed, and an exceedingly large number of houses in the village were flooded. Walls were knocked down, gardens were covered with the mud, and the whole of the neighbourhood was strewn with the debris of trees, houses, and furniture. It may here be mentioned that the layer of mud deposited on the land by the flood, was from three to eight inches thick; and about a month afterwards, on being turned over, corn, beans, and other seeds which had been swept out of corn mills and farmyards, were seen sprouting up in the newly-made soil in which they were embedded.

### A SHOCKING DEATH AND A NARROW ESCAPE.

In a small cottage, in a very low situation at Owlerton, lived a family named Dean. Two sons of Mr. Dean, aged 12 and 13 respectively, slept in a bed on the ground

floor. In the middle of the night they were awoken by feeling the bed rising up and floating about the room. One of them, the eldest, named Joseph Dean, unfortunately fell out of the bed and was drowned. The other cried out for help, and after some time the neighbours came to his assistance. They found the bed floating up to the ceiling with only a few inches between the lad's head and the top of the room. As soon as the flood had subsided a little the neighbours opened a shutter and took the lad out of the window. Mr. Dean, his wife, and a daughter were in the attic above. They heard the screams of the lads, but could not come to their assistance as the water was on the stairs. This cottage, being whitewashed, showed for a long time the mark left by the flood when at its greatest height.

#### THRILLING INCIDENTS AT OWLERTON.

Close to Dean's house was a cottage occupied by a person named Shaw. The flood burst open the door, and washed into the house the body of a man. A lodger named Ashton saw it first, and called out to Mr. Shaw that a pig had been swept into the house. On closer inspection it was found to be the body of a man, entirely naked, the shirt being torn off, and hanging only by the button on the wrist-band. The body was that of Joseph Gothard or Goddard, who was drowned at Malin Bridge.

Thomas Hague, who lives next door to Shaw, relates the following incident. He says:—I was awoken by the flood, and went to look out of my window. I saw a woman in her night dress carried down by the flood. She cried out, "Save me, save me!" I then saw a young man in his shirt going down. They were holding on to some pieces of timber. I saw them float down to some poplar trees. They were then knocked over, and I heard nothing more.

In another small cottage lived a family named Proctor. Mrs. Proctor's married daughter, her husband, and a child, were sleeping in a low bedroom on the ground floor. Mrs. Proctor herself did not go to bed, but sat up reading. Soon after half-past twelve she heard a tremendous roar like the sound of many waters, and she immediately went to the door, to see what was the cause of the commotion. Just as she was about to open the door the water began to come in. She ran into the room where her daughter and the others were sleeping, and had only just time to get them upstairs when the door and windows gave way, and the water filled the lower rooms up to the ceiling. Had the inmates been three minutes later they would assuredly have been drowned.

Marshall's Paper Mill, which is situated at Owlerton, was greatly damaged. It stood in the middle of the stream, and received the full force of the current. The warehouse and drying room were completely carried away, and a large hydraulic press, weighing several tons, was torn up from its foundation, and washed away some distance. In a cottage close by the paper mill John Turton and his wife were both drowned. The house was lifted bodily from its foundation, and carried down the stream.

#### NARROW ESCAPE OF TWO WATCHMEN AT OWLERTON.

Two watchmen, who were on their rounds at Owlerton, escaped very narrowly. When they saw the flood coming, they ran away as quickly as possible, but they might as well have attempted to run a race with a locomotive at full speed. One of them escaped into Mr. Hawksley's yard, and when the water overtook him, he managed to climb on to a wall which was near a lamp post. He got hold of the

lamp post, and clung to it with all his might. He was at one time up to his neck in the water. At length Mr. Hawksley heard his cries for help, and went to his assistance. He was taken into the house in a very exhausted condition; but restoratives were applied, and he soon recovered. The other watchman ran round up by Hillsbro' park, and got on some higher ground. It may here be mentioned that part of the park wall of Hillsbro' Hall was destroyed, and that the flood left a clearly defined mark for about three hundred yards on the wall which remained. An enormous quantity of timber and furniture was washed up to the border of Hillsbro' park; and beneath the debris here many bodies were afterwards discovered.

#### THE BARRACKS INJURED AND TWO LIVES LOST.

Passing over such things as walls knocked down and houses flooded, we come, a little below Owlerton, to the new and well-built barracks. One part of the barracks is situated near the river, and sustained considerable damage. A massive stone wall, nearly a yard in thickness, and of considerable height, was washed away for a distance of some score yards. The married soldiers' quarters were invaded, and damage was done to the clothes and furniture of the inmates to the extent of about £50, besides the injury to the buildings. The sentry on duty had a very narrow escape. The flood came upon him very suddenly, but he retreated to higher ground, where he was out of danger.

Unfortunately, two children of Paymaster-sergeant Foulds were drowned at the barracks. Sergeant Foulds' quarters were on the ground floor, at no great distance from the boundary wall which was washed away. There were himself, his wife, and three children. aged five, and four years, and an infant. Sergeant Foulds and his wife went to bed about eleven o'clock. Mrs. Foulds was awoke in about a hour by a great noise in the room. She exclaimed to her husband, "The wind is breaking the windows of the room." He jumped out of bed, and was astonished to find himself up to his hips in water. He could see the water rushing in at the window, and he went to the window to look out to discover what was the matter. He saw that the boundary wall of the barracks was gone, and before him a foaming and roaring torrent was sweeping along, carrying upon its waves bodies of men and women, and debris of every description. He particularly noticed a large object like an entire house, or it might be a haystack. Sergeant Foulds, being a stranger to the locality, had not the remotest idea what was the cause of the inundation, and he exclaimed to his wife, "Good God ! the world's breaking up !" He thought that the world was in the throes of final dissolution. The water rose to the height of twelve feet outside the window. Sergeant Foulds then went to the door, and on doing so noticed that his wife had been knocked down by the water, and that the cot was swimming about the room. He could not open the door, on account of the pressure of the water against it. After making several ineffectual attempts to get the door open, he said, "I'm not going to be drowned like a rat in a hole at all events," and so saying he dealt a heavy blow at the door with a large fire shovel. The lock flew off, the door came open, and the water rushed in with such force that it knocked the sergeant down. Of course all this time he had nothing on but his night shirt, and he describes it as having been dreadfully cold and the wind piercing. He got up out of the water as quickly as possible, and went to the rescue of his wife. She carried the infant, and he carried them both, and took them on the staircase out of the reach of the water. He then went back to rescue his two eldest children, but the door was closed, so that he could not get in, and the room was full of water. When

the water had subsided, the colonel of the regiment, the 8th, and all escort, came and let out the water. The children were of course dead, and no doubt they were drowned directly after Sergeant Foulds rescued his wife. Two other soldiers' families had very narrow escapes. They were sleeping on the ground floor in quarters adjoining those of Sergeant Foulds, but they were got out and carried to a place of safety.

#### JUNCTION OF THE LOXLEY AND THE DON.

A little below Owlerton the river Loxley winds very circuitously in a southerly direction, amid low meadow lands and falls into the Don. The river Don then proceeds to the south-east into arid through the town of Sheffield. For nearly a mile below Owlerton there is nothing very noticeable, as far as the west side of the river is concerned. Walls knocked down, houses flooded, gardens and fields submerged, are matters of course wherever the river pursued its way.

We must now take the reader to the east side of the river Loxley, a little higher up than its junction with the Don, and mark, as we go towards Sheffield, the damage effected in this extensive and low-lying part of the valley.

The inundation swept over Birley Meadows, and against the foot of the hill at Wardsend, carrying away several of the mills and forges on both sides of the river. The Wardsend slitting mill was greatly damaged, and some of the machinery destroyed. A vast mass of debris covered the fields in this district, and dead bodies were scattered about in every direction.

#### A SILVER MILL NEARLY DESTROYED, AND NARROW ESCAPES.

A little lower down, the silver rolling mill of Mr. Peace was flooded and a great part of it destroyed. A large quantity of silver was swept out of the building, and some of it has never been recovered. when the flood came, five persons, named Matthew Gould, Henry Wragg, John Slack, Feargus Saxton, and a boy named Joseph Lidster, were at work in the Mill. Slack happened to go out to the dam head, and saw the water coming in a foaming and seething torrent. He immediately told the other men, and then went to Mr. Peace's house, which is just below, to give the inmates warning. Just by the silver mill were two houses, occupied by Slack and a man named Dakin, and further off the river, but on much lower ground, was a row of low, miserable cottages, occupied by Joseph Herret and Feargus Saxton. Slack and the other men gave the inmates of all these houses warning as soon as possible; and some of them had very narrow escapes. Saxton was the engine tender at the mill, and was working, all night. When the water came rushing into the mill, Saxton immediately ran to his house to rescue his wife and child, who were asleep upstairs. With a long pole he smashed in the bedroom window from the outside, and called to his wife to come out. She first threw the child out of the window, and Saxton lifted it on to the hill side in the old Park Wood. He then took his wife out, and carried her in her night dress to the same place. The house was very low, so that Saxton could reach almost to the bedroom window. The next two adjoining cottages were occupied by Joseph Herret, his wife, and two children. Herret, when alarmed, at once knew that his only chance of escape was by getting on to the hill side in the wood. The water completely surrounded the house in every other direction, but the sloping banks of the hill nearly touched the roof of the adjoining cottage occupied by Saxton. Herret tore

off a bedpost, and knocked a hole into the chamber of the next house, and then through the next wall into Saxton's chamber, taking along with him his wife and children. He then knocked a hole in the ceiling, and got on to the slates of the roof. He pulled up his wife and children, and deposited them on the hill side in the wood, where they had to remain some considerable time in the darkness, with nothing on but their night clothes, and exposed to the pitiless blast of the storm which was blowing down the valley. The water mark on these houses shows that the flood reached half way up the chamber windows. Everything in these houses was destroyed and the rooms were filled with mud, a thick covering of which was deposited even in the bedrooms. Mr. Herret pointed out to us one exceedingly curious circumstance. The water had completely lifted up the chamber flooring, and a wooden soap box had been floated from the sink between the beams and the joists, where it was immovably fixed when, upon the subsidence of the water, the flooring sank down into nearly its old position. The proof that the flooring had been lifted up at least several inches was furnished by the fact that the soap box was caught and fixed underneath the beams as though in a trap.

The houses of Slack and Dakin were flooded to the height of five feet. Mr. Peace's house was flooded, and the furniture injured. In an open space opposite the cottages occupied by Herret and Saxton were deposited an entire haystack, and also two immense logs of timber calculated to weigh together four tons. One of them had been brought down from Damflask, a distance of four or five miles, and the other had come from Mr. Hawksley's, at Owlerton.

#### A MAN SWEEP AWAY ON A BOILER.

The works of Messrs. Marchington and Makin are a little lower down the river. The gable end of the building was driven in, and the water swept with great impetuosity through the workshops destroying the machinery, and damaging everything in the place. A massive weir, with heavy iron shuttles, was carried away, and half a dozen immense stones, which were strongly clamped together were borne down the stream a distance of more than twenty yards. On a raised footpath, which ran along the river side of the works, was a strong railing of iron, secured to pillars of the same metal weighing one hundred weight each. This was torn out of its position, and the wrought iron bars were twisted in a very curious manner. Several "stocks" at which file-cutters worked were washed out of the building. It remains to be added that a man named William Simpson lost his life at these works, and a boy named Capper had a very narrow escape. They were both working all night at the forge, and soon after twelve they were surprised by the sudden approach of a mighty torrent which came rushing into the building. Simpson immediately ran out of the workshop, and mounted on the top of a large boiler, which had been erected near the goit. The boy Capper climbed on to a beam above the boiler, but not connected with it. The water got underneath and around the boiler, lifted it up, with the man Simpson upon it, and carried it away, with the brick pillars upon which it stood. Of course Simpson was drowned. The boy Capper was more fortunate. He held on to the beam for several hours, and was at length rescued, by John Gill, who lived upon the premises. The boiler, which is about thirty feet in length, was carried down nearly a mile, and deposited in Messrs. Butchers' yard. The water rose to the height of fifteen feet in the workshops.

## INCIDENTS AT FARFIELD.

Just below Messrs. Marchington and Makin's premises, and near the Farfield Inn, are two rows of houses, which were flooded and greatly damaged. They were occupied by Joseph Hawley, John Shemelds, Thomas Allen, a family called Baggaley, and others. Allen was so alarmed that he made a hole through the partition wall into the house of Baggaley, and took with him his wife and six children, and here they remained till the morning. The children's bed was crushed down, and all the furniture destroyed or damaged. The inmates of the other houses escaped into the garrets. Baggaley was awake in the night by the noise of the approaching water, which, he says, sounded like an engine blowing off its steam. He went to the window, but as he saw nothing, he returned to bed, and had not been there more than two or three minutes when the flood rose up to his bedroom window.

## NARROW ESCAPE AT A TANNERY.

Messrs. Fawley's extensive tannery, at Neepsend, sustained very serious damage. The part of the premises which adjoined the river was washed away, and the whole place was flooded to a considerable height. The press-house was reduced to ruins, the trunk of a large tree having forced in the wall, and fallen upon a hydraulic press. Two thousand skins were washed away, and the stock and machinery were greatly damaged. The flood swept right through the yard, and broke down the walls and some of the lower parts of the buildings. A house upon the premises, but some distance from the river, was occupied by Mrs. Crookes, a little girl, and a lodger named Thomas Wilkinson. Wilkinson, who slept on the ground floor, was awake by the roar of the water, and at once got out of bed. He found that the room was half full of water, and that if he did not escape speedily he would probably be drowned. Without delay he burst open the bedroom window, and got on to the shutter, and then into a cart which was standing close by in the yard. The cart floated about with Wilkinson in it. Of course he had nothing on but his night-dress, and the little voyage which he made in the cart on the surface of the flood was by no means warm or agreeable. Mrs. Crookes and the little girl escaped in the upper room of the house, and carried on a conversation with Wilkinson while he was outside.

## SHOCK DEATHS, NARROW ESCAPES, AND DESTRUCTION

Opposite Hillfoot, and between the river and the Manchester, Sheffield, and Lincolnshire Railway, about 900 acres of land are laid out as gardens, which were cultivated in small plots by industrious artisans residing in the adjacent parts of Sheffield. These gardens, which in the summer months presented a scene of great beauty to the traveller as he entered Sheffield from the direction of Manchester, were completely submerged, laid waste, devastated, and covered with mud, hay, stones, furniture, and debris of every description. The trees and shrubs were many of them torn up, the hedges carried away, or scattered over with hay, and the whole scene was one of extraordinary desolation and ruin. A great many dead bodies were found in this neighbourhood.

In these gardens were a number of small cottages, some of them used merely as tool houses, and others occupied by the artisans who rented the garden plots. In

one of these houses, only one story high, lived a man named Jetty, his wife, and three children. They were all drowned, and in fact had no chance of escape. In another garden Thomas Elston, his wife, and a child, were drowned. A house occupied by a man named Jenkinson was partly destroyed, and it is supposed that he lost his life. In a cottage in the Farfield gardens, lived Samuel Longden, his housekeeper, three sons, and one daughter. Longden was awoken by the crashing of trees and the falling of buildings, and also by the rushing of water into his house. His housekeeper shrieked out in terror, and ran to save the younger children. She removed them on to a lath-bottomed bedstead, where they were all obliged to remain, without clothing, till nine o'clock in the morning. All their clothes, beds, and furniture were swept away or rendered worthless by the flood. The green-house and cucumber frames were destroyed.

A family named Midwood, known by the name of Moss, five in number, were washed out of their house into the river, and were all drowned, except one son, named Joel, who saved himself by floating on a piece of furniture, until he was rescued in a very exhausted condition. The house was completely destroyed.

The house of a man named Fernley was broken into by the flood, and the walls were knocked down, but the inmates escaped by remaining in the chamber. William Wright, his wife, and three children, lived in a little cottage, only one story high, opposite Fernley's, and it was wonderful that any of them escaped. Part of the house was washed away, and the rooms were flooded up to the ceiling. The inmates succeeded in getting on to the roof of the house, where they remained, cold and naked, from a quarter to one till five o'clock in the morning.

#### GALLANT RESCUE OF SEVERAL FAMILIES.

There were many instances of heroism in connection with this flood which have rarely been surpassed either on the field of battle or amid the perils of the ocean. In one of the garden houses lived a man named Henry Porton, his family, and a lodger. Porton was awoken by the noise of the flood, and thought it was thieves trying to erect an entrance into the house. He got up, and set off to go down stairs, but soon found himself up to the neck in water, upon which he returned upstairs as quickly as possible. He then opened the window, and shouted out to ascertain if there was any one in danger in the adjacent cottages. As soon as the water had subsided a little, Porton went out to rescue the neighbours, if possible. In the next house, at some little distance, lived James Wilson. The house was washed down, and Wilson was swept off for some distance; but he managed to lay hold of the chimney of a cottage in the gardens, and there he remained until help came. Porton rescued Wilson's little girl, and took her to his own house. A man named Howard lived in another of the garden houses, with his wife and daughter. They got on to the top of the house, and were also rescued by Porton. A family named Fletcher were saved in a similar manner. A man named Bennett was also taken to Porton's house from the roof of a cottage on which he had sought safety. Mrs. Bennett was swept off, and as she was going down she was seen to cling to a cherry tree; but the tree gave way, and she was drowned. Her body was afterwards found in another part of the gardens. After the flood had a little subsided, Porton had several families in his house, including three babies alive, and their wants were supplied as well as they could be under the circumstances.

## THE FLOOD AND THE COURT OF PROBATE.

In another garden house lived a file grinder named Hukin, his wife, and a niece named Alice Jackson, and a child or two. They were all drowned. The body of Mrs. Hukin was found the next day, at the Rutland Road Bridge, Neepsend. In connection with this case a curious point of law was illustrated. Mrs. Hukin had invested in her name some money which really belonged to her and her two sisters jointly, and some weeks after her death, one of her sisters, named Elizabeth Cartwright, sought to take out letters of administration of the estate and effects of Mrs. Hukin. Mrs. Hukin left no parent or child surviving her after the inundation. The only question was which died first, Mrs. Hukin or her husband; and the judge of the Court of Probate decided that in the absence of evidence that the husband had survived the wife, the next of kin of the wife was entitled to a general grant.

## THE DESTRUCTION AT NEEPSSEND.

Neepsend is an extensive and low-lying district on the north side of the river Don, and may be considered a part of the town of Sheffield. The damage here was appalling, and the loss of life considerable. Numbers of houses were wholly or partially destroyed, and the whole locality was more or less flooded.

The large tan yard of Mr. Cooper, at Neepsend, was seriously damaged. A shed which formed one end of the building, and which was about thirty yards long and twenty-four feet high, was entirely demolished. In the shed were hides of great value, and a large quantity of bark and leather, all of which were swept away or destroyed.

The works of the Gas Company at Neepsend sustained very serious damage. Retorts, boilers, and engines were torn from their foundations and buried in ruins. More than 1,000 tons of coke, and 10,000 feet of timber were carried away by the flood. Five men were at work when the water came rushing into the premises, upon which they ran as quickly as possible on to the Manchester, Sheffield, and Lincolnshire Railway, which is just above.

The Neepsend Tavern was partially submerged, and all the houses in Neepsend Lane were flooded to a great height. The boundary walls of the river were carried away, and many of the houses were gutted. Neepsend Bridge, built strongly of stone, sustained the shock of the flood without giving way, but it was much shaken, and a part of the parapets of the bridge were thrown down. The stones were of immense size, and the force by which they were overturned must have been prodigious. A vast quantity of debris, timber, and furniture, was piled up against the bridge, which has formed a barrier to its further progress.

## A FAMILY OF EIGHT PERSONS DROWNED AT NEEPSSEND.

On the bank of the river at Neepsend were several small whitewashed cottages, in one of which lived John Gannon, a labourer, his wife, and six children. Gannon and his family were awoke by the water rising into their bedroom, and seeing the peril in which they were placed they screamed out for help, their shrieks being distinctly heard by the neighbours louder even than the roar of the tempest. The water still rose higher and higher, and, as a last expedient, Gannon got on to the roof of the house, and then lifted up his wife and children. Here they remained for a few minutes, naked, terror-stricken, and piercing the air with their cries for help.

The flood continued to increase, till it rose to the top of the house, lifted it up, and carried it away, with all its former inmates, into the seething roaring flood, where they all immediately perished, almost before their last wail of terror had time to ascend from the bosom of the water in which they were instantly engulfed.

#### SHOCKING DEATH OF THREE CHILDREN.

In the cellar portion of an adjacent house lived a labourer named Coggan, his wife, and three children. Coggan and his wife had gone to Wakefield to attend the funeral of a relative, and they had left their three children in the house by themselves, a neighbour named Mrs. Smith having promised to attend to them. They were sleeping by themselves in a low cellar, as already mentioned, when the flood came in upon them, reaching far above the ceiling of their room, and of course they were drowned without the possibility of rescue. The eldest child was about eleven years of age. They were all three found in bed next morning, as though they had never awoke from their slumbers, but had passed quietly away to a sleep more lasting and more profound.

#### SHOCKING DEATHS, PERILOUS ESCAPES, AND GALLANT RESCUES AT NEEPSSEND.

In one of the houses at Neepsend, which was partially destroyed, lived a butcher, named John Mayor, his wife, a daughter, and one or two other persons. Mayor's wife was an invalid, and they therefore slept in a bed on the ground floor. She had been from home some weeks for the benefit of her health, and only returned a few days before the flood. Mayor, his wife, and daughter, were all drowned, not being able to escape from the low room, which was completely filled with water.

In the same building, but in the upper portion of it, lived a family named Clayton. Mr. Clayton was awoke by the roar of the water, and the screaming of the neighbours. With great difficulty he and his daughter and the other inmates of that part of the house, escaped to the garret, where they were safe.

These houses belonged to Mr. Mills, cutler, Parkwood Springs. The lower rooms of the entire row of houses were gutted, and some of the walls were carried away entirely. Mr. Mills's cutlery manufactory was in the neighbourhood, and was so greatly damaged that work had to be suspended for many weeks.

In another of these houses lived Thomas Albert, a skinner, who works at Mr. Mills's tannery. When Albert was awoke by the uproar, he found the water rising in the rooms on the ground floor, and he immediately called up all the members of his family. His little boy, three years of age, clung round his neck, and his wife caught hold of the back of his shirt to follow him out. The water then burst open the doors, and rushed in, upon which he said to his wife, "I believe we are all going to be drowned in this hole." Just as he said that another large wave burst upon them, and knocked Mrs. Albert down. She had hold of her husband's shirt collar, but as she fell down she tore it completely off his back, leaving him without a rag of clothing. The little boy still clung to his father's neck, and was carried on to some steps out of the reach of the water, where he was safe. Albert then went back to try to rescue his wife, and his other two children; but he was knocked down by falling bricks and floating pieces of timber. Mrs. Albert and the two elder children were drowned, and the house was nearly destroyed.

In the next house lived a man named Thomas Fairest. When the flood came he was at work at Messrs. Butchers', a short distance off, and when on his way home to rescue his family he was overtaken by the flood, and drowned near the Neepsend Bridge.

In the next house to Albert's, on the other side, lived Mrs. Peters. Her husband had gone into Lincolnshire, and she was left alone with her four children. On hearing the rush of water she got up, and told her children to follow her out of the house. They all got out, and the house was in a few minutes filled with water. Three of the children were drowned; but Mrs. Peters, with one child, managed to escape into the house of a neighbour.

In Hicks's yard, at the back of the Rutland Arms, lived William Needham, a skinner, who works at Mr. Fawley's tannery. There were himself, his wife, and two children, and also a man named John Glover and his wife. They awoke and got up just as the water was beginning to rise, and they all rushed out of the house to go down the passage into the street. The water rose so rapidly that they found it impossible to get into the street. They therefore turned back, and made for the house of a neighbour named Austin. Mr. and Mrs. Glover got into Austin's lower room, nearly up to their necks in water, and screamed aloud for help. Austin could not get to them on account of the water; but saw them swept away and perish miserably without being able to afford them any assistance. Mrs. Needham managed to get into Austin's house, but the water was so deep that she was lifted off her feet. All this time she had a young child in her arms, which added to the difficulties of her desperate struggle for preservation. She tried to get up stairs into the bedroom, but the door was shut, and the pressure of the water was so great that the Austins could not push the door open. Mrs. Needham exerted herself to the utmost to hold the child out of the water, notwithstanding which it was drowned in her arms, and she was obliged to let it go, in order to save herself from being swept away by clinging to the nearest object she could lay hold of. This happened to be a table, and it floated up nearly to the ceiling with Mrs. Needham clinging to it. Her other child was also swept away and drowned. At length Mr. Austin burst open the panels of the chamber door and pulled Mrs. Needham in, naked, cold, and exhausted. Mr. Needham had an equally perilous escape. He was in the yard outside Austin's house, swimming on the water, and borne up by the flood. He was several times submerged, and knocked down by the floating debris; but he at length managed to reach the chamber window, and was pulled in, like the dove into the ark, but in a far more wretched and pitiable condition. He had lost both his children, and was himself more dead than alive after his terrible struggle for life.

Another neighbour, named Thomas Brown, also sought refuge in the house of Mr. Austin, and was saved in rather a curious position. He got into a cupboard, and up on a shelf, with his head above the water. There he remained until the water had subsided sufficiently to permit him to withdraw from his extraordinary place of shelter into more commodious quarters.

Another row of adjacent cottages was nearly destroyed, the front being knocked down, it having the interiors exposed completely. Here lived a widow named Bright, her two sons, her daughter-in-law, whose husband was not at home, as he worked some miles off, three grandchildren, and a boy named Edward Cross, who was fifteen years of age, and worked at Mr. Mills's tannery. One of the boys got up the chimney out of the reach of the flood, and so escaped. The daughter-in-law rushed out of the house into the water, carrying her youngest child in her arms, and took refuge in the house of a neighbour. The old woman, one of her sons, two granddaughters, and Edward Cross, clung together in a corner of the

bedroom, screaming out for help, and too much terrified to make any attempt to escape. The water rose higher and higher, until half the house was swept away, and along with it the entire group of its remaining inmates, except the son who got up the chimney. He heard the cries of his mother piercing the midnight air; but he dared not come down to her assistance. After the flood had subsided he got down the chimney only to find that the house was nearly destroyed, and that five of its former inmates were drowned.

In another of these houses a man named Ridge climbed on the house top through the window, with his wife and six children, and there they remained several hours until the engine tender at Messrs. Peace's works opposite brought a ladder and got them down in safety. Some stables here were washed down and five horses were drowned.

#### ADVENTURES AT THE MERCHANT WORKS, NEEPSSEND.

The premises of Messrs. Joseph Peace & Co., at Neepsend, known by the name of Merchant Works, were considerably damaged. The boundary walls of some unoccupied land near the bridge were thrown down, and four carts were washed away. The entire works were flooded to the height of nearly five feet, and the machinery and the goods in the warehouses were more or less injured. The current burst open the large doors of the works, and carried a cask of files from the top to the bottom of the yard. The stonework of the pavement and the wall into which the doors were bolted were torn up, and two hundred gallons of oil were washed away. The furnaces were put out by the water, and such was the accumulation of mud and dirt that the operations of the works were brought almost to a standstill for some days.

About twenty men who were at work all night had a narrow escape. They happened to be at supper when the flood came; and, alarmed by the roar of its approaching waters, they took refuge in the chamber of the engine house, which they all reached in safety, but not a minute too soon.

Mr. Beevor, and his wife, who live in a house upon the premises, had a narrow escape. Their bedroom was on the ground floor close to the entrance gates of the works. They were awake in the middle of the night, and at first thought that the men were making a disturbance, and that there was a heavy shower of rain. Mr. Beevor jumped out of bed, and opened the window to see what was the matter. No sooner had he done so than the water rushed in, and filled the room, till the heavy four-post bedstead, with Mrs. Beevor upon the bed, floated on the water nearly up to the ceiling, and at the same time turned round till its original position in the room was reversed. It should be mentioned that Mrs. Beevor was an invalid. Mr. Beevor tried to burst open the door, but could not do so in consequence of the pressure of the water. The unfortunate couple then made up their minds to make the best of their uncomfortable circumstances until assistance arrived. They placed the dressing table on the bed, and a box on the dressing table, and Mrs. Beevor placed herself on the box, so as to be out of the reach of the water. She had not been in this elevated position long before the bed laths fell out, and bed, mattress, table, box, and Mrs. Beevor, fell down into the water. Mr. Beevor then pulled out the top board, and placed it across the bed, to form a platform for the table and box to stand upon. In this condition they remained, without a light, and without clothing, for several hours, when some men from the works went to the door and tried to burst it open. This was a work of great difficulty; but it was at length accomplished, and Mr. and Mrs. Beevor were liberated from their watery prison,

but not before they were thoroughly exhausted and almost starved to death with the cold.

#### GREAT DESTRUCTION OF MANUFACTORIES, AND OTHER PROPERTY AT NEEPSSEND.

The premises of Mr. Mills, tanner, of Neepsend, sustained very great damage. The tan pits were filled with mud, and the skins in process of manufacture were spoilt. Wool skins, worth £3,000, which had been received from London the very day before the flood, were washed away or destroyed. The flood poured through the works, damaging the machinery, and throwing the place into such confusion that weeks elapsed before regular operations could be resumed. A wooden house was floated to a distant part of the premises, and the walls and sheds adjoining the river were washed down. The destruction of finished goods was not so large as it might have been, a great portion of them being stored in an upper room which the flood did not reach. There was no loss of life at these works, but a joiner who was doing some repairs had a narrow escape. He had just gone to supper when the flood came. The body of a young woman was found naked in one of the tan pits.

The Ball Street foot bridge, adjoining Mr. Mills's tannery, was destroyed. Although it was constructed of iron, it was torn down by the force of the water, and bent about as though it were only a piece of pasteboard. A large portion of it might be seen long afterwards lying in the river in a sloping position, and not entirely disconnected from its original position at one end.

We now come to Mowbray Street, one side of which is occupied almost entirely by large works and manufactories, nearly all of which sustained considerable damage. At the works of Messrs. Thackray brothers, near Ball Street bridge, the boundary walls were washed down, and the premises were inundated. In the adjacent works of Mr. John Bramall, file and steel manufacturer, walls were knocked down, and valuable property was injured. Mr. John Parkin's premises were also damaged, but not to such an extent. Mr. Swinscoe's wood yard was flooded, and some of the timber washed off. The Adelaide Works, belonging to Messrs. Taylor Brothers; and the manufactories of Messrs. Drury Brothers and Walker, Mr. Ashforth, and Messrs. J. and W. Nicholson, were all filled with water and mud. Eagle Works, belonging to Messrs. W. K. and C. Peace, steel and file manufacturers, were flooded to a depth of five feet, a shed was washed down, and other serious damage effected. The streets in this neighbourhood being very low, most of the houses were filled with water up to the bedroom floors.

#### THE FLOOD DESCRIBED BY A LITTLE GIRL.

The following letter, written by a girl, eleven years of age, to her grandmother at Leeds, describes what she saw of the flood:—

“Eagle Works, March 17th, 1864.—Dear Grandmother,—I have no doubt that you will be very anxious to know how we have got on. Aunt was awake by the screaming of some pigs; she got out of bed, lifted up the blind, and saw the water rolling wave over wave. She awoke my uncle, and said, ‘Oh John, the World's at an end.’ ‘Nay, my lass, it cannot be.’ They awoke me, and when I saw the water I did not know what to think. Uncle went down the stairs to look, and he saw the water had risen up three steps. He then came up and told us, and just then the gas went out, and we had only about half a candle. Aunt and I then gave up ourselves

for lost, but uncle said if the water came any higher we should be obliged to get on the roof. However, he went down again, and found the water had lowered almost a step. O, how thankful we were when we heard that ! Uncle then insisted upon our going to bed, which we did, but could not sleep, and he said he would give anything for a pipe of tobacco, and aunt and I the same for a cup of tea. In the morning we had no fire, no bread, nor anything; and the worst of it was, our kitchen was four or five inches in mud. However, uncle got through into the warehouse, and got us a crust of bread and some tea, and in a short time he was able to get us a loaf and some bread and butter. Almost all the furniture downstairs is spoiled, the piano is smashed, and almost all the household things are spoiled; but aunt says she cannot murmur, because there are so many poor creatures so much worse off than we are. One poor family opposite to us had nothing to eat nor a bit of fire until about four o'clock on Saturday afternoon. You may be sure we are all of us very thankful.—I remain, your affectionate granddaughter, S. J. G.”

#### DESTRUCTION IN HARVEST LANE AND NEIGHBOURHOOD.

Harvest Lane, Orchard Street, and the adjacent streets were inundated to a fearful extent. Several houses were wholly or partially destroyed, and a large number rendered unfit for habitation. Mr. Clayton, grocer, had his door burst open, a large quantity of flour swept away, and two pigs drowned. Mr. W. Batty lost five pigs, Henry Frost six, and a man named Hinchcliffe the same number. Mr. F. Coggan, butter merchant, had the floor of his house let down, and a horse killed. Messrs. Faulkner and Co., carriers, had ten horses drowned. Many dead horses, pigs, and other animals were scattered about in this neighbourhood. The works of Messrs. Norton and Simmons, iron founders, opposite the end of Orchard Street, were much damaged, two horses were drowned, and a quantity of models and other property were swept away. Mr. Samuel Thorpe, Harvest Lane, had a store room carried away, with all its contents, nothing being left except the inner wall of the building.

#### LOSS OF LIFE, AND NARROW ESCAPES IN HARVEST LANE AND NEIGHBOURHOOD.

In Harvest Lane and neighbourhood, about eight lives were lost. In the Hope and Anchor yard, Harvest Lane, lived a woman named Crump, and her son, who was of weak intellect, and was about 2 years of age. They slept on the ground floor, having no upper room. In all probability they were drowned before they had time to awake, for next morning they were both found in the house dead, one lying on the bed and the other on the sofa.

In the same yard a mangle-woman named Mrs. Green occupied one low room, and was drowned in the same way as the Crumps. The water rose higher than the top of the room, and escape was impossible, Several of the neighbours were in imminent peril; but they escaped in upper rooms, from the windows of which they screamed out for assistance. Two families named Pott and Kay were rescued by being taken, one by one, through a small window, on to the roofs of the houses, and over the roofs into the street. In an adjoining house, the occupier, named Thomas Allen, tried to escape in a similar manner, but in doing so his foot slipped, and he was as nearly as possible falling headlong into the torrent. His wife screamed when she saw him fall; but happily he was enabled to climb back into the

bedroom, where he remained in safety until the flood had subsided. The house withstood the force of the water, and all the family were rescued.

In Orchard Lane lived John Parkes, his wife, and two children. The following is the account given by Mr. Parkes of his own escape and of the loss of his family. He says:— “We were awoke by cries of “escape to the tip,” this being the name given to the railway embankment, which stands close to the house we occupied. The cry was instantly followed by a loud cry of “Fire, fire.” Thinking the house was on fire, or that a tremendous fire raged in the neighbourhood, each seized a child and rushed down stairs. I was just about to unfasten the door, when it was burst in the water throwing us back with tremendous force. I was whirled round the house, and I heard my poor wife cry, “I cannot stand, I am going,” but I saw neither wife nor children again. I remember no more, but those who saw me tell me that I was washed out of the window, and that I seized one of the shutters, drew myself up by that, and from thence to the chamber window, and to the roof of the house.” The bodies of Mrs. Parkes and one of the children were found near the Harrow Inn. The body of the other child was never identified. The door of Parkes’s house was burst open by the water, and a horse was floated into the room, where it remained in safety till the flood had subsided.

An aged couple named Mr. and Mrs. John Vaughan were drowned in Orchard Street. They slept down stairs, and were overwhelmed by the water; which completely filled the room. There were several lodgers in the rooms upstairs, and they all escaped.

Many poor people in this neighbourhood suffered losses which to them were very serious. A widow woman named Twigg, who supported herself and three young children by keeping cows, had five out of six cows drowned, and the sixth was greatly injured. Her donkey cart was also swept away, and her donkey nearly killed. Her whole means of livelihood were thus suddenly annihilated. William Emsall, who lived in this locality, had eleven cows and a horse drowned. Three of them were swept down a distance of more than a mile. Emsall’s house was flooded to a great depth, and he and his family only escaped by ascending into the garret. A widow named Ann Knapp, who has lost one arm, had her donkey and cart swept away, and most of her furniture destroyed.

#### THE DESTRUCTION AT HILLFOOT.

The ravages of the flood which we have just been describing were committed on the north side of the river Don. We must now turn back to Hillfoot, and come down on the south side of the river till we reach the site of the Ball Street bridge already mentioned. The wooden bridge at Hillfoot was carried away completely, and the houses in the neighbourhood were flooded.

#### THE FLOOD AT BACON ISLAND.

A little lower down an island is formed by the river dividing into two branches, and this low-lying piece of land is called Bacon Island. The destruction here was very great, as the water swept completely over the island. In one of the houses there lived Mr. Howe, metal smith. The inmates were aroused by the flood sweeping over the house; but it was strong enough to withstand the shock, and all the family escaped by getting up into the top bedrooms. The water filled the house up to the chamber floors. A large greenhouse was carried away, as was also the

back kitchen. Doors were burst open, windows broken in, and all the furniture damaged or destroyed. On the south side of the island a stable, occupied by Mr. Greaves, treacle boiler, was knocked down by the flood, and such was the force of the shock that the stable wall dashed through the wall into the next house. A pony, belonging to Mr. Greaves, was drowned in its stall. The adjoining house was occupied by George Shaw, a miller's labourer, and his family. The water filled the lower rooms, and floated the beds in the chambers. A portion of the foundation gave way, the house tottered, and its inmates every moment expected to be engulfed in the torrent which raged around. Their fears were happily not realised; for the house stood, and all was saved.

#### GALLANT RESCUE OF A FAMILY BY A WATCHMAN.

At the head of Bacon Island was the residence of Mr. James Sharman, known as the "Shuttle House," so called because he had charge of the shuttle by which the water was supplied to some mills and manufactories a little lower down. In the house was Mr Sharman, his wife, a daughter, two daughters-in-law, and four grand children, one of them being a baby. When the flood burst upon the island they were all asleep; but they were aroused by Police-constable John Thorpe, who was on duty in the neighbourhood, and saw the danger to which the Sharmans were exposed. Thorpe heard the roar of the flood approaching, and with praiseworthy promptitude and courage, he went to the rescue of others, even at the imminent peril of his own life. When the Sharmans were called up the lower rooms of the house were filled with water, and the bedrooms were being filled rapidly. The only means of escape was through the bedroom window; but even this means of egress was closed by an iron bar which had been placed across the window frame for greater security. By this time several people had come to the aid of the watchman, including George Walker, of Philadelphia, and his brother. Sharman, seeing that it was a question of life and death to himself and family, seized hold of the iron bar, and with the strength of desperation wrenched it from its holdfast. The window was now opened, but it was still a difficult matter to get out, as the water surrounded the house. The watchman and the two Walkers, however, stood on an elevation, and were not so much submerged as to be in personal danger. The watchman told the mother of the baby to throw it out to him, and she did so, though not without some hesitation lest her little one should fall into the flood which was swelling and raging beneath. Her fears on that head were soon relieved; for the watchman caught the baby in his arms as neatly as though he had been an experienced nurse and not a protector of the nocturnal peace. The babe was deposited in a place of safety, and the next thing was to get out the remaining inmates of the house. It has been stated that a ladder was obtained, and that in this manner they escaped; but, it appears, there was no ladder in the question. One by one, the members of the family got out of the window, and were lifted down by the watchman and other persons who were helping. Of course the Sharmans had nothing on but their night clothes, and the awkwardness of their predicament may be imagined. Although there were nine people in the house all this occupied very little more time than it takes to narrate the incident. The last person had hardly been lifted out of the window when the house fell down with a loud crash. It was swept away so completely that not a vestige of it remains except the foundation. The Sharmans have since expressed the most lively gratitude to Thorpe, the watchman, for his intrepid bravery, which has also received notice in the form of one or two presentations from parties who thought that such conduct ought to be recognised

and rewarded. After their narrow escape the Sharmans were taken to the house of a neighbour, where they were provided with clothing and other requisites. Of course they lost all their furniture, and everything they possessed.

The following is Policeman Thorpe's own account of the affair. He says:— I was coming down from Hillfoot about 12.30 p.m. I heard a great noise on the river as if a great rush of water was coming down through the gardens opposite to the old barrack wall. I saw that Bacon Island was in danger, and I ran with all speed to awaken the people, and warn them of the danger. I looked over the wall on the bridge leading to Bacon Island, and saw that the water was coming over the shuttle gates. I knew that the water had no business coming over there, so I rapped the family up and told them to get up as there was a flood coming and their house would be washed away. I then ran down Bacon Island, to awaken the other people, but I could only get half-way before the water was up to my waist, and pieces of timber and rubbish floating about my legs: so I ran back as fast as I could through the water, and tried to break open Mr. Sharman's door, but I could not; and I told them to get through the chamber window, and I would catch them. The first they threw out to me was a young child. I ran up George Street, and knocked up a neighbour, and gave her the child. I then ran back, and received a second child; I did the same with it. I then ran back nine successive times and got them all out safe; the father being the last to leave the house. As soon as I received the father, I said to him "Run, now, for your life !" We had no sooner got on the main road than the house fell, and took the bridge with it, leaving nothing to be seen but one vast sheet of water. I then went and knocked the people up at the bottom of George Street.

The following is the statement of an eye-witness:— I am a resident in the neighbourhood, and I was awoke out of my sleep by the cries of the unfortunate family of the Sharmans; I immediately got up and looked through my chamber window, and saw the watchman, up to his waist in water, carrying a young child in his arms up George Street. I got dressed immediately to go to his assistance, but before I could get to him he had saved the whole family, nine in number, and there was not a vestige of the occupier's house remaining. After saving these, he roused up some occupants at the bottom of George Street, all the time up to his waist in water. He succeeded in rescuing them before the water got too deep in their houses. There were either four or five families at the bottom of George Street flooded in their houses, but owing to his timely aid he got them out, and locked their doors. When he had done all that possibly could be done, he remained true to his duty, in his wet clothes, shaking with the cold. The man seemed quite exhausted with fatigue; and being wringing wet through, there he stood till the sergeant came to him, two hours afterwards. I heard the watchman ask the sergeant if he could go home and change his wet clothes. The reply was— "I don't know; I've got no order about that." I thought that very hard indeed; but the man never murmured, but did his duty in his wet clothes from 12.30 until five a.m., when he went home. I write this on behalf of the bold watchman, who risked his own life nine successive times to save his fellow creatures. I understand he was a soldier before joining the police. He has served in the Crimea and India in the 33rd Regiment, and he bears a very good character in the neighbourhood of Hillfoot and Philadelphia for being a good watchman.

It may here be stated that some time afterwards, the Inundation Relief committee voted £100 to reward John Thorpe, and other policemen who had made extraordinary exertions during the flood.

### SHOCKING DEATH OF A FAMILY AND EXTRAORDINARY ESCAPE OF A CHILD.

On the South side of Bacon Island were two houses, which stood crosswise to a row of buildings previously referred to, in which lived George Shaw, and others. One of these houses was occupied by Geo. Wright, a furnace man, employed at Messrs. Butchers', and the other by a family named Mappin. Wright was awoken in the middle of the night by the rush of the waters. He at once got up, and knocked at the partition wall to alarm his neighbours. Mrs. Mappin replied by knocking again, and in a moment afterwards she heard a loud shriek. Then all again was still, except the noise of the wind and the roar of the flood. When the water had subsided, it was discovered that the gable wall of Wright's house had been carried away. At first it was not known exactly what loss of life there had been in this house. Mr. Wright had been to a funeral the day before the flood, and the neighbours were not aware whether he had returned or not. There is, however, no doubt that Wright was in the house at the time of the flood, and that he perished in its waters. There were also in the house Mrs. Wright, her young child, and an older child, a visitor, the daughter of Mr. Johnson, pork butcher, Sheffield Moor, with whom Mrs. Wright had formerly lived as servant. Mrs. Wright was drowned, and so was the visitor, the child of Mr. Johnson. Mrs. Wright's child had a most extraordinary escape. After the subsidence of the waters, a young man climbed on a pole through the bedroom window, and there he found the little child asleep in its bed, unconscious of the danger it had escaped, and the terrible bereavement it had sustained. Even the candle which its parents had lighted in their terror when the flood came, was burning near the child, disclosing on its features the soft and peaceful slumbers of infancy. The young man took the child up, and said to it, "Where are your dada and mamma?" "They have gone out of the window," replied the little innocent. The child was taken out of the ruins of its father's house and conveyed to a place of safety. Afterwards the Johnsons applied for the child, thinking that it was their child that had escaped. Their distress on finding that their child was the lost one may be imagined. We understand, however, that Wright's child which escaped has been handed over to Mr. Johnson, and that he has undertaken the care of it in place of his own.

Johnson's child was not found till more than two months afterwards, when it was got out of the river Don at Kilnhurst. The body was in an advanced state of decomposition, and the features were unrecognisable. One of the fingers of the left hand had been taken off a few years ago, which led to the identification.

### THE INCIDENTS AT BACON ISLAND DESCRIBED BY AN EYE WITNESS.

An eye-witness of the thrilling scenes at Bacon Island described them as follows:— I was seated at my fireside, a little after twelve o'clock, when my attention was arrested by a strange noise, together with the shouting of many people. Alarmed, I hastened to my front door;— upon opening it, I was completely bewildered by the frightful sound that fell upon my ears; it has never yet been truly described, nor can it ever be. The nearest approach to a correct definition of it, that I have heard, was that of a poor man whose house withstood the storm that swept away his furniture, &c. "Sir," said he to me, "I heard it coming just like *hissing thunder*." I was so stupefied by this horrid sound, that I did not see the wild waters immediately before me, nor did I dream of the nature of the calamity by which I was threatened, until I actually stepped into the water at my garden gate. I at once

mounted the railings, and was terrified by the sight of the rushing flood. Sharman's house was immediately opposite, only across the road. My eye had but just caught the waters foaming at its base, when the end fell into the flood, affording a glimpse of the rooms, furniture, &c.; it was but a glimpse, for in a moment the remainder of the house fell towards the road, and "sank as lead in the waters," not leaving the slightest vestige visible. As I was not aware that Sharman and his family had escaped a few minutes before, I supposed they were all lost; a thrill of horror came over me, that caused me to turn my head from the deep that had, as I supposed, swallowed them up. I then perceived that the waters had risen, and surrounded me in my garden— I at once leaped into them and retreated into my house, which is considerably elevated above the road. The stream rose rapidly, until it reached four feet above the level which it had attained when it swept away Sharman's house. As it had now reached my door step, I requested that my children should be taken out of their beds and carried to a neighbouring house on higher grounds. Before this could be done, I fancied the waters ceased to rise; presently I had the happiness to see that they were subsiding, so that my family and myself were safe; still I was oppressed with the thought of others. When the flood invaded it rose rapidly, but when it retired it seemed to sink slowly, very slowly. At length the road was clear of water (not of mud). We then perceived that the bridge leading to the island was swept away. Anxiety to know the fate of the cottagers on the island constrained some to creep over the top of the shuttle. I essayed to follow, and succeeded. Upon reaching the other side we found we were landed in chaos, and had to grope our way (the darkness was terrible) through thick mud, under and over trees, timber, stones, and wreck of every kind. Upon reaching the cottages we were rejoiced to find all their inhabitants safe, excepting poor Wright, his wife, and the little girl who was visiting with them. The end of Wright's house jutted out into the stream which brought down a beam that broke a large hole through it; into this the stream poured until it threw down the front of the house, carrying away the door, the stairs all the furniture, and we think Wright, his wife, and the child too; but as the flood never reached the chamber in this house, we were driven to the conclusion that the three persons who perished must have been down stairs. Besides, one of the neighbours across the yard thinks that Wright must have been carried by the stream to his door if not actually into his own house, for he declared it was not from the other side of the yard, but from his own room down stairs, that he heard him cry, "Mr. Shutt, Mr. Shutt, save me, oh ! do save me !" Mr. Shutt promptly called out "Where are you ?" Alas ! there was no response.

As speedily as possible we supplied the poor sufferers with candles, but this was no easy matter, the lower rooms being filled with furniture, wreck, mud, &c., to such a height that the inhabitants could neither get down stairs to us, nor we up to them, but with the greatest difficulty. At length we succeeded in every case, and had the happiness of seeing bright lights in those abodes which, an hour before, we feared had been overtaken with the darkness of death.

After we had supplied these poor sufferers with lights a young man climbed by a pole up into Wright's chamber. He there found the drowned man's little child asleep in her bed. Upon taking her up, and asking her where her dada and mamma were, she replied, "They have gone out of the window." This led us to suppose that Mr. and Mrs. Wright must have been looking out of the chamber window when the front of the house gave way and carried them with it; but upon inquiry I learn that there was no chamber window at the front of the house. They must therefore have been swept out of the room below. Had they been upstairs they would have been as safe as their child was.

Having done what we could for these unfortunate cottagers we left them and "waited for the break of day," which, when it came, revealed to us scenes of wretchedness and ruin of which they will have but faint conceptions who have only visited the island since Saturday morning.

#### DESTRUCTION OF PROPERTY AT PHILADELPHIA.

A little lower than Bacon Island is a district called Philadelphia, which is occupied by mills, large manufactories, and other buildings, which were nearly all flooded to a greater or less extent.

From the mill of Mr. Joseph Rodgers the torrent swept away sixteen pigs, and their sties, but five of the animals were recovered near the Infirmary, lower down the stream. The water filled the mill up to the second floor, and four horses were drowned in their stable. Some men had been at work in the mill all day and all night filling bags with flour, and were just about beginning to draw them to the upper story when the rush of water burst into the room. They had just time to get up the stairs before the flood reached them, and were saved. The flour floated about the mill, and for all practical purposes was destroyed. A wagon and some carts were floated away — the wagon being left in the yard of Messrs. Butchers' works below, and the carts resting on the low outbuildings in the neighbourhood. Much valuable timber was carried away, including an oak log of two tons weight, which was deposited near the New Inn, Shales Moor. The partition wall between the stable and shed was broken, and a newly erected tilt — Mr. Rodgers being a manufacturer of steel as well as flour — was carried away bodily with the exception of one gable end. A number of cottages near the mill yard were flooded to such an extent that the bedrooms were some depth in water. The window of Aaron Dearden, flour dealer, was burst in, and he and his family had a narrow escape. The occupants of all the adjacent houses were in a perilous position, but fortunately the walls withstood the violence of the flood except those of one unoccupied house.

The works of Messrs. W. and S. Butcher, a little lower down, were greatly damaged. Walls and gates were swept quite away; a crinoline mill and workshops entirely disappeared, and along with them a boiler, forge, and tilt, the chimney, which stood in the middle, being alone left to mark their site. The heavy bridge which crossed the goit running through the works is destroyed. Part of the rolling mill, beyond the bridge, was carried away, and the blacksmith's and other shops were greatly damaged. The machinery, buildings, and the stock of steel have been seriously damaged. In Messrs. Butchers' works the body of a woman, perfectly naked, was found after the flood. On the premises of Messrs. Butcher lived Mr. Henry Walker, manager, and his family, consisting of a wife, four daughters, a son, and a nephew. The water dashed with such fury against the house that a kitchen and front wall of the building were entirely swept away, much damage being also done to the inner walls. When the flood came the members of the family hastily assembled in a front and back bedroom. The house rocked, and in a few moments the whole wall fell down. The nephew was standing at the front bedroom window when the wall fell, and only escaped by throwing back his hand and catching hold of one of the bed posts. Very fortunately the main portion of the house stood, and none of the inmates perished. The house was handsomely furnished; but scarcely a wreck of the valuable contents of the lower rooms remained. An expensive piano-forte and the other costly furniture, totally disappeared. Two pigs, two goats, and

twenty-five fowls were drowned. The dog was saved. Two valuable horses belonging to Mr. William Butcher were destroyed.

The works of Mr. William Butcher, jun., were damaged, but not so seriously. Several other large manufactories in this district suffered; but it is not within the scope of this narrative to enter largely into a mere enumeration of property or buildings destroyed.

#### AN INCIDENT AT PHILADELPHIA.

The following incident is related by the Rev. Mr. Wright, of Philadelphia House, curate of St. Philip's Church. Mr. Wright's garden is separated from the road by a wall about eight feet high. The flood rose some eighteen inches higher than the wall, but not high enough to extinguish the street lamp by the road side. Inexplicable sounds were heard from the garden during the night, and when day dawned the garden was found to be covered over with a deep bed of mud, in which was a horse in a half erect position. It had been carried on the crest of the wave over the wall. It was found to be alive, though in a greatly exhausted state. Some food was given to it, and after a time it recovered. The animal had on his halter, which was attached to a stone of some 16 lbs. weight. The stone had evidently been dragged from the wall of the stable, and the wonder is that it did not insure the drowning of the horse. The owner of the animal has not been ascertained.

#### DESTRUCTION AND LOSS OF LIFE AT WATERLOO HOUSES.

Near to the river at this point were two rows of houses, nearly at right angles, the property of W. F. Dixon, Esq., and called Waterloo Houses. Here a very extraordinary spectacle was presented after the flood. The entire front walls of the row which stands in the gable end towards the river, were knocked down; the interiors exposed, and the flooring of the bedrooms hung down aslant from its hold on the side which remained uninjured. It was curious, on visiting the scene next morning, to notice bird cages hanging on the walls, with their little inmates trilling their songs as merrily as on any other more auspicious morning. Much of the furniture was washed away or destroyed, and the houses themselves were filled with water and mud. The inmates were all in great peril, and the wonder is that any of them escaped. The flood came rushing down upon them, and the water rose up to the bedrooms. In a few minutes the front wall fell down with a tremendous crash, which startled both those who were asleep and those who were awake, by its loudness and suddenness. Most of the inmates retreated into their back bedrooms, where they were safe from peril of death, although they were flooded and exposed to the cold night wind. It is singular that, although all these houses were occupied, only one life was lost in this row. An old woman named Mrs. Whittington, 82 years of age, was sleeping in a low room at the house of her daughter. The flood washed away both the old woman and the bed on which she slept. The body of the old woman was found some weeks afterwards, at a distance of many miles from the place where she was drowned.

## DESTRUCTION OF PROPERTY IN GREEN LANE AND DISTRICT.

Cornish Works, the property of Messrs. James Dixon and Sons, were flooded, and the dies and stamps in the lower rooms were injured. The boundary wall of Cornish Lane was knocked down for some distance. The works of Messrs. Steel and Garland, stove grate manufacturers, were flooded, and so were the Globe Works, but not seriously. The Don Brewery, the property of Messrs. Smith and Redfern, was flooded, and some of the goods were damaged. The works of Messrs. Beckett and Slater, steel, saw, and file manufacturers, were injured to a serious extent. The boundary wall was carried away, and a large steam engine boiler was torn from its bed, and washed down some hundreds of yards into the works of Messrs. Wheatman and Smith. A quantity of machinery was broken to pieces, furnaces were extinguished, and various finished goods were spoiled. The Green Lane Works, the property of Messrs. H. E. Hoole and Co., were damaged considerably. A large room, filled with stoves, fenders, and so forth, was flooded to a depth of four feet. Trunks of trees were washed into the grinding wheel, the engine and boiler were covered with debris, and a great quantity of miscellaneous property was destroyed. The flood came out into Shales Moor, which is some distance from the river, flooded the houses, and tore up the street lamp posts. A photographic apparatus near St. Philip's church was floated away, and could not be found by the owner for some time afterwards. All the cross streets from the river to Shales Moor were flooded to a most serious extent. Ebenezer Wesleyan chapel is at a considerable distance from the river, yet the strong stone wall and iron railings were laid prostrate and torn up in an extraordinary manner. The Globe Steel Works, the property of Messrs. Ibbotson, were much damaged. An underground hot-air flue exploded with a loud report in consequence of the influx of water generating steam with great rapidity.

## SHOCKING DEATHS AND PERILOUS ESCAPES IN GREEN LANE AND THE NEIGHBOURHOOD.

We have now reached a thickly populated district of Sheffield, where the effects of the flood were very serious. When the water came rushing down in the middle of the night, the affrightened inhabitants were speedily awoke, and consternation and terror spread in every direction. To most persons it seemed like a dream; they could hardly realise the fact of an avalanche coming down upon a large town which had always been thought secure from the ravages of a flood, and through which no rivers flowed except two or three of very small size, and which contained no volume of water to do any serious damage. Some thought it was raining fast; others that a waterspout had burst in the sky; others that the world was coming to an end; and some conjectured the true cause, that one of the large reservoirs, eight miles distant, had given way. But who could have supposed that a reservoir bursting far away on the borders of Derbyshire would have had any appreciable effect upon the inhabitants of Sheffield. Such a calamity had never been foreboded or imagined. The first impulse was to start out of bed, strike a light, and rush out into the street to see what was the cause of this strange and weird-like midnight uproar. But the doors are closed, and cannot be opened in consequence of the pressure of water. The rooms are flooded, and the water is still rising. The bedroom is the only safe retreat, and on reaching it the windows are thrown open, and screams of horror follow one another in rapid succession down the rows of houses, and unite from each side of the street. Yonder is a row of gas

lamps reflecting their yellow light from the rugged and foaming waves of a huge torrent of water; but now, one by one, the street lamps are extinguished by the rising flood, like stars when a black thunder-cloud hurtles across the sky. The flood sweeps past, and on its surface can be distinctly discerned by the faint candle-light naked human bodies carried along by the torrent amid heaps of timber, broken furniture, and a wreck of rubbish. Such a scene was surely never before in this world hidden from the view of mortals by the darkness of night, or exposed to the gaze of angels, looking down from heaven in pity, except when "the fountains of the great deep were broken up," and "the water prevailed exceedingly," and "all the high hills were covered."

In a yard in Dun Street, Green Lane, an old man named Dennis M'Laughlin was drowned in his bed. He lived alone in a room on the ground floor, which was flooded up to the ceiling. In an adjoining room lived the old man's donkey, and there it died by the same calamity which overwhelmed its master. Another family living in the same yard had a narrow escape. They too slept on the ground floor; but they were warned just in time. They rushed out in their night clothes, almost up to their necks in water; but soon reached the house of a neighbour, where they were safe.

All the houses in Ball Street were flooded to an extent that was perfectly ruinous. The inhabitants, however, happily escaped, by remaining in their bedrooms, which were only partially filled with water. Mr. Wood, landlord of the Boatman Inn, at the bottom of the street, had two horses, eight pigs, some stables, and other property, carried away. The other residents here all suffered the loss or destruction of nearly the whole of their furniture, and the houses had to be abandoned. Weeks after the flood the street was filled with debris, amongst which might be seen dead fowls, broken crockery, boots, articles of wearing apparel, all in one promiscuous conglomeration of mud.

In Long Croft, between Green Lane and the river, several persons lost their lives. In a yard here lived Christopher Calton, his wife, and a sister's child, aged five years. They slept on the ground floor, and were aroused by the water lifting up the beds in which they had been reposing. They got up, and rushed to the door; but it would not open even with their most desperate exertions. The water held the door tight, and was every moment rising higher and higher. They screamed out for help, but no help came, and they were drowned in the room, which was completely filled with water up to the ceiling.

A man named Willett, and his daughter Priscilla, aged 14, lived in Long Croft. They were aroused by the watchman before the flood had risen to any great height, and Mr. Willett ran out of the house, of course without stopping to dress. His daughter did not like to be left in the house alone, and wished to follow her father. He saw that there was danger in her going out into the flooded street, and he begged and entreated her to remain in the house. She said she durst not stay by herself, and that if her father went she would follow him. There was no time for parleying, as the water was rushing along, and the father waded as fast as he could out of the reach of danger, and was rescued. His daughter followed him, but they became separated in the darkness, and the young girl was swept away and drowned.

Patrick Ryder, his wife, and a son about ten years of age, and a daughter aged eight, lived on the opposite side of the row. Ryder himself was not at home on the night of the flood. When the watchman alarmed Mrs. Ryder, she ran down stairs, followed by her two children. She managed to open the door, but had no sooner done so than a torrent of water rushed into the house. Mrs. Ryder seized

hold of her daughter, and, breasting the waves, though quite undressed, carried the girl to the top of the street. The boy followed, clinging to his mother's night-dress. Mrs. Ryder was almost exhausted, and, in order to rest for a moment, clung to a lamp-post which had not yet been washed down. Just at this moment, a sudden rush of water carried the boy off his feet. "Oh, mother !" he screamed out. "Oh, Bob !" shrieked his little sister in reply. The next moment the torrent bore him away on its surface, and his cries soon died away amid the roar of the flood. Mrs. Ryder, though up to her neck in the water, still struggled for her own life and for that of her daughter. The water swept them in the direction of the King William Inn, the inmates of which house pulled Mrs. Ryder in, and she and her daughter were saved, her son being lost as already intimated.

Many of the neighbours had very narrow escapes, and it is probable that several more would have been drowned but for the timely warning given by the watchmen. In most cases, safety was to be found only by remaining in the house and going into the upstairs rooms. Several persons besides the Ryders tried to escape into the street, but were unable to open the doors, and others were detained by the force of the torrent, which rose with appalling rapidity. In one house five persons rushed down stairs to make their way out of the house, but the sixth member of the family would not permit the door to be opened. They all went upstairs again, and were saved.

Henry Wall and his family, who lived in Green Lane, had a very narrow escape. The water so flooded the house that the inmates were unable to escape. Some neighbours, however, got upon the roof of the house, and let a rope down into the chamber. Wall himself, his wife, and his three children, were then successively drawn on to the roof, where they remained two hours before they were rescued.

#### THREE MEN RESCUED THROUGH A WINDOW.

At the time of the flood three young men were proceeding along Ball Street to go to their work, it being usual when work is kept up all night for the change of hands to take place about twelve o'clock. The flood met the three men, and carried them back as far as the Hallamshire Hotel, kept by Charles Staniforth. The men cried out for help, and were heard by an old man named Wagstaff, who lodged at the Hallamshire Hotel. Wagstaff opened the window, and attempted to drag the men through. He was not strong enough to do so by himself, and he called out for assistance. Mr. Staniforth came, and tied a cord to the bedpost. The rope was then thrown out to the three men, who were dragged in through the window and rescued.

#### DESTRUCTION AT KELHAM ISLAND.

A little lower down than the part which we have just been describing is a long narrow strip of land called Kelham Island, its insular formation arising from the river here dividing into two branches. This island is occupied for the most part by large manufactories; but there were also upon it several dwelling houses.

On the upper part of the island, exposed to the full fury of the flood, were the works of Messrs. Wheatman and Smith, saw manufacturers. Here the grinding wheel was destroyed, being battered down by large pieces of timber brought down by the flood. Several large grindstones were swept away, and were not recovered.

There was an enormous accumulation of debris near the ruins of the grinding wheel. Here was a large boiler, there a live pig struggling and wounded; there were trees, beds, mattresses, bags of flour, and other articles almost innumerable. Oil worth about £300 was swept away, and the cistern which held it was embedded in the mud. The whole place was flooded, the machinery damaged, and a large quantity of goods were destroyed.

The works of Messrs. Crowley and Son, iron founders, were seriously damaged and the machinery injured. They had two horses in the stable on the premises. One of them forced its head through the window, and was drowned, its head being held fast as in a vice. The other horse stood with its forefeet upon its companion's body, and so managed to keep its head above water.

The works of Messrs. Charles were flooded, but the damage was not so extensive as in other works. The flood rose to the height of four feet, bringing along with it several dead bodies, and vast quantities of debris. Mr. Dun's grinding wheel at the end of Kelham Island was inundated and damaged. The Union Wheel was also covered with mud and debris. In fact the whole Island was thrown into a state of chaos which can hardly be realised by the imagination.

#### A FIRE IN THE FLOOD, AND NARROW ESCAPES AT KELHAM ISLAND.

Some of the workmen of Messrs. Charles, at the Kelham Rolling Mills, had a very narrow escape. The first alarm was given by a man who had been asleep at the low end of the works. He was awoke by the rushing in of the water, and at once hastened to alarm the other men. They were all congregated together, getting their dinners at midnight instead of mid-day. The first impulse of the men was to run out of the works. Had they done so they would inevitably have been drowned, as the water completely surrounded the premises. Fortunately, however, the gates of the yard were closed, so that egress was impossible. The men, therefore, in their exigency clambered upon the cross beams of the roof. In doing so they by some means set the place on fire, so that there were a flood and a fire upon the same premises at the same time. The flames, however, were soon extinguished by the water, and the damage from fire was very small. A most extraordinary circumstance is related in connection with the man who gave the alarm at these works, and who thus saved the lives of his fellow workmen. He lost his wife, and two children, and his father, who were all drowned in the flood at Malin Bridge. But there is a yet more extraordinary incident to be noticed. His own bedstead, on which his wife had that very night been sleeping, and also other articles of his furniture, were washed down and deposited in the very works at which he was employed — a distance of two miles and a half.

The workmen of Messrs. Crowley had been working day and night for some months; but on the night of the flood it so happened that they all left work by ten o'clock. Had they been overtaken by the flood when at work they would in all probability have been drowned.

#### A MAN LOSES HIS OWN LIFE IN ATTEMPTING TO SAVE HIS PIG.

At the end of Kelham Island stood three small cottages occupied by John Eaton, engine tender at Messrs. Wheatman and Smith's, a family named Hill, and another named Clarke. The inmates of all three cottages were awoke by the awful noise of the approaching flood, and sought refuge in their bedrooms, where they all looked

out of their windows as the torrent poured down. Eaton had a valuable pig in a sty down below, and he determined to make an attempt to rescue the animal. For this purpose he went downstairs, and into the pig-stye, which was in front of the house. Eaton endeavoured to pull the pig into his house, but the stupid brute would not move. Hill and Clarke were looking out of their windows, and begged Eaton to save himself, and leave the pig to its fate. Their entreaties were of no avail, for Eaton still tried what kicks and coaxings would do to get the pig to stir from its resting place. The stubborn animal knew nothing about floods, and did not care for a wetting; so it would not move; but in a few minutes the flood swept down an adjacent wall, and engulfed pig, and sty, and owner in one common ruin. The pig was drowned, the sty was destroyed, and Eaton himself was dashed with great violence against a mortar mill belonging to Mr. Smith, builder. There Eaton remained, crying out for help; but Hill and Clarke, who heard his shrieks of agony, could not go to his aid. In a short time his cries were heard no more; he was swept away and was drowned; and now he is known and spoken of as the man who lost his own life in trying to save his pig. His wife, unhappily, met with a similar melancholy fate. She went down stairs to the assistance of her husband, and while thus engaged she was submerged, and carried down the goit, where her body was found when the waters had subsided.

The houses of Hill and Clarke were greatly damaged; the doors were burst open, and all the furniture and clothes down stairs were carried away. Hill had three children suffering from small pox, and had to borrow clothing with which to cover them while they were being removed to another house.

#### THE FLOOD AT THE SHEFFIELD WORKHOUSE . — INTERESTING INCIDENTS.

The Sheffield Workhouse, situated in Kelham Street, is at some little distance from the river; but it was flooded to the height of four feet, and the destruction of property was considerable. The water entered the house not only by the doors, but also by the sewers, some of which were burst open, and the floors of the rooms were lifted up. The inmates were all in bed, except a young man in charge of the boiler house. He is an imbecile, and is known by the name of "George." The water came rushing in with such fury that "George" got on the top of the boiler house in order to ensure his own personal safety. That accomplished, he does not seem to have had the sense to take measures for the protection of others. There he sat on the boiler house, whistling—

"Whistling, to keep his courage up."

Miss Day, the matron, was awoke by the roar of the waters, and, hearing some one whistling as though he were mad, she threw up the window, looked out, and saw "George" perched on the boiler house, and whistling away with the greatest *sang froid* imaginable. Miss Day, in great alarm at the rush of water which was both visible and audible, asked "George" what was the matter. "George" looked up with a *non compos mentis* smile on his features, and with happy unconcern replied, "I don't know." Just at this moment loud and piercing screams arose from many voices, and the whole inmates of the house were soon in a state of excitement and consternation. Their first impression was that a large cistern at the top of the house had burst, and was flooding the premises. On the ground floor were the hospital and lunatic wards, containing a large number of woman and children suffering from various diseases. The water had already risen to such a height as to flood the beds, and cause them to float about the rooms. Mr. Wescoe, the governor of the

house, at once took such precautionary measures as were necessary. If he had let the inmates have their own way the scene would have been one of indescribable confusion, and probably many lives would have been sacrificed. All the women who were upstairs, Mr. Wescoe kept in their apartments, and would not let them go out on any consideration. The same measures were adopted with respect to the men, except that about a score of able-bodied paupers were told off for special duty, and despatched across the yards to the rooms occupied by the children having measles and small pox, and also to the women's venereal wards. The task of these men was one of great peril, as they had to wade through the water, which was not only exceedingly cold, but also a considerable depth. When the men reached the sick wards they found such of the women and children as were able to get up, standing or kneeling on their beds in a state of the greatest alarm. The men carried the women and children, who had nothing on but their night dresses, through the water to the upper rooms of the female hospital. There were many narrow escapes; but happily no life was lost. The damage to the property was considerable. Stores of provisions, wearing apparel, bed linen, and other articles on the ground floor, were injured or destroyed. Several heavy bins in the store room were turned upside down. In the governor's office, the floor was torn up, the books were floated from the desks and tables, and some of the furniture was swept out into the yard. The large doors of the house were burst open, and many articles were carried completely away from the premises. In the dead house several bodies were in coffins, which were placed on high benches. They were reached by the water, but were not moved from their position. A thick deposit of mud was left over the entire area of the premises.

The bodies of those who had been drowned began to be brought into the Workhouse by three in the morning, and this continued during the whole of that day and every succeeding day during the ensuing week. The whole number of bodies so brought amounted to 124, and may be thus classified:—Males, 69; females, 55—men, 37; women, 31; children, 56. 102 of these bodies were identified, and 23 remained unidentified. Sixty-eight bodies were removed and buried by their friends, and 56 were interred at the expense of the union.

#### EXTRAORDINARY ESCAPE IN COTTON MILL WALK.

All the streets around the Workhouse were deeply flooded, and the inhabitants placed in great peril. The Bowling Green Street school had its wall knocked down, and the door burst open. In Cotton Mill Walk were several low houses near a branch of the river, some of these consisting of two rooms only, and both on the ground floor. In one of these cottages lived Arthur Johnson, his wife, two children, and a young woman named Emma Pagdin, a lodger. Mrs. Johnson was alarmed by the roar of the water, and aroused her husband. On jumping out of bed he found a torrent of water pouring into the room. Placing a child under each arm, he rushed to the door, which he tried to open. His efforts were in vain, for the pressure of the water kept it shut. At this conjuncture two policemen fortunately reached the house, and hearing the screams of the inmates, they broke out the window. The children were lifted through, and then Mrs. Johnson, his wife, and the lodger. They were barely able to breast the torrent of water; but by a desperate effort they reached the King William Inn, where they were safe.

## TWO CHILDREN SAVED IN A CUPBOARD.

One of the most extraordinary escapes in the course of the flood was the one we are about to relate, and which occurred in this locality. A man named Wells, who got his living by selling water cresses, lived in a cottage near the river, along with his wife and six children. On the day before the flood Wells was from home gathering water cresses, and a few hours before the disaster occurred his wife went to meet him to bring home the results of his labours ready for Saturday's market. When Mrs. Wells went out she left sleeping in a room on the ground floor a boy thirteen years of age, and his little sister three years old. In an upstairs room were an elder sister and three other children. At about one o'clock in the morning Mrs. Wells returned, and was amazed to find the whole district submerged in water. She tried to reach her house to ascertain the fate of her children; but of course for a long time was quite unable. Thus she remained, in an almost frantic state, expecting nothing less than to find that all her children had perished. At length she got within speaking distance of her house, and called out to see if there was any one alive inside. The children who had been sleeping upstairs looked out of the window, and were recognised by their overjoyed mother. But still the fate of the children downstairs remained to be ascertained. All that the children upstairs could tell the mother was that they heard their brother and sister scream, and had tried to go downstairs to their rescue, but had been forced back by the water which had come more than half way up the stairs. The horrified mother now gave way to the worst forebodings. The low room was flooded, her children were in it, and they must have been drowned. At length an entrance was effected into the house, and a search was made for the corpses of the children. They could nowhere be found, until on looking up into a wide cupboard the two naked bodies were discovered. They appeared to be dead; but they were only asleep, and awoke as soon as the astonished mother began to lift them down. It appears that when the flood came, and began to float the bed about, the boy screamed out to his elder sister upstairs. As no help came, and as he could not get upstairs for the water, he bethought himself that there was a high cupboard which would hold himself and his little sister. He then got on a chair, lifted his sister on to the top shelf of the cupboard, and then climbed in himself. In this narrow receptacle both the children fell asleep, and were only awoke when their mother began to lift them down.

## SHOCKING DEATH OF A WIDOW.

In Cotton Mill Row, near Alma Street, lived a poor old widow woman named Wallace, along with her two children. She only occupied one small room, and that was on the ground floor below the level of Alma Street. When the flood rushed into the house, she got out of bed, burst open the door, and went outside into the water. But she could get no further, and all she could do was to scream out for assistance. In the same house other families lived in the upstairs rooms, and one of them opened the window to see if they could rescue the poor old woman. A young man threw out a sheet and told her to seize hold of it. She did so, and the young man pulled the sheet till she was just within his reach, but at that moment a rush of water carried her away. She gave one piercing scream, and was heard no more. Her dead body was afterwards found in a yard adjoining. Her two children, whom she had left in bed, were bravely rescued by a man named Whiteley.

### A HORSEMAN DROWNED IN THE FLOOD.

A singular fatality occurred in Bower Spring. A young man named Varney, the son of a general store dealer, living in Kelham street, was on horseback, riding past the Highway Offices, when his horse came into collision with a large piece of timber which was floating on the water. The horse stumbled, and threw the young man over its head. He fell into the water, and was killed. When his body was found both hands were clenched, and were raised before his face, in the attitude of defence. He had died struggling desperately with the waves.

### THE DESTRUCTION BETWEEN CORPORATION BRIDGE AND LADY'S BRIDGE.

From the New Corporation Bridge to the Lady's Bridge in the Wicker, is a distance of about a third of a mile, and here on both sides of the river the destruction of property was very great. The Corporation Bridge itself is a new and strongly built structure, and it withstood the force of the torrent without sustaining any serious damage. But the cast-iron foot bridge, which was formerly the only direct means of communication between the chief parts of the town and the district called Bridgehouses, was demolished and carried away entirely. This bridge was erected in 1795, and had therefore lasted nearly seventy years. A few large stones mark the spot where stood one of the stone piers which supported the bridge, and at one end a few of the iron balusters remain, but not another vestige can be seen. It appears from the statements of parties who live close by, that the Iron Bridge did not give way at the first rush of the water; but at the second burst a few moments afterwards, when a vast quantity of timber and debris came down with the force of a battering ram, and carried the entire structure away. No doubt the Corporation Bridge acted at first as a breakwater, until the accumulated mass forced its way, and bore down upon the Iron Bridge with augmented power.

A row of cottages in The Crofts, called Union Buildings, were in great danger. The corner house was occupied by a furniture broker named Carr. The house shook perceptibly, and its inmates expected its fall every moment. Mrs. Carr tried to escape by the front door; but her husband prevented her from going out, as he saw that if she did so she would certainly be swept away. When the bridge had gone, Mr. Carr kept watch to see that no one attempted to pass over in ignorance that it had disappeared. Several persons were saved by the timely warning. The Bridge Inn, on the other side of the river, was flooded and seriously damaged. The Crofts and Millsands were submerged to the depth of from six to eight feet; Bridge-street was similarly flooded; Messrs. Naylor, Vickers, & Co.'s extensive works, which have a river frontage extending from the Iron Bridge to Millsands, were inundated to a great depth, and were seriously damaged. Several thousands of steel melting pots were destroyed, and a heavy tool chest was carried from the top of the works, and deposited near the bottom gates. The other items of damage are too many to be enumerated.

The Millsands works of Messrs. W. E. Laycock and Sons, hair seating manufacturers, were seriously injured. The flood rose to the windows, burst them open, and rushed into the works. The carding and other machines, and the engines, were submerged and damaged. Bales of horse hair were floated about and carried away to a great distance. Everything was covered with mud, and the entire works were thrown into a state of almost inextricable confusion.

## NARROW ESCAPES IN MILLSANDS.

The family who lived upon Messrs. Naylor, Vickers, and Co's premises in Millsands had a narrow escape. They lived on a floor below the level of the ground. The man had great difficulty in getting his wife and children to an upper room; but at length he succeeded in doing so. The servant girl, however, was left behind. She got on to the top of a chest of drawers, which was floating about, and after remaining in that position for some time, she was rescued.

When the flood came a considerable number of men were at work at Messrs. Naylor, Vickers, and Co.'s. Some of them climbed up a wall at the top end of the works, and got away. Others got on to the roof of the rolling mill, and rung a large time bell with all their might. The inhabitants on the opposite side of the river were aroused by the sound, and rows of lights were soon visible in the bedroom windows. The people thought there was an explosion or fire at the works.

The watchmen employed at the premises of Messrs. W. E. Laycock and Sons were nearly carried away by the flood, which swept through the works with great fury.

## DESTRUCTION IN NURSERY STREET AND DISTRICT.

On the opposite side of the river, from the Iron Bridge to the Lady's Bridge, and including a large level plain nearly to the railway, the whole neighbourhood was submerged, and the houses flooded, almost without exception. Along the river side in Nursery-street were strong iron railings, fastened with large coping stones. These were all torn down, broken up, or scattered to a distance. Large masses of railings and stones were carried across the street, a distance of eight or ten yards. The works of Messrs. Hawksworth, Eyre, and Co., silver platers, were flooded, various walls knocked down, and the goods greatly injured. The Manchester Railway Hotel had its entire front broken down. At the Nursery Corn Mill, the large stock of grain and flour was rendered worthless. The horses in the stable near the mill, saved themselves by swimming. Several small buildings at the end of Nursery-street, near the river, were demolished. All the houses in Nursery-street and adjoining streets were flooded to the height of five or six feet, and filled with a layer of thick mud and slime. All the cellars were filled, and many of the inhabitants were held prisoners by the water during the greater part of Saturday. The strong wall and palisadings surrounding Trinity Church, in Nursery-street, were knocked down and twisted in a very curious manner. One door of the church was burst open, and the water rushed into the sacred edifice, tearing up some of the pews, and soaking the books, cushions, and hassocks. Of course no service could be held in the church for some time afterwards. Bethseda Chapel, Stanley-street, also sustained considerable injury. To enter into detail of the various items of damage in this district would occupy many pages, and would perhaps be tedious. When it is known that at midnight all the houses in this thickly populated part were suddenly surrounded by the flood, and submerged to a height of five, six, and in some cases, eight feet, the rest can be imagined—not completely, indeed, but in its general outlines.

## LOSS OF LIFE NEAR NURSERY STREET.

It is somewhat surprising that no more than two lives should have been lost in this large and low-lying district. The explanation is that there was more time to warn the inhabitants, and that nearly all of them slept in upstairs rooms, to which the flood did not reach. There were many narrow escapes, but not sufficiently striking to require a detailed notice.

A young man named Jonathan Turner, aged 17, lost his life in Nursery-lane. He lodged with a Mrs. Davis, in a small cottage, and occupied as his sleeping apartment a little back room on the ground floor. The water broke a hole in the wall of the house, and poured into the room where Turner was sleeping. The door was shut, and escape was impossible. The water rose nearly up to the ceiling, and the poor young man was drowned.

The other loss of life in this district occurred in Joiner-lane, Stanley-street. An old man, who got his living by dealing in coals, named Richard Haslehurst, but better known as "Old Dickie," lived here in a low shed, which he turned to the double use of a coal store and a dwelling house. The part devoted to the latter purpose was merely a corner of the room, where the old man slept on the top of a large box, which served him as a bed. When the flood came the old man managed to get out of his little domicile, and was heard to scream for assistance. The water, however, washed him away, and his dead body was found next day in the Wicker.

## FROM THE LADY'S BRIDGE TO THE MIDLAND RAILWAY STATION.

When the flood was at its height the scene on the Lady's Bridge at the top of the Wicker was most extraordinary. The water came rushing down between the buildings on each side with a force that made the Lady's Bridge quake and tremble. Against the bridge were piled up trees, logs of timber, broken furniture, and debris of every description. The light from street gas lamps revealed to spectators, of whom there were a good many, some of the horrors of the scene. The arches of the bridge were nearly choked by the accumulation of rubbish, and the impeded waters rose to a fearful height, breaking over the parapets of the bridge, and rushing across Mr. White's slate yard over the broad thoroughfare of the Wicker. Here might be discerned a man in a state of nudity, and who had been swept down by the flood, clinging to a lamp post in order to avoid being carried away, and there he perished, as much from the benumbing influence of the cold as from the effects of the water. In the Wicker the shutters of many of the shops were washed down, the doors burst open, and the contents of the shops carried away or destroyed. The losses sustained by many tradesmen here were very serious. In Blonk Street the flood deposited several dead bodies, as well as a vast heap of timber and broken rubbish. The wall at one end of Blonk Bridge was knocked down, together with a portion of the enclosed Cattle Market. The Wicker Tilt was submerged to a great height, and the Killing Shambles across the river were filled with water. Much injury was done at the Tower Wheel, and also at the Hartford Steel Works. Willey Street was submerged, and the inmates of the houses had many of them to escape by getting on to the roofs. In the yard of Mr. Hiller the water rose to the height of about five feet, drowning eleven pigs in their styes. A pony which was in an adjoining stable had a very narrow escape, the water being within a few inches of its head when rescued. Two pigs in an outhouse effected their escape up a flight of stairs into a hay-loft when the waters surprised them, and there they were afterwards found alive and well.

In the Wicker Station of the Midland Railway, the water rose to the height of four feet, and prevented the despatch of the trains at the proper time. The warehouses for goods were flooded, and the large doors at the entrance of the coal yard were carried away. Two dead bodies were found in the railway station—one that of a woman in a state of nudity, and the other that of a man partly dressed. A man named Peacock, who slept in one of the coal offices near the Midland Station, was drowned. His body was found in the office of Mr. Bishop, coal merchant, by whom he was employed as a clerk.

#### FROM THE WICKER STATION, SHEFFIELD, TO ROTHERHAM.

Leaving the Wicker Station, down Saville Street the flood poured with great impetuosity, doing more or less damage to all the large works in this locality. The Attercliffe Tollgate house was flooded to the height of four or five feet. Great damage was done at the new works of Messrs. Naylor, Vickers, and Co., at Brightside. The body of an old man who was employed at these works was found afterwards in a garden opposite Newhall. Another watchman upon these premises had a narrow escape. Then the flood came he had only just time to get on to the roof, which he did by breaking a hole through the slates. The meadows, gardens, and houses on the banks of the river in the neighbourhood of Brightside and on to Rotherham, were of course all flooded. The residents in the "Shuttle House," at the head of Sanderson's Dam, slept on although the flood surrounded their house; but they knew nothing of it till they got up at their usual time in the morning. The watchman on duty near Brightside Bridge had a very narrow escape. When passing the bridge he was startled by a singular sound as though the steam from a distant engine had suddenly been let off, and immediately after the flood came rushing down. The water rose rapidly over the bridge and the road. To escape he mounted the wall, intending to walk along it to some place of safety; but in another moment he felt the wall tremble beneath him. He then jumped off it, and rushed through the waters nearly breast high towards the Midland railway, which he succeeded in reaching, and down which he walked to Sheffield.

At Mr. Hornby's chemical works, near Brightside Lane, a man named Thomas Gill was on duty. The torrent knocked down the fence wall, and carried Gill away. His screams for help were heard; but it was impossible for any one to breast the waves by which the poor fellow was surrounded. His cries soon ceased, and were heard no more; for he had perished in the waters, the last victim of the flood.

At Messrs. Jessop's works the damage was very considerable. The works occupy both sides of the river, and the stream rose four feet deep in the yard and about two feet in the shops. Seven steel furnaces had just been charged with twenty-four pots each, and the fires lighted. These were all put out, and the steel spoiled. In the stables seven horses were rescued. Mr. John Hanson, manager of the furnaces, occupied a house on the premises. His nephew had a narrow escape, and was only saved by clinging to a wall. Some sheds that had been just erected by the corner of Brightside Bridge are entirely thrown down and partially carried away. The damage at these works is roughly estimated at £2,000.

## THE FLOOD AT ROTHERHAM.

When the flood had reached two or three miles below Sheffield, it had lost a good deal of its violence and velocity. Between Brightside and Rotherham there are also but few houses or works on the banks of the river, and the damage was therefore not so serious as in the earlier part of the career of the water. The first intimation at Rotherham was given by the driver of the mail cart to Police-sergeant Ireland, who was crossing Masbro' Bridge about half-past two o'clock. On looking over the bridge he noticed that the water was rapidly rising, and rushing with unusual impetuosity under the bridge. In a few minutes huge trees, every description of household furniture, pigs, massive beams and iron work, carts, &c., came floating past. He immediately aroused the occupiers of the houses in Bridgegate, but before some of them could get down stairs the river had overflowed and several of the cellars were inundated. Immense quantities of wreck were brought down by the current.

## THE FLOOD AT DONCASTER.

Between Rotherham and Doncaster an extraordinary rise in the river was noticed; but the inundation was not such as to excite serious alarm. The authorities at Sheffield telegraphed to the authorities at Doncaster that a large flood might be anticipated. Acting on this the police gave notice to the inhabitants of Marshgate, a district adjacent to the Don and usually affected by floods, and speedily they were preparing for any emergency. However, the force of the flood had expended itself before it reached Doncaster, and although there was an immense volume of water, the damage was very slight, so far as Doncaster itself is concerned. The highest point reached was between nine and ten o'clock on Saturday morning, when an extensive tract of land known as Crimpsall, adjacent to the Great Northern Railway Station, was under water. In the space of a quarter of an hour, at about half-past ten, the water had fallen two feet. About eleven o'clock the body of a woman was found in Crimpsall. The body was in a night-dress, and was that of a middle-aged woman. She had rings on her fingers and ear rings. It was immediately removed to the New River Tavern. Pigs, timber, bed-posts, feather beds, chests of drawers, and innumerable other articles came down the stream.

## THE MORNING AFTER THE FLOOD.

After a long and dismal night, day at length dawned upon the valleys of the Loxley and the Don. Never did the light of morning break upon a scene more changed and desolated in the course of one short night. When the sun went clown on the previous evening all was peaceful and happy. No sign could be seen either in the heavens above or on the earth beneath of the impending calamity. The river rippled over its pebbly bed in a shallow stream which appeared quite harmless for mischief Cottages, farm houses, grinding wheels, and villages studded its banks, and rejoiced in the blessings of fertility and power afforded by its agency. The inhabitants retired to rest in fancied security, little dreaming that midnight would bring such scenes of horror as had never before been witnessed or imagined. But now it is morning; and the cottager on the hill side, who has not yet heard of the flood, gets up and looks out of the window. He gazes down towards the river where the large farm house stood the night before, and sees that it is gone. He can

hardly believe his senses; and thinks there must be some optical delusion, or that he has awoke in some strange and distant part of the country. He looks again, with increased bewilderment, to find the well-known row of houses in one of which perhaps he spent the days of childhood, and which he has been accustomed to pass every day of his life. The row of houses has vanished, and all that he beholds is a sea of mud, strewn with the wrecks of a ruined and depopulated district. This is no fancy sketch, but it is what actually occurred in several instances, and the amazement and horror of the persons who thus looked in vain for the houses of their neighbours and relatives may be imagined.

In most cases the dwellers on the borders of the river had been roused in the night, and had been anxiously waiting the break of day to ascertain the extent of the calamity and the fate of their friends. Sad were the scenes which presented themselves as groups of men, women, and children, suddenly deprived of their houses, were to be seen wandering about in search of a place of shelter and relief. Still sadder was it to see those who had lost their nearest relatives searching, amongst the dead bodies which lay scattered around, to find the lifeless forms of those whom they had loved, but whose corpses were now cast out on the streets and meadows, naked and dishonoured.

“O then and there were hurrying to and fro,  
And gathering tears, and trembling of distress,  
And cheeks all pale.”

It was not one or two merely who had thus suffered; but the weepers might be counted scores and hundreds. It was a great lamentation, like that in Rama, when the descendants of Rachael were weeping for their children, and refusing to be comforted, or like the mourning of Hadadrimmon in the valley of Megiddon.

How changed is now the aspect of the valley ! There is the reservoir, which last night was nearly full; but now it is almost empty, and in the embankment is a great chasm, as though an earthquake had parted it asunder. Rocks and trees are torn up; houses have utterly disappeared; roads are swept away and impassable; bridges have vanished; and the works of industry have been “blotted out and rased” as completely as though they had never had any existence.

It cannot be wondered at that the people of Sheffield could at first hardly believe or comprehend the extent of the calamity. They had no idea that sleeping up above Bradfield, eight miles away among the hills, was a power of such terrific potency. A fire would have created no surprise; but a flood such as this was deemed an impossibility. An earthquake, a volcano, or a sirocco would have excited no greater astonishment. The news soon spread in the town, and by eight o’clock in the morning thousands of people were astir, and wending their way in the direction of the scene of the catastrophe. The most prominent feature was a thick layer of mud and water which was everywhere present, and which rendered pedestrianism exceedingly difficult. This, however, did not arrest the tide of men, women, and children, who thronged the route of the flood. The weather was beautifully clear, though sharp and cold. Everywhere the marks of ruin were observable; in the flooded streets, the partially demolished houses, the lamp posts torn up, and the timber and furniture scattered about, the dead animals lying disregarded in the mud, and lifeless naked forms of human beings which not unfrequently arrested the attention and harrowed the feelings of the passer-by.

Here might be seen houses with their fronts knocked down, and the honeycombed arrangement of the rooms exposed to view. On the walls hung clocks, bird-cages, and other domestic objects. On the bedroom floors were the wrecks of furniture in a state of indescribable confusion. But what had become of

the inmates Some of them were drowned, and some had gone forth, almost without clothing, without property, without home, and nearly as forlorn as though they had been shipwrecked on some desolate coast.

“The world was all before them, where to choose

Their place of rest, and Providence their guide.”

Some of these poor houseless wanderers sought refuge with their neighbours, who in nearly all cases received them kindly and entertained them hospitably. Others made their way to the Town Hall and there clustered round a fire in a large outer room, where it was pitiable to see their wretched plight and to hear their doleful lamentations over property gone and friends departed. Some few clung to their former abodes with singular tenacity, even though there was no place where they could find shelter, much less anything like comfort. There might be seen an old man crouched up in a corner of a dilapidated cottage, and in the next house an old woman vainly endeavouring to clean away the mud and restore to order the chaos by which she was surrounded.

At first it was supposed that the loss of life was only limited; but by degrees the appalling truth became apparent. Some very enterprising persons had been as far as Hillsbro' and Malin Bridge, and came back with the news that “whole villages were destroyed and the inhabitants swept away.” The dead bodies were brought by the score, and fresh relays of policemen were despatched with stretchers and drags on which to convey the mangled corpses of the victims of the flood. To proceed as far as Hillsbro', or even to proceed at all, was a work of no small difficulty. Not only had the pedestrian to wade ankle-deep or knee-deep in mud and water; but he soon found that the bridges were swept away, so that his further progress was arrested. By noon on the day of the flood it was generally known that a catastrophe of appalling magnitude had visited the district, and that no less than some 240 or 250 lives had been lost. The sensation produced was overwhelming; business was almost suspended; and the only topic of conversation was the sudden and unexpected calamity which had deprived so many persons not only of their houses, but also of their friends and relations.

#### FINDING OF THE DEAD BODIES.

The most melancholy part of the day's duty after the flood was the recovery of the bodies, which lay scattered about in all directions, and in the most extraordinary places. A field of battle is doubtless a horrible sight, which few can gaze upon without a shudder. But here, close to a large town, was a field literally strewn with the mangled remains not of men slain in warfare, with helmets on their heads and weapons by their sides, but of between one and two hundred men, women, and children, of all ages, most of them entirely naked, and many of them with their limbs fractured and their features gashed by rude collision with the debris with which they were commingled as they were hurried down the stream.

We have already mentioned the particulars of the finding of several of the bodies of the victims of the flood, and it is not necessary to dwell at length on this painful part of the subject. The public houses along the road were made use of as receptacles for the corpses. At one house, fourteen dead bodies were placed in the stable. Several of them were much disfigured, and in some cases it was apparent that there had been a desperate struggle for life. At another public house seven dead bodies were deposited. One of them was the corpse of a beautiful young girl, about two years old, who had lifted up her little arms, as though attempting to shield herself by covering her face with her hands. One dead body was found on

the branches of a tree, another was caught between a beam and the wall of a house. Everywhere along the route of the flood were to be seen parties of policemen, each carrying a mantled corpse to some neighbouring receptacle. Many of the bodies had to be literally dug out of the mud and debris in which they were embedded, and many were the painful scenes which were witnessed as first one limb was visible and then another, and at last the whole of the mangled remains of a man or woman which had been completely hidden and buried beneath an accumulation of rubbish. The body of a girl, about twelve years of age, was found cut in two, as though by a heavy piece of timber or machinery. Some of the bodies were swept away to great distances. Thirteen were found at Rotherham, three at Mexbro', seven at Kilnhurst, and several at Doncaster, a distance of 27 miles from the reservoir.

In two days after the occurrence of the flood, no less than 156 bodies had been discovered. After that time they were found separately, or by twos and threes, for a long period. Some were found six weeks and two months after the flood, and even at that time there were supposed to be more than a score bodies still unrecovered.

#### THE IDENTIFICATION OF THE BODIES.

A large proportion of the dead were conveyed to the Sheffield Workhouse, and there laid out for identification. The total number taken to the Workhouse in a few days was 118, which number was increased from time to time as more were found. Persons who had lost their friends were invited to the Workhouse to identify the remains of missing relatives and acquaintances. The scene was one which cannot be adequately described. The dead lay in closely-packed rows in five rooms. They were laid on straw, and covered by a sheet. The bodies presented every possible appearance. Some were serene and beautiful in death, without a limb torn, or a feature distorted—calm and peaceful, as though they had passed away dreaming that they were borne along on the river of life to the better land. There was the lovely form of an infant, with a smile still playing on its placid face. There was the fair maiden, cold in death, with the long tresses dishevelled over her marble brow. But all were not thus pleasing to behold. Some there were with gaunt and ghastly forms, with clenched fists, closed teeth, and rugged features, as though they had died in a desperate struggle with the foaming waters and uprooted trees by which they were surrounded. The contrasts were in many cases very remarkable. Close together might be seen the little child which had only just entered the world, and the old man who under any circumstances must soon have left it. In one room lay stretched side by side, a man and his wife, and upon the breast of the latter a smiling infant. In another place were three little children of one family, clasped in each others arms, as though in slumber. Some of the bodies were frightfully cut and dislocated, with their limbs twisted in unnatural positions, and with the features torn and disfigured. The general appearance of the bodies was that of sound sleep, the lips and cheeks retaining the rosy freshness of life, and the features wearing a calm and placid appearance. Many were the harrowing scenes which took place during the period when the bodies were awaiting identification. Large numbers of those who had lost their friends and relations visited the Workhouse, and were shown into the rooms where the corpses were laid out previous to interment. First one body was examined and then another in order that the lost ones might be discovered. Here is a bereaved husband who has just found the lifeless form of his wife, and he bends over it in mute agony with tears and

sobs break forth to indicate his distress. There is an anxious woman hurrying from bench to bench, and eagerly scanning every little face as she passes along the rows of lifeless corpses. She is a mother, and she has lost her child in the flood. She has found its body, and now she wrings her hands in agony, while the tears gush from her eyes, and fall upon her little one who lies unconscious of its mother's presence, and deaf to her wail of sorrow. Such scenes are repeated over and over again. Wives recognise their lost husbands, and children their parents. Each nearest and dearest tie of life has been snapped rudely asunder, and now the sad survivors are overwhelmed and almost heart-broken with sorrow as they identify the corpses of those whom they have loved and lost. In some cases the features were so marred and disfigured that recognition was almost impossible; and in other cases it was easy and instant. Those who had been identified had a label with the name attached; but there were many bodies which were never owned, and which were interred without the presence of either relative or friend.

#### THE INTERMENT OF THE DEAD.

The mournful task of interring the bodies of the victims of the flood was conducted with all due decency, but without any unusual publicity. The bodies, as they arrived at the Workhouse, were washed and laid out on beds of straw. When identified they were given up to the relatives or friends of the deceased, if they were able to defray the funeral expenses, and wishful to have the rites of burial performed at their own cost. The bodies of the poor, and those which were not identified, were interred by the Board of Guardians, at the expense of the Union, in the Sheffield General Cemetery. The bodies were not all interred in one particular part of the Cemetery, but in separate graves, according to circumstances, with all the decencies and solemnities of private burials. There was no public procession in any instance, nor was there any large concourse of people at any of the interments. It may not here be out of place to suggest the propriety of a monument to the memory of the victims of the flood, to be erected in some prominent part of the Cemetery. The funds obtained for the relief of the distressed are more than sufficient, and it cannot be supposed that any of the subscribers would object to the appropriation of a small part of the surplus to so legitimate a purpose as the erection of a suitable Monument of the Great Flood at Sheffield.

It is due to the Board of Guardians to express the public satisfaction at their efforts and labours in this extraordinary emergency. All that was necessary for the reception and interment of the bodies, as well as for the relief of the sufferers, they performed without delay and in the most efficient manner. Mr. Alderman Saunders, the Chairman of the Board of Guardians, especially deserves notice for the great amount of time and personal attention which he devoted to the emergencies of the occasion, along with Mr. Hallam, and some other members of the Board.

#### THE MISERIES OF THE SUFFERERS.

A long and thrilling chapter might be written to describe the miseries and sufferings of those who sustained the shock and yet survived the ravages of the flood. We cannot enter into detail on this part of the subject. A good deal must be left to the imagination of the reader. Hundreds, if not thousands, of families lost the whole contents of their lower rooms. In many instances, children had been

undressed in the lower rooms, had left their clothing there, and the whole of it was lost. In some cases, every article of day clothing the children possessed was swept away, and garments with which to cover them had to be begged or borrowed. In many instances the whole stock of provisions of families was destroyed, and they were left destitute. Numbers of small shopkeepers lost all they possessed, and the means by which they were obtaining a livelihood. The aggregate losses in these various ways must amount to thousands of pounds. The condition of the flooded houses was most deplorable some of them having a deposit of mud nearly a foot in thickness. One of the severest sources of suffering was the inability to provide fires in the houses that were left standing. The cellars were filled with mud, which rendered the stock of coals inaccessible. Many of the sufferers were deprived of their houses, and had no where to go, nor had they clothing left sufficient to cover themselves. Under these circumstances they had to remain for some hours in the corners of dilapidated dwellings, without food, without fire, and altogether in a plight the most wretched and pitiable. Help was indeed on its way, but there were so many to be relieved and assisted that some were necessarily left a comparatively long time without the needed succour. When it is considered that no less than 4,000 houses were flooded, it will be apparent that in some cases a long, time must have elapsed before relief could be afforded.

One great cause of suffering, arose from the stoppage of works and manufactories, and the destruction of tools of workmen. Many hands were thus thrown out of employment, and the aggregate damage in this respect was enormous.

#### THE CONDUCT OF THE POLICE.

The exertions of the police in connection with the flood were most arduous and praiseworthy. Especially was the conduct of Mr. Jackson, the chief constable, in the highest degree commendable. As soon as information of the calamity reached him he mounted his horse, and rode into the inundated districts at great personal risk to render assistance, and to give directions to the police and others. The exertions of the county policemen stationed in the district between Owlerton and Bradfield, also deserve warm commendation. Under the active leadership of Mr. Inspector Smalley, and of Mr. Superintendent Gillott, they exerted themselves strenuously, and rescued many persons from the partly submerged houses. Inspector Smalley has since fallen a victim to his exertions. His house at Hillsbro' was flooded, and this, together with his extraordinary labours in the flood, brought on fever, from which he died about two months afterwards.

The military authorities at the barracks also rendered important aid, by furnishing two companies of the 8th regiment, who were detailed as sentries around the principal scene of the devastation for some days after the flood, where their services were of great use.

We have already referred to the gallant exploits of policeman John Thorpe, and which so exhausted him, that, but for the timely assistance of Sergeant Day, he would have lost his own life. His efforts brought on a serious illness. Police-constable Hogan also saved a large number of lives in the neighbourhood of Cotton Mill Row. The labours which the flood threw upon the police were very heavy, and all the members of the force deserve praise for their great and successful exertions.

## VISITORS TO THE SCENE.

The number of visitors to the various scenes which we have mentioned was perfectly enormous. All day on Saturday, and again all day on Sunday, a continuous stream of people poured in the direction of Hillsbro' and Malin Bridge. Many came by railway from great distances. Probably not less than 150,000 of the inhabitants of Sheffield visited the scene within a few days of the flood, and perhaps an equal number came in from the adjacent villages and towns and from more distant parts. Vehicles of every description thronged the roads, rendering them almost impassable. It was some weeks before the excitement and interest died away. The visitors all expressed their astonishment at the effects of the flood. The points of greatest interest were Brick Row, Hillsbro', where Dyson saved himself by getting through the roof; the remains of the Malin Bridge Inn; and the ruins of Trickett's farm house. A large number of persons went as far as the reservoir to see the gap in the embankment. The photographers were busy at all the most picturesque parts, and have produced faithful representations of many objects of interest.

## LIST OF THE DEAD AND MISSING.

The following is a return, showing the number of persons who lost their lives by the Bursting of the Bradfield Reservoir, as prepared under the superintendence of Mr. Jackson, the active and able Chief Constable of Sheffield. The total as shown in this list is 240, of whom 140 were males and 100 females.

Name, Age, and Residence.	When and Where Found.	Where Interred.
— Dawson, 2 days, Low Bradfield,	March 16, Low Bradfield,	Bradfield
Henry Burkinshaw, 36, Loxley,	„ 12, Loxley,	do.
Stephen Ibbotson, 20, do.	„ 13, do.	do.
William Longley, 40, do.	„ 14, do.	do.
John King, 25, do.	„ 12, do.	Sheffield
Charles Platts, 34, do.	„ 12, do.	Wadsley
Joseph Denton, 16, Old Wheel,	„ 14, Old Wheel,	Loxley
William Bradbury 28, Rowell Bridge,	Not identified	-
Daniel Chapman, 32, Little Matlock,	March 12, Sheffield,	Loxley
Ellen Chapman, 30, do.	„ 12, do.	do.
Samuel Chapman, 3, do.	„ 12, do.	do.
Frederick Chapman, 6, do.	„ 13, do.	do.
William Chapman 14, do.	———— Swinton,	do.
Alathea Hague, 17, do.	March 13, Sheffield,	Bradfield
John Bower, 17, do.	„ 14, Loxley,	Loxley
George Clay, 15, do.	Not identified	-
Joseph Gregory, 20, do.	March 12, Malin Bridge,	Wadsley
Walter Booth, 16, do.	Not identified	-
George Bisby, 44, Malin Bridge,	March 16, Sheffield,	Wadsley
Sarah Bisby, 43, do.	Not identified	-
Teresa Bisby, 14, do.	March 16, Sheffield,	Wadsley
Elizabeth Bisby, 12, do.	Not identified	-
Thomas Bisby, 9, do.	Not identified	-
Hannah Bisby, 6, do.	Not identified	-
Hugh Bisby, 4, do.	Not identified	-
Charles Price, 50, do.	March 12, Owlerton,	Wadsley
Elizabeth Price, 50, do.	„ 17, Hillsbro'	do.
Edward Price, 25, do.	Not identified	-
Sarah Price, 28, do.	March 13, Hillsbro'	Wadsley
Charles J. Price, 2, do.	„ 13, do.	do.
— Price, 2 days, do.	„ 20, do.	do.
Marie Hill, 18 years, do.	„ 12, Malin Bridge	Mortomley
Walter Damms, 20, do.	„ 12, Owlerton	Sheffield

Thomas Spooner, 40,	do.	„ 12,	do.	do.
Selina Spooner, 40,	do.	„ 12,	do.	Stannington
William Spooner, 19,	do.	„ 12,	Hillsbro'	do.
Frederick Spooner, 15,	do.	Not identified		-
Thomas Spooner, 8,	do.	March 14,	Sheffield	Sheffield
Mary Ann Spooner, 10,	do.	Not identified		-
Betty Spooner, 6,	do.	Not identified		-
Albert Spooner, 4,	do.	Not identified		-
Henry Spooner, 2,	do.	Not identified		-
Wm. Wolstenholme, 72,	do.	March 12,	Malin Bridge	Wadsley
George Barratt, 28,	do.	Not identified		-
Emma Barratt, 26,	do.	_____	Sheffield,	Sheffield
William Barratt, 2,	do.	Not identified		-
George Jepson, 70,	do.	Not identified		-
George Jepson, 68,	do.	Not identified		-
Isabella Jepson, 27,	Malin Bridge	March 14,	Sheffield	Sheffield
— Jepson, 11 mos.	do.	„ 12,	Owlerton	do.
John Hawksley, 61 yrs.	do.	„ 12,	Hillsbro'	Stanington
Caroline Watson, 6,	do.	„ 12,	Owlerton	Wadsley
Sarah Ann Watson, 30,	do.	„ 12,	Hillsbro'	do.
George Watson, 3,	do.	„ 12,	Owlerton	do.
Joseph Goddard, 56,	do.	„ 12,	do.	Sheffield
Sarah Goddard, 54,	do.	„ 12,	do.	do.
Mary Yeardley, 28,	do.	„ 13,	do.	do.
Rosina Yeardley, 3,	do.	Not identified		-
John Yeardley, 2,	do.	Not identified		-
William Sellars, 52,	do.	March 12,	Owlerton	Wadsley
Caroline Sellars, 48,	do.	„ 12,	Wardsend	do.
Charlotte Taylor, 45,	do.	„ 12,	Hillsbro'	do.
— Etches, 70,	do.	Not identified		-
Joseph Crapper, 44,	do.	Not identified		-
Elizabeth Crapper, 40,	do.	March 12,	Sheffield	Wadsley
James Bagshaw, 56,	do.	„ 12,	Sheffield	do.
Mary Bagshaw, 52,	do.	„ 12,	Malin Bridge	Stanington
Hannah Spooner, 48,	do.	„ 12,	do.	do.
Jonathan Spooner, 40,	do.	„ 12,	Owlerton	do.
Benjamin Spooner, 76,	do.	„ 12,	Sheffield	do.
Sarah Ann Spooner, 70,	do.	Not identified		-
John Hudson, 40,	do.	March 12,	Sheffield	Sheffield
Elizabeth Hudson, 39,	do.	Not identified		-
Mary Hudson, 10,	do.	Not identified		-
George Hudson, 5,	do.	March 14,	Sheffield	Sheffield
James Trickett, 40,	do.	„ 12,	do.	Bradfield
Elizabeth Trickett, 34,	do.	„ 12,	Rotherham	do.
Jemima Trickett, 13,	do.	„ 12,	Sheffield	do.
James Trickett, 6,	do.	April 1st,	Aldwarke	do.
George Trickett, 4,	do.	Not identified		-
Thomas Kay, 70,	do.	March 16,	Sheffield	Bradfield
Joseph Barker, 27,	do.	„ 12,	do.	Handsworth
Charles Broughton, 23,	do.	„ 12,	do.	Barnby Dun
Servant Man, 17,	do.	„ 16,	Sheffield	Doncaster
Servant Girl, 18,	do.	Not identified		-
Joseph Dyson, 34,	Hillsbro'	March 12,	Sheffield	Thurgoland
Mary Dyson, 32,	do.	„ 12,	do.	do.
Sophia Dyson, 13,	do.	Not identified		-
Arthur Dyson, 11,	do.	March 12,	Sheffield	Thurgoland
Priscilla Dyson, 7,	do.	„ 12,	do.	do.
James Dyson, 5,	do.	„ 12,	do.	do.
Ann Dyson, 3,	do.	„ 12,	do.	do.
Samuel Seynor, 26,	do.	„ 7,	Conisbro'	-
Richard Snape, 17,	do.	„ 12,	Sheffield	Thurgoland
Morris Atkinson, 48,	do.	„ 12,	Owlerton	Wadsley
William Atkinson, 12,	do.	„ 12,	do.	do.
Isaac Turner, 40,	do.	„ 14,	Sheffield	do.
— Turner, 44,	do.	„ 14,	do.	do.
Isaac Turner, 14,	do.	Not identified		-
Sarah Ann Turner, 10,	do.	Not identified		-
Herbert G. Marshall, 1,	do.	March 12,	Sheffield	Sheffield
James Atkinson, 41,	do.	„ 12,	Hillsbro'	Wadsley
Sarah Atkinson, 15,	do.	Not identified		-

William Atkinson, 42,	do.	March 12,	Hillsbro'	Wadsley
George Atkinson, 18,	do.	„ 12,	do.	do.
Robert Atkinson, 20,	do.	Not identified		-
George Radford, 30,	do.	Not identified		-
Elizabeth Radford, 28,	do.	Not identified		-
John Radford, 7,	do.	Not identified		-
William Waters, 22,	do.	Not identified		-
Ann Mount, 41,	Malin Bridge	March 12,	Owlerton	Wadsley
Jonathan Ibbotson, 9,	Hillsbro'	May 5,	Loxley	do.
Ann Pearson, 47,	do.	„ 12,	Sheffield	Sheffield
Jonathan Turner, 17,	Nursery lane	„ 12,	Nursery Lane	Burngreave
Samuel Crump, 38,	Harvest lane	„ 12,	Harvest Lane	St. John's Pk.
Mary Crump, 71,	do.	„ 12,	do.	do.
Elizabeth Green, 53,	do.	„ 13,	Kilnhurst	Burngreave
John Gannon, 36,	Neepsend	„ 13,	Neepsend	Gen. Cemtry.
Sarah Gannon, 30,	do.	„ 12,	do.	do.
Peter Gannon, 5½	do.	„ 12,	do.	do.
Henry Gannon, 11,	do.	„ 12,	do.	do.
William Gannon, 4,	do.	„ 12,	do.	do.
John Gannon, 9,	do.	„ 12,	do.	do.
Sarah Ann Gannon, 2,	do.	Not Identified		-
Margaret Gannon, 4 mos.	do.	March 13,	Neepsend	Gen. Cemtry.
Alfred Coggan, 13 yrs.	do.	„ 12,	do.	do.
Eliza Coggan, 8,	do.	„ 12,	do.	do.
William Coggan, 6,	do.	„ 12,	do.	do.
John Mayor, 55,	do.	„ 12,	do.	St. John's Pk.
Elizabeth Mayor, 50,	do.	„ 12,	do.	do.
Sarah Mayor, 22,	do.	„ 12,	do.	do.
Thomas Elston, 30,	do.	„ 12,	do.	Gen. Cemtry.
Elizabeth Elston, 30,	do.	„ 12,	do.	do.
Thomas Elston, 2 wks.	do.	„ 12,	do.	do.
Thomas Petty, 40 yrs.	do.	„ 12,	do.	Rivelin Glen
Margaret Petty, 34,	do.	„ 12,	do.	do.
Mary Petty, 11,	do.	„ 12,	do.	do.
Catherine Petty, 7,	do.	„ 12,	do.	do.
Thomas Petty, 3,	do.	„ 12,	do.	do.
Ann Cook, 87,	Rutland Road.	April 3,	Kilnhurst	Burngreave
Robert Ryder, 11,	Long Croft	March 12,	Spring Street	Rivelin Glen
Priscilla Willett, 16,	do.	„ 19,	Cotton Mill Row	Burngreave
Christopher Colton, 32,	do.	„ 12,	Long Croft	Gen. Cemtry.
Mary Colton, 30,	do.	„ 12,	do.	do.
Christopher Colton, 4,	do.	„ 12,	do.	St. Mary's Ch.
Christopher B. Arculus, 9,	Long Croft	„ 12,	do.	Gen. Cemtry.
Emma Wallace, 47,	Cotton Mill Row	„ 12,	Cotton Mill Row	Gen. Cemtry.
Emma Sparkes, 27,	Harvest Lane	„ 12,	Harvest Lane	Burngreave
Alfred Sparkes, 5,	do.	„ 12,	do.	do.
Emma Sparkes, 3 Mos.	do.	„ 12,	do.	do.
John Vaughan, 64 years,	do.	„ 12,	do.	do.
Elizabeth Vaughan, 53,	do.	„ 12,	do.	do.
Jane Peters, 8,	Neepsend lane	„ 12,	Neepsend Lane	Gen. Cemtry.
Julia Peters, 4,	do.	„ 12,	do.	do.
Christopher Peters, 2,	do.	„ 12,	do.	do.
Catherine Albert, 25,	do.	„ 12,	do.	do.
John Albert, 5,	do.	„ 12,	do.	do.
Mary Jane Albert, 10 mos.,	do.	„ 12,	do.	do.
Mary Bright, 57, yrs.	do.	„ 12,	do.	do.
Eliza Bright, 4,	do.	„ 12,	do.	do.
Alfred Bright, 12,	do.	„ 12,	do.	do.
Mary Bright, 7,	do.	Not Identified		-
Edward Cross, 14,	do.	Not Identified		-
Thomas Fairest, 47,	do.	March 12,	Neepsend	Gen. Cemtry.
John Needham, 4,	Neepsend lane	„ 12,	do.	do.
Martha Needham, 2,	do.	„ 12,	do.	Burngreave
John Glover, 25,	do.	„ 12,	Neepsend Grdens	St. John's Pk.
Sarah Ann Glover, 25,	do.	„ 12,	do. do.	do.
Peter Webster, 30,	Neepsend Gardens	„ 12,	do. do.	Burngreave
Sarah Webster, 30,	do.	„ 12,	do. do.	do.
Robert Webster, 3½,	do.	„ 12,	do. do.	do.
Peter Webster, 1½,	do.	„ 12,	do. do.	do.
John Midwood, 46,	do.	„ 12,	Neepsend Bridge	Gen. Cemtry.

Phoebe Midwood, 37,	do.	„ 12, Neepsend Lane	do.
Dawson Midwood, 16,	do.	Not Identified	-
George Midwood, 8,	do.	„ 12, Neepsend Lane	Gen. Cemtry.
Fanny Midwood, 4,	do.	Not Identified	-
Alfred Hukin, 45,	do.	March 12, Neepsend Lane	Burngreave
Sarah Hukin, 45,	do.	„ 19 do. Bridge	do.
Alice Jackson, 12,	do.	„ 12, Holmes	do.
Richard Hazelhurst, 78,	Joiner Lane	„ 12, Tinsley Road	do.
Dennis McLaughlin 74,	Dun Street	„ 12, Dun Street	Rivelin Glen
John Eaton, 49,	Kelham Island	„ 15 Tinsley	Burngreave
Keziah Eaton, 51,	do.	„ 12, Kelham Island	do.
Sidney James Varney, 18,	Kelham Street	„ 12, Russell Street	do.
Susannah Gilyett, 53,	Neepsend Gardens	„ 12, Neepsend	Gen. Cemtry.
Richard Peacock, 58,	Midland Depot	„ 12, Midland Depot	do.
Thomas Gill, 48,	Attercliffe	„ 12, Attercliffe Road	Attercliffe
William Bonser, 62,	Allen Street	„ 12, Neepsend Bridge	Burngreave
George Wright, 33,	Bacon Island	Not Identified	-
Rebecca Wright, 29,	do.	March 14, Kilnhurst	Kilnhurst
Mary C. Johnson, 9,	do.	Not Identified	-
William Simpson, 36,	Hillfoot	March 14, Attercliffe Bridge	Fulwood
Edward Riley, 38,	do.	„ 12, Hillfoot	Burngreave
John Turton 60,	Owlerton	„ 14, Neepsend	Gen. Cemtry.
Susannah Turton, 73,	do.	„ 15, do.	do.
Joseph Dean, 17,	do.	„ 12, Owlerton	Wardsend
Thomas Winter, 70,	do.	„ 12, Club Mill	Chesterfield
Isabella Foulds, 5,	Barracks	„ 12, Barracks	Wardsend
John Foulds, 3,	do.	„ 12, do.	do.
Eliza Armitage, 64,	Malin Bridge	„ 12, Hillsbro'	Loxley
William Armitage, 37,	do.	„ 14, Kilnhurst	do.
Ann Armitage, 40,	do.	„ 12, Club Mill	Loxley Chapel
Charles Armitage, 12,	do.	„ 12, Neepsend	do.
Samuel Armitage, 7,	do.	Not Identified	-
William Armitage, 4,	do.	March 12, Club Mill	Loxley Chapel
Henry Armitage, 10,	do.	Not Identified	-
Maria Armitage, 13,	do.	Not Identified	-
Elizabeth Crownshaw, 17,	do.	March 12,	Loxley Chapel
James Frith, 32,	do.	„ 12, Club Mill	Heeley chrch
Henry Hall, 38,	do.	Not Identified	-
Greaves Armitage, 28,	do.	March 12, Harvest Lane	Loxley Chapel
Sarah Armitage, 30,	do.	„ 12, Owlerton	do.
Mary Armitage, 4,	do.	Not Identified	-
Elizabeth Armitage, 3 mos,	do	Not Identified	-
Thomas Bates, 42 yrs,	do.	March 12, Green Lane	Loxley Chapel
Harriet Bates, 40,	do.	„ 12, do.	do.
George Bates, 19,	do.	„ 12, do.	do.
Walter Bates, 17,	do.	Not Identified	-
Thomas Bates, 10,	do.	March 12, Green Lane	Loxley Chapel
George Tingle, 32,	do.	„ 12, Neepsend	Crookes
Sarah Longley, 26,	do.	Not Identified	-
Mary Longley, 4,	Malin Bridge	Not Identified	-
Jane Ann Longley, 1½,	do.	Not Identified	-
Thomas Bullard, 40,	do	March 12, Hillfoot	Owlerton Chpl.
Sarah Ann Bullard, 37	do	„ 12, Neepsend	do.
William Bethel, 32,	Limerick Wheel	April 16, Limerick Wheel	-
John C. Appleby, 32	Hillsbro'	March 12, Club Mill	Gen. Cemtry.
Mary Appleby, 63,	do.	„ 12, Rotherham	do.
Mary Appleby, 13,	do.	„ 14, Neepsend	do.
George Snape, 42,	do.	„ 12, do.	do.
Mary Snape, 44,	Hill Bridge	„ 12, Hill Bridge	do.
William Pickering, 24,	do.	Not Identified	-
Sarah Ann Pickering, 24,	do	March 12, Hillsboro'	Gen. Cemtry.
Elizabeth Pickering, 24,	do	„ 12, Neepsend	do.
Thomas Merryman, 23,	do.	Not Identified	-
Eliza Mappin, 50,	do.	March 12, Hillsboro'	Gen. Cemtry.
George Mills, 62,	do.	„ 12, Neepsend	Burngreave
Hannah Mills, 58,	do.	„ 12, Owlerton	do.
William Crookes, 26.	do.	„ 12, do.	Wadsley Ch.

At the time when the above return was made 213 of the bodies had been

found, and 27 had not been recovered. Of the 213 found 35 were interred without being identified.

### THE DESTRUCTION OF PROPERTY.

The following is a return showing the number of Buildings and Houses destroyed or injured by the Bursting of the Bradfield Reservoir on the 12th. of March, 1864.

#### EXTENT OF DAMAGE:

T = Totally Destroyed  
P = Partially Destroyed  
F = Flooded Only

(EXTENT OF DAMAGE)	Manufac- tories, Tilts, &c.			Rolling, Grinding , Corn and other Mills			Work- shops, Ware- houses, Store Rooms &c.			Drapers', Grocers', and other Sale Shops			Dwelling Houses			Malt Houses, Breweries, Public and Beer- Houses.			Buildings not otherwise described.			Yards of Fence Walling
	T	P	F	T	P	F	T	P	F	T	P	F	T	P	F	T	P	F	T	P	F	T
From the Dam to Malin Bridge	9	4	-	-	-	-	2	-	-	1	-	-	12	11	8	-	-	-	-	-	-	-
Holme Lane	-	-	-	1	-	-	9	-	-	1	-	-	3	7	23	1	-	-	2	-	-	440
Hillsbro'	-	-	-	-	-	-	-	-	-	-	3	-	1	1	-	-	2	-	4	-	-	-
Hill Bridge	-	-	-	1	1	-	-	-	-	-	-	-	4	20	-	1	-	-	-	-	-	-
Owleron	-	2	-	-	6	-	3	3	-	-	3	-	1	39	-	-	2	5	9	5	-	454
													164									
Penistone Road	-	1	1	-	-	-	-	-	-	-	-	5	-	-	50	-	-	7	-	-	2	-
Hill Foot	-	-	-	-	-	1	-	-	4	-	1	14	-	6	134	-	-	6	2	1	-	20
Philadelphia	2	-	-	-	4	-	-	-	-	-	1	-	3	19	68	-	-	4	4	-	-	1000
Bacon Island	-	1	-	-	-	-	-	-	-	-	-	-	3	19	-	-	-	-	5	-	-	-
Rutland Road	-	-	-	-	-	-	-	-	-	-	-	-	-	7	21	-	-	-	-	-	-	-
Cornish Place	-	-	3	-	-	-	-	-	1	-	-	-	-	-	11	-	1	-	1	-	1	-
Cornish Street	-	-	-	-	-	-	-	-	3	-	-	3	-	-	11	-	-	-	-	-	-	-
Artisan Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	-	-	-	-	-	-	-
Dixon Street	-	-	-	-	-	-	-	-	4	-	-	3	-	-	39	-	-	-	-	-	-	-
Shalesmoor	-	1	1	-	-	-	-	-	2	-	-	86	-	-	14	-	-	4	-	-	-	-
Dun Street	-	-	-	-	-	-	-	2	7	-	-	1	-	1	57	-	-	3	-	-	-	-
Dun Lane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-
Dun Fields	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61	-	-	2	-	-	-	-
Acorn Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	-	-	1	-	-	2	-
Ebenezer Square	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	-	-	-	-	-	-	50
Ebenezer Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-
Ward Street	-	-	-	-	-	-	-	-	1	-	-	-	-	-	16	-	-	-	-	-	1	-
Bowling Green- St.	-	-	1	-	-	-	-	-	-	-	-	-	-	-	32	-	-	-	-	-	1	-
Gibraltar Street	-	-	-	-	-	-	-	-	6	-	-	47	-	-	28	-	-	5	-	-	1	-
Ball Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	1	1	-	-	-
Long Croft	-	-	1	-	-	-	-	-	6	-	-	-	-	-	58	-	-	-	-	-	-	-
Green Lane	-	1	4	-	-	-	-	-	1	-	-	20	-	-	54	-	-	4	-	-	-	20
Kelham Island	-	2	-	-	1	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	190
Alma Street	-	-	-	-	-	2	-	-	-	-	-	8	-	-	14	-	-	4	-	-	-	-
Cotton Mill Walk	-	-	-	-	-	-	-	-	1	-	-	-	-	-	52	-	-	-	-	-	-	-
Kelham Street	-	-	-	-	-	-	-	-	2	-	-	-	-	-	29	-	-	-	-	-	1	-
Russell Street	-	-	2	-	-	1	-	-	9	-	-	8	-	-	45	-	-	4	-	-	-	-
Bower Spring	-	-	-	-	-	1	-	-	-	-	-	7	-	-	23	-	-	3	-	-	2	-
Cotton Mill Row	-	-	1	-	-	-	-	-	1	-	-	-	-	-	16	-	-	-	-	-	2	-
Water Street	-	-	-	-	-	-	-	-	-	-	-	1	-	-	17	-	-	-	-	-	-	-
Spring Street	-	-	3	-	-	-	-	-	8	-	-	1	-	1	40	-	-	4	-	-	-	-
Corporation Street	-	-	-	-	-	2	-	-	2	-	-	16	-	-	6	-	-	2	-	-	2	-
Bridge Street	-	-	8	-	-	1	-	-	-	-	-	15	-	2	44	-	-	14	-	-	3	-

(EXTENT OF DAMAGE)	Manufactories, Tilts, &c.			Rolling, Grinding, Corn and other Mills			Workshops, Warehouses, Store Rooms &c.			Drapers', Grocers', and other Sale Shops			Dwelling Houses			Malt Houses, Breweries, Public and Beer-Houses.			Buildings not otherwise described.			Yards of Fence Walling
	T	P	F	T	P	F	T	P	F	T	P	F	T	P	F	T	P	F	T	P	F	T
Mill Lane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pear Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stream Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plum Street	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Love Lane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cross Love Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Love Street	-	-	2	-	-	2	-	-	4	-	-	-	-	-	-	-	-	1	-	-	1	-
Water Lane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waingate	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-
Millsands	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80
Killing Shambles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Old Park Wood	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-
Farfield	-	-	-	-	1	-	-	1	-	-	-	-	1	4	9	-	1	-	-	-	2	-
Neepsend Lane	1	1	-	-	-	-	-	-	-	1	3	-	5	62	-	-	2	4	-	-	8	-
Lancaster Street	-	-	-	-	-	-	-	-	-	-	1	-	-	2	5	-	1	-	-	-	1	-
Percy Street	-	-	-	-	-	-	-	1	-	-	-	-	6	14	-	-	1	-	-	-	-	-
Ball Street North	-	2	-	-	-	-	-	-	-	-	1	-	-	7	16	-	-	1	-	-	-	-
Mowbray Street	-	3	5	-	1	-	1	1	-	-	-	-	-	-	70	-	-	3	-	-	2	-
Harvest Lane	-	-	-	-	-	-	-	-	10	-	-	16	-	-	33	-	-	2	3	-	-	-
Baker's Row do.	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	23	-	-	-	-	-	-
Duke Street do.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	-	-	-	-	-	-	-
Orchard Street do.	-	-	-	-	-	-	-	-	4	-	-	6	-	-	87	-	-	2	4	-	2	6
Bridgehouses	-	-	-	-	-	-	-	-	-	-	14	-	-	5	32	-	-	2	2	-	3	1
Nursery Street	-	1	3	-	1	-	-	-	6	-	-	6	-	-	11	31	-	-	3	4	1	-
Nursery Lane	-	-	-	-	-	-	-	-	4	-	-	-	-	-	1	32	-	-	-	-	-	-
Spital Fields	-	-	1	-	-	-	-	-	7	-	-	-	-	-	-	7	-	-	-	-	-	6
Johnson Street	-	-	1	-	-	1	-	-	-	-	-	6	-	-	-	74	-	-	2	-	-	-
Johnson Lane	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	23	-	-	-	-	-	1
Stanley Street	-	-	1	-	-	-	-	-	7	-	-	11	-	-	-	61	-	-	2	-	-	3
Stanley Lane	-	-	-	-	-	-	-	-	2	-	-	1	-	-	-	13	-	-	-	-	-	1
Joiner Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29	-	-	1	-	-	-
Joiner Lane	-	-	3	-	-	-	-	-	-	-	-	-	-	-	1	24	-	-	-	-	-	-
Andrew Street	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	62	-	-	1	-	-	-
Andrew Lane	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	10	-	-	-	-	-	-
Walker Street	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	33	-	-	1	-	-	1
School Lane	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Gun Lane	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-
Wicker	-	1	4	-	-	2	2	3	6	-	2	94	-	1	20	-	2	12	-	-	1	-
Wicker Lane	-	1	3	-	-	-	-	-	2	-	-	-	-	-	-	3	37	-	-	-	-	-
Wiley Street	-	1	-	-	-	-	-	-	4	-	-	-	-	-	-	38	-	-	-	-	-	-
Blonk Street	-	-	3	-	-	-	-	-	3	-	-	3	-	-	-	9	-	1	-	-	1	-
Effingham Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	1	-	-	-
Saville Street	-	-	5	-	-	3	-	-	3	-	-	4	-	-	-	64	-	-	6	-	-	21
Saville Street east	-	-	6	-	-	-	-	-	-	-	-	4	-	-	-	94	-	-	6	-	-	-
Sutherland Street	-	-	2	-	-	-	-	-	-	-	-	4	-	-	-	60	-	-	4	-	-	-
Greystock Street	-	1	-	-	-	-	-	-	-	-	-	3	-	-	-	166	-	-	3	-	-	-
Corby Street	-	-	-	-	-	-	-	-	3	-	-	6	-	-	-	114	-	-	3	-	-	-
Princess Street	-	-	-	-	-	-	-	-	1	-	-	6	-	-	-	173	-	-	3	-	-	-
Feresfield Street	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	19	-	-	-	-	-	-
Noroy Street	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	24	-	-	-	-	-	-
Windsor Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-
Royds' Mill Street	-	-	-	-	-	1	-	-	-	-	-	4	-	-	-	2	-	-	1	-	-	-
Lovell Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31	-	-	-	-	-	-
Blackmore Street	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	31	-	-	1	-	-	-
Tinsley Road	-	-	4	-	-	-	-	-	4	-	-	15	-	-	-	150	-	-	8	-	-	3

(EXTENT OF DAMAGE)	Manufactories, Tilts, &c.			Rolling, Grinding, Corn and other Mills			Workshops, Warehouses, Store Rooms &c.			Drapers', Grocers', and other Sale Shops			Dwelling Houses			Malt Houses, Breweries, Public and Beer-Houses.			Buildings not otherwise described.			Yards of Fence Walling
	T	P	F	T	P	F	T	P	F	T	P	F	T	P	F	T	P	F	T	P	F	T
Washford Street	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30
Slittingmill Farm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	4	20
Brightside Lane	-	-	3	-	-	-	-	-	-	-	-	3	-	-	43	-	-	2	-	-	-	20
Newhall	-	-	1	-	-	-	-	-	-	-	-	-	-	2	-	-	-	5	-	-	-	80
													169									
Brightside	-	1	-	-	-	-	-	-	-	-	-	4	-	-	91	-	-	1	-	-	-	267
Blackburn Tilt	-	-	-	-	-	3	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
TOTAL	12	25	80	4	17	22	17	11		3	15		39	376		2	22	162	53	11	71	4478
							135			451			4096									

There were also eleven churches, chapels, or schools flooded. Three tanneries, skin yards, &c. were partially destroyed. There were fifteen bridges totally destroyed, and five partially destroyed.

#### MR. RAWLINSON'S REPORT ON THE FLOOD.

Mr. Rawlinson, the Government Inspector, has presented to Sir George Grey the following report on the bursting of the Bradfield dam, and the condition of the other works of the Sheffield Water Company.

During the week commencing Monday, 14th March, he had interviews with the Chairman and Directors of the Waterworks Company, and the Coroner and jury; visited the district which had been inundated, as also the ruptured embankment.

Mr. Beardmore came down to Sheffield on the 21st of March, and, jointly with Mr. Rawlinson, made an examination of the works, attended the inquest, and minutely examined and inquired into the several matters as herein reported.

The report of Mr. Rawlinson and Mr. Beardmore is as follows:-

The district is, geologically, millstone grit, consisting at this site of beds of shale and open-jointed sand-rock. At the intersecting line of the embankment and the valley, the bed of the stream is about 700 feet above the sea, and this point is some six and a half miles above or up stream, from Owlerton, a suburb of Sheffield. From the embankment upwards, the gradient of the valley and stream is a rise of about 90 feet per mile.

From the embankment down-stream to Owlerton, the gradient of the valley is about 70 feet per mile, or, in the entire length betwixt these points, 450 feet. The valley through this distance is narrow, with steep banks on both sides. The dip of the strata at the site of the embankment is south and east. In the valley there are some springs; the water is bright, and for the most part pure.

The area of the gathering ground above Dale Dyke embankment is about 4300 statute acres; the water area of the reservoir, when full, 78 acres; the greatest depth of the embankment 95 feet; and the capacity of the completed reservoir was estimated at 114 millions of cube feet. The length of the embankment, at the top, was 1254 feet; its greatest width at the base, or valley line, was upwards of 500 feet. The top width of the embankment was 12 feet; the outer and inner slopes

were  $2\frac{1}{2}$  to 1. The puddle wall, at the top, was 4 feet wide, and increased in width, or thickness, by an addition of  $1\frac{1}{2}$  inches for each foot vertical in depth, making a width, or thickness, of 16 feet at the ground line. At some points of the works the puddle-trench was said to have been sunk to a depth of 60 feet below the surface. Two lines of plain socket-jointed cast-iron pipes ( $1\frac{1}{4}$  inch in thickness and nine feet lengths) were laid, obliquely, through and beneath the embankment, from the north-west to south-east. These pipes commenced on the inside, at an inlet-bay of masonry, and ended outside, at the foot of the slope in a valve-house. The sluice-valves were on the outer ends of the pipes.

In excavating the puddle-trench, steam engine power was used to an extent, as estimated by Mr. Gunson, of about 20-horse power driving pumps; three of 12 inches diameter and one of 13 inches diameter. These engines and pumps worked more or less during two years; part of the time night and day.

Dale Dyke embankment contained some 406,200 cubic yards of material, 388,000 cube yards of ordinary material, and 18,200 cube yards of puddle.

The flood removed and washed away, in little more than half an hour's time, some 92,000 cube yards of material, or nearly one-fourth of the whole embankment.

At the commencement of this work (1858) a catch-water reservoir was made, and a conduit, or artificial river-course for the water of the stream, was excavated along the south side of the valley, and at or above top water-level of the proposed Dale Dyke reservoir, to intercept and remove the ordinary flow of water and floods from the valley during the formation of the embankment. This intercepting reservoir is now in existence; but the conduit was broken down by a flood in June 1863, and was never afterwards restored. This flood filled the reservoir to a depth of 50 feet in two days. The conduit was not only not restored, but was further destroyed by excavations made in the sides of the valley, removing shale and rock to place in the embankment. From the date of the rupture of the conduit (June 1863) to the completion of the embankment (April 1864), no provision existed to discharge the waters of the valley, other than the two pipes of 18 inches diameter each. The by-wash consists of a semi-circular bay of masonry, 64 feet round, the water falling some three feet, and passing through a chamber of masonry 24 feet wide. From this point a by-wash channel, partly stepped at the top, and then sloping rapidly, would discharge any overflow water into the river below the outlet valve-house. The masonry of this by-wash is well executed; but in my opinion the dimensions are far too small to remove floodwaters from an area of 4300 acres, even with the reservoir area to assist. A flood on the top of a full reservoir should have been provided for. The dry-weather flow of water from 4300 acres in Dale Dyke district may have been about  $2\frac{1}{6}$ th cubic feet per second. An ordinary flood would give some 540 cube feet per second. An extreme flood, 800 cube feet per second; two pipes of 18 inches diameter, 500 feet in length, and acting under 90 feet head of pressure, would discharge about 84 cubic feet per second, and not 168 cube feet, as stated by Mr. Leather in his evidence.

The reservoir was filled 50 feet in depth by a flood which continued through two days, as stated by Mr. Gunson in June, 1863, and the valves appear to have been closed for a complete filling of the reservoir early in this spring; on March 10, the water in the reservoir must have attained almost its full height; on the 11th March it appears Admiral Fitzroy sent out his usual forecast that a gale might be expected, and as Mr. Gunson had noticed that the wind blew from the west or south-west, which was down the valley, he went to examine the state of the embankment. He did not observe the least sinking of the embankment. While,

however, he was at home that evening, a messenger arrived summoning Mr. Gunson, the resident engineer, and Mr. Craven, the contractor, to the embankment, as "Mr. Hammerton had observed a crack in passing over the embankment, after the workmen had gone home." This crack increased, and by 11.30 p.m. the embankment gave way, suddenly sweeping all within reach of its waters to destruction.

The time has been ascertained at which the embankment burst, and also at which the flood struck the several mills and places down the stream to Sheffield. The calculations worked out from these times, indicate that the flood travelled to Owlerton at a rate of 261 feet per second, or about 18 miles per hour. Cross-sections having been taken show that about 40,000 cube feet of water, seven per second, rushed along the slope of the valley at this rate. Everything solid which stood in the direct course of the flood was swept away; huge rocks were torn up and were floated along just as pine timber would have been floated in an ordinary water way. One of these stones so floated, weighs upwards of thirty tons, and is, in dimensions, not unlike one of the largest stones at Stonehenge. Hundreds of tons of smaller stones were torn up and swept along. Of the first mills encountered by the flood, namely, Bradfield and Damflask corn mills, not a vestige remains to show where they stood, the buildings, site, and subsoil (rock and shale), having been scooped out and swept away, as also the ground for a considerable distance round. Of the Bradfield corn mill, at the date (of 13th April) not a fragment of either mill or of machinery had been found. Mills, mill-dams, with the materials and machinery, bridges, houses, and other buildings, with their sleeping population, trees, and large stones from the bed of the river and sides of the valley, were swept down suddenly to destruction. At Owlerton the valley opens out, so as to allow the flood to spread, and this saved a far greater destruction taking place in the portion of the town of Sheffield affected. The water, however, rose in some parts of the town nine feet in height; floors of buildings, yards, and streets were filled with floating refuse, and covered thick with timber, stones, sand, and mud. Below Sheffield the flood does not appear to have done much serious damage.

The return prepared by the Chief Constable of Sheffield shows the number of persons who lost their lives by the flood to have been 238, namely—138 males and 100 females, 105 being under 20 years of age, 132 of 20 years and upwards, and one whose age is not given. The ages of those who lost their lives vary from two days to 87 years. Some additional bodies have been found since the return was made. In addition to this loss of human life, 50 horses, 38 cows, 8 donkeys, 258 pigs, 267 fowls, and 72 tame rabbits, were drowned.

The Chief Constable of Sheffield also gives the following list of properties totally or partially destroyed, or flooded, by the bursting of Dale Dyke or Bradfield embankment:—

	Totally Destroyed	Partially Destroyed or Damaged	Flooded only	Total
Manufactories, Tilts, &c .....	12	25	80	117
Rolling Mills and Corn Mills .....	4	17	22	43
Workshops, Warehouses, and Store Rooms .....	15	13	135	163
Drapers, grocers, and other Sale Shops .....	2	15	451	468
Dwelling houses.....	39	376	4086	4501
Malt Houses, Breweries, Public and Beer Houses.....	3	21	162	186
Churches, Chapels, Schools, &c.....	-	-	11	11
Tanneries, Skin Yards, &c. ....	-	3	-	3
Buildings not otherwise described.....	53	11	71	135
Bridges, &c.....	15	5	-	20
Cottage and Market Gardens.....	4478	-	-	4478
Lineal yards of Fence Walling .....	-	-	287	287

The General Relief Committee in their report, dated 2nd May, 1864, give the number of houses flooded as 4357, and the number destroyed and abandoned 798.

The General Relief Committee in their report, dated 2nd May, 1864, give the number of widows caused by the flood as 11; number of orphans, 40; number of deaths, 250. The number of persons relieved (to 29th April, 1864) was 20,537.

Up to the 2nd May, 1864, the Chief Constable states that the sum of £2329 13s. had been expended in cleansing and carting away mud and refuse from the streets, roads, squares, yards, and alleys. Assuming that, on an average, the removal of mud and refuse cost one shilling per cubic yard, this would be equal to 46,593 cubic yards. A further sum of £260 had been expended in chloride of lime and for other disinfectants, to prevent any local spread of fever.

An investigation of the probable cause of failure at Dale Dyke reservoir embankment requires certain acquired knowledge, such as the geology and meteorology of the district. the general characteristics of the area of the gathering ground, the contour of the surface, and the gradient and peculiarities of the valley and river or brook; an examination of the ruined embankment, and works connected with it; as also a careful analysis of the evidence given before the jury at the inquest.

As previously stated, the district on which Dale Dyke reservoir embankment was formed, is millstone grit; and, at the site of the embankment, shale and beds of sandstone rock alternate; the dip of the strata being from north-west to south-east. The gradient of the brook is rapid, 90 feet, and 72 per mile, down to Owlerton, a suburb of Sheffield. The valley is narrow, and the sides are steep. The line of the valley to Sheffield is almost due east and west; the flow of the water being towards the east. As in the millstone grit generally, so in this Dale Dyke valley, there are strong springs of pure water. Rain and dew fall on the sides of the mountains, the water sinks into the porous and fissured sandstone surface, passes down to the impervious shale, and is thrown out in springs on the sides and bottom of the hills.

The stratified beds of rock are, for the most part, hidden beneath a superficial covering, consisting of the disintegrated material of the rock and shale above, washed down by rains and contoured by time. There are swamps of moss and bog in places where springs of water create and continue the moisture necessary to this form of vegetable growth, and in several places this superficial covering has slipped. Such a slip existed on the north side of the river, immediately below the line of the present embankment, which induced the engineers to recommend that the present line of embankment should be adopted. Such slips are, however, merely superficial, and cannot truly be designated "land-slips," such as the Undercliffe, Isle of Wight, and "landslips" of this character. We did not notice any land-slip at the site of the Dale Dyke embankment to lead to the conclusion that such contingency had caused the failure. The embankment would also, from its position and form, act as a buttress. The rupture and wash of the flood evidently disturbed strata on the north side of the valley, immediately below the foot of the bank; but this did not cause the rupture, but was caused by the violent scour.

The meteorology of the district shows a considerable rain-fall, but not more than might have been anticipated. Mr. Gunson stated the fall of rain as under:—

Rain-fall. Inches.	
1859 .....	46
1860.....	44

1861 .....	38
1862 .....	42
1863 .....	41

A range of five years is not sufficient (without knowledge from other sources) to lead to practical conclusions. A very dry year may be as low as 30 inches; a very wet year may exceed 60 inches, or in some such proportions. The driest year must be the test of the usefulness of the storage; the wettest year, the heaviest fall of rain, and greatest flood, must be the test of the works. Mr. Gunson stated that in August, 1856, the fall of rain was nine inches. If this fall had taken place on a full reservoir, and after previous wet weather, the volume of water to pass to unite would be more than the by-wash and outlet pipes could have fairly discharged.

A reservoir and its works must be sufficient to store safely, or to pass, harmlessly, the greatest possible flood during the wettest season. Mr. Gunson stated "that 12 or 14 inches of water flowing from the 4300 acres would fill the reservoir ;" as also, that "the only effect which the greatest known flood could produce would be to put 50 or 60 feet in depth of water in the reservoir." Mr. Leather stated "that the two outlet pipes of 18 inches diameter each would discharge about 10,000 cube feet of water per minute, and that it would take 190 hours to empty the reservoir." These statements are both alike—incorrect. A depth of water or rain equal to 7-3 inches, from 4300 acres, would have filled the Dale Dyke Reservoir to its top-water level, and not more than 5000 cube feet of water per minute would pass out of the pipes under their greatest pressure, whilst 30,000 cube feet per minute might be flowing into the reservoir during an extreme flood. The by-wash, at 12 inches in depth, would discharge about 14,000 cube feet per minute, so that 11,000 cube feet per minute might be accumulating more than the outlet pipes and by-wash could discharge. Such contingency ought not to have existed, as a flood on a full reservoir at any time must have seriously injured the bank, if it did not entirely destroy it.

An examination of the ruined embankment and empty reservoir showed that the stratification had been stripped of the superficial, and, in some respects, water-tight covering, and that several acres of open-jointed sandstone rocks are bared. Into some of these joints and seams surface water flowed readily during an examination made a few days after the failure. Mr. Gunson stated—"the outer part of the embankment, to prevent slips, was formed of rubble stone, to a height of 50 feet at the apex; 3d. per cube yard extra was paid to the contractor for selecting and placing such stone. This was done to prevent slips."

An examination of the ruined embankment showed that this selecting of rubble for the outer slope or toe of the embankment had, with the first stripping of the strata, insured more water-tight material for the first 50 feet in depth of the inner part of the embankment: hence, the comparative tightness of the reservoir under 50 feet of water during the summer, autumn, and winter of 1863, and spring of 1864. The upper part of the embankment, on both sides of the puddle-wall, is evidently composed of rubble material, in no respect water-tight.

Mr. Gunson stated that the embankment was formed by wheelbarrows, three-wheeled, or "Dobbin carts;" by ordinary two wheeled carts, and by contractors' railway tipping wagons. "Tips," three feet to five feet in depth were "allowed," as also that in every respect the work and material of the Dale Dyke embankment corresponded to the mode of working and material used at the Agden embankment. This work was then in course of formation with contractors, wagons, tipping, loose and coarse rubbly material, in layers of from six feet to nine feet deep, which had the effect of rolling all the largest stones to the bottom, and

forming open stratification from the inside, or water surface of the embankment, to the puddle-wall, and from the outside of the puddle-wall through the mass of the embankment. The material is not of a good character for the construction of a water-tight embankment, and the mode of depositing and working is objectionable.

The puddle-trench could not, of course, be examined, nor the outlet pipes and valves, as these were buried beneath the ruins of the embankment. The inner bay of masonry, where the pipes commence could be seen, and here planks and rough timber props had been left into form a temporary guard of timber in front of the pipes. This work was in an unfinished state, although the reservoir was in the course of being filled for use; and it could not have been completed without entirely emptying the reservoir. No means had been provided to close the pipes on the inside of the reservoir, or subsequently to examine them.

Sinking the puddle-trench appears to have been a tedious and costly affair. The strata made water sufficient to keep two steam engines at work for upwards of two years, part of the time night and day. During wet weather the engines and pumps were "drowned out." It was only intended to excavate the puddle-trench some 9 or 10 feet deep; an impervious foundation was not met with, and it was necessary to sink in some parts to a depth of 60 feet. No special provision was made to block out this water on the inside, or to remove any springs from the bottom of the puddle-trench, or from the seat of the embankment outside by drains. When the puddle-trench was considered complete, Mr. Leather examined the bottom, "found it tight," and gave orders for the trench to be filled with puddle. A trench which had occupied upwards of two years in sinking, under continued steam pumping, required puddle of a superior character to be used, and extraordinary care to prevent any wash of water from beneath the puddle. The evidence does not record any such arrangements having been made, other than placing rubble stone at the toe of the embankment. Continued pumping seriously injures the sub-strata for reservoir purposes, as all beds, joints, and fissures are opened, and the subsoil is rendered more porous. The Hindoos, in forming embankments, far larger than this at Dale Dyke, had no means of sinking deep puddle-trenches, as they had not steam pumping power to use, neither did they form any puddle-wall, as in English reservoirs.

The outlet pipes, Mr. Gunson stated, "are laid in a straight line, but diagonally to the line of the embankment." A trench was excavated in the solid water-tight shale some eight or nine feet in depth, and so wide as to allow the pipes to be about 18 inches from each side, and 2 ft. 6. in apart. Where the pipes cross the puddle-trench, in order to guard against fracture of the pipes, the trench was sloped down from the ordinary depth, 100 feet on each side, so as to intersect the bottom of the puddle-trench, which, at this point, was some 30 feet in depth. The space so excavated was filled in with puddle, and 18 inches in depth of puddle was placed in the remainder of the pipe-trench on either side. The pipes are ordinary socket-pipes, in 9-foot lengths, but of extra thickness ( $1\frac{1}{4}$  inch metal); the joints are made with lead in the usual manner. The sockets are six inches deep, are towards the inside of the reservoir, and break-joint in the trench. Mr. Gunson thought, as the pipes were so strong, and the joints so carefully made, that if a subsidence of two feet took place, the pipes and joints would remain uninjured. A provision was undoubtedly made to allow of subsidence, but Mr. Gunson does not seem to have thought about the consequences to the puddle-wall at the point of intersection. If the least subsidence took place, a fracture in the puddle-wall above the pipes was inevitable, as the puddle, from its character and form, could not follow the pipes down. Pipes so arranged, so jointed and so laid, could not possibly retain the

position in which they were first placed, but must inevitably go down; and in such case would fracture the puddle above the pipes, leaving a cavity in proportion to the depth of the subsidence. Water, under the pressure of a reservoir nearly full, would, at first, carry away small portions of the puddle and of the bank; and, as a cavity was formed, subsidence would commence, cracks would show, and the whole would rapidly wash and sink to ruin. The rubble toe of the bank would distribute and conceal the overflow of water. The mischief, once commenced, would rapidly increase, the subsidence of the outside material of the bank would bend the upper part of the puddle wall outwards, until the top line of the bank came below the water level. The work of destruction setting in at the top and bottom of the bank, would destroy it as rapidly as it is recorded to have been destroyed. The greater portion of the mischief was effected in from 15 to 30 minutes, in which time 92,000 cube yards of the material were swept away.

An examination of the pipes will not now be evidence against them, as it may be said the rupture disturbed and injured the pipes, rather than that the pipes originally were the cause of the failure. Destruction so rapid and so entire, requires, however, adequate power for its accomplishment. The facts stand as under: The puddle-trench was unfavourable; the outlet pipes were laid in a most objectionable manner, so as, in fact, to insure a fracture somewhere; the puddle-wall is much too thin, and the material placed on either side of it is of too porous a character, and was placed by railway tip-wagons, which is the worst manner of constructing a water-tight embankment.

No puddle-wall should ever be placed betwixt masses of porous earth, as puddle, under such conditions, will crack, and is also liable to be fractured by pressure of water. A wall of puddle 16 feet thick at the ground-line, and 95 feet in height, could not remain entire in the midst of such material; any injury to any part of it would be permanent, and, if exposed to pressure of water, might prove dangerous. A puddle-wall requires to be backed up, on both sides, to at least double its own thickness, with fine-selected material, so as to prevent direct pressure of water from the inside, or any drying, and consequent cracking on the outside. Six feet in depth of water will puncture 12 inches of sound puddle, if laid hollow over rubble-stone and loose earth like this bank; so that 16 feet of puddle would be liable to be punctured by a head of water of 90 feet, if the least flaw existed in any part, and the full pressure could act on it.

The objectionable mode of laying the outlet pipes most probably fractured the puddle-wall at the point of crossing. The loose state of the material at the top of the bank let in the water. As it rises in the reservoir, this water has most probably found its way down the face of the puddle to the fracture in the puddle-wall above the outlet pipes, and hence the destruction so swift and terrible in its effects.

Cast-iron pipes ought never to be laid under such conditions as these were. A culvert of masonry, with an inner valve well, as in the Bradford reservoirs, should have been provided. This culvert should have been on one side of the valley, and in solid ground, free from the loose earth of the embankment. The lower 20 feet of any reservoir, formed on the plan of this at Dale Dyke, may, if required, be drawn down by a syphon arrangement, and all the valves may be within reach for examination or for repairs.

The by-wash arrangement at Dale Dyke was inadequate for the drainage area. The length provided, 64 feet, ought to have been not less than three feet for each 100 acres of drainage area, or 129 feet; extra power for lowering flood-water during a storm should, even with such a length of by-wash, be provided. The

embankment was not properly designed. The material and mode of construction were alike defective.

The following recommendation of the jury, "That in our opinion the Legislature ought to take such action as will result in a Governmental inspection of all works of this character, and that such inspection should be frequent, sufficient, and regular," has received our serious attention. We cannot, however, recommend it for adoption. Any approval of plans or casual inspection of waterworks embankments cannot insure ultimate safety in such works. The responsibility must remain, as at present, with the engineer and persons immediately connected with the works. Magistrates have jurisdiction under clauses inserted in recent Waterworks' Acts. In our opinion, a longer period than is usually inserted in such Acts for the construction of works of this character should be allowed, and arrangements should be made gradually to test the strength and soundness of the work. For this purpose, ample means to draw the water down should be provided, considerably below the full-water level. We have, &c.

(Signed)            ROBERT RAWLINSON.  
                          NATHANIEL BEARDMORE.

\*\*\*\*\*

#### THE INQUEST.

The inquest on the bodies of the unfortunate persons who met with their deaths by the flood was opened before the Coroner (J. Webster, Esq.) and his deputy (W. W. Woodhead, Esq.) on Saturday, March 12, in the board-room, at the Sheffield Union-house, where upwards of 96 dead bodies lay.

The following gentlemen were empanelled upon the jury:—

Mr. Henry Pawson, foreman, Mr. Thomas Prideaux, Mr. J. B. Fordham, Mr. J. Walker, Mr. C. J. Porter, Mr. Henry Pearce, Mr. T. Appleyard, Mr. John Howson, Mr. John Bland, Mr. R. Booth, Mr. S. Dawson, Mr. F. W. Coney, Mr. T. Cole, Mr. F. J. Mercer, Mr. Edward Bennett, and Mr. William Marples. The Town Clerk (J. Yeomans, Esq.) was also present to watch the inquiry.

The Coroner, in opening the inquest, said he would proceed to identify a few of the bodies, in order to facilitate their burial, after which he would suggest that the inquest should be adjourned for a week or ten days, so that he and the Chief Constable might have an opportunity of investigating the matter, and of consulting with the Secretary of State, so that he might send down a competent person to examine the present condition of the reservoir at Bradfield. At all events, the Home Secretary would be pressed to tell them whether or not a Government Inspector did not inspect this very reservoir some two or three weeks ago, and on that occasion certify that it was in a safe and sound condition. They would also have to make inquiries whether or not it was known on Friday morning, that this reservoir was in a dangerous state. He (the Coroner) was told, very confidently, that it was so, and that towards evening on Friday, an alarm was raised in the Loxley valley, that the bursting of the Bradfield reservoir was imminent. In that valley, it appeared, there had not been so much loss of life as might have been anticipated, but this might no doubt attributed to the timely warning that was given to the inhabitants. The Jury must go very carefully into those matters, so as to ascertain whether or not any one was to blame, or whether it was an accident

which no one could have prevented or controlled, or whether the dreadful loss of life might have been prevented by timely warning. Whether any one was criminally liable or not, they could not say; but it was a question of very serious import in any case. He (the Coroner) understood that nearly 200 bodies had already been discovered, some having been found so far away from the scene of the catastrophe as Conisbro' near Doncaster.

A JURYMEN here remarked that it would be necessary to summon such persons as knew anything of the state of the dams on the previous evening. Several other Jurymen concurred in the propriety of such a course.

Mr. WALKER said he saw a man named Ibbotson who had told him that he had been expecting the flood coming all the previous day. He (Ibbotson) had noticed a crack from which the water leaked, and had named it to the contractors, but they had replied that it was perfectly safe.

Mr. PAWSON (foreman) said the thought struck him that if the Jurymen had the benefit of a plan they would be more familiarised with the spot.

The CORONER observed that it would be necessary to identify a few of the bodies in order that their friends might remove them from the Workhouse, where they had been brought for identification, and decently bury the corpses.

The Jury were then sworn and proceeded to view the bodies. Fifty-six bodies lay side by side in one ward, their faces distorted in some instances, and in other cases wearing a calm and placid look, as though the flood had come upon them suddenly while asleep. The whole of the bodies had been cleansed of the mud, which adhered to them when they were first brought to the Workhouse. Some of them were frightfully mutilated. Here was one with a leg broken, and there another with an arm torn off; there was a third with a deep gash on the brow, and by his side was one with his scalp torn off. The bodies of children were very numerous. In another ward, containing thirty or forty bodies, the scene was equally distressing.

On the Jury returning, Mr. PRIDEAUX said he thought it was very desirable that there should be some practical men engaged to inspect the reservoir—men conversant with the system of making such reservoirs. It would be very beneficial to know the amount of pressure the banks of the dam had to bear. He (Mr. Prideaux) had heard that the dam when filled held 1,200,000,000 gallons of water.

The CORONER thought there would not be that amount of pressure.

A JURYMEN had heard that a portion of the bank was a natural formation and part artificial.

The DEPUTY-CORONER thought the natural portion of the embankment was the worst part of the dam.

The CORONER said that by a long adjournment more information could be gleaned than if they were to sit at an early date, and he therefore suggested that the Jury should go over to the dam for the purpose of viewing it; but whether they should go separately or in a body he should leave to their own discretion.

Several Jurymen thought it would be far better to go all together, and also expressed a desire to have a plan of the workings. The Coroner promised to have a plan ready.

Mr. APPLEYARD asked whether it would not be better to take a competent engineer along with them, in order that they might have the benefit of his opinion on the condition of the reservoir.

The Coroner replied that it would be best if the Jurymen went by themselves, unaccompanied by any professional man. It was general to do this,

and then if the jury could not do without the assistance of an engineer then to call one in.

The examination of witnesses to identify the bodies was then proceeded with.

HENRY WRAGG said: I am a cutler. I knew the deceased, John Elstone and Elizabeth Elstone. They were man and wife. I am brother-in-law to John Elstone. I think he was 34 years of age, his wife was 30. They lived in a garden house in Neepsend-lane. I saw them both alive yesterday. In consequence of a rumour I went to their house this morning, and found them both drowned in their own house. They were undressed. Their child was also drowned. All had been drowned by the flood of water which came down the valley this morning.

MARY ANN PATON, the wife of Charles Paton, Park Wood Springs, table blade grinder, said: The deceased, Keziah Paton, is my brother-in-law's wife. Her husband's name is John Paton. She was 50 years of age, and lived in Kelham Island. She has been drowned by the flood. Her husband has not been found. He is supposed to have been drowned.

ANN FAIREST said: The deceased, Thomas Fairest, is my husband. He was furnace-man at Mr. Butcher's works. He was 47 years of age. He was drowned while crossing the stone bridge when he was coming home to save me and my children from the flood.

The Coroner thought it would be unnecessary to identify more of the bodies, as it was certain that they had died from the effects of the flood, and the cause of the catastrophe would be duly inquired into.

The inquest was then adjourned to the 23rd of March.

The Jury, after some conversation, agreed to meet at the King's Head Inn, on Monday morning, and go in a body to the reservoir.

#### THE CORONER AND THE JURY AT THE RESERVOIR.

On Monday, March 14, the Coroner and the Jury proceeded to examine the reservoir and the adjacent works. Some details of the progress of the workings were given by the officials in charge.

#### CORRESPONDENCE BETWEEN THE CORONER AND THE GOVERNMENT.

'The following correspondence took place between the Coroner and the Home Office:—

14, St. James' row, Sheffield, 13th March, 1864.

Sir, — A fearful accident has occurred at Sheffield by the bursting of a reservoir belonging to the Water Works Company. The destruction of life is terrible—nearly two hundred bodies of men, women, and children have been already collected.

As it is impossible to hold an inquest in each case, as very few will probably be identified, and as the cause of death is the same in all, I have concluded not to hold an inquest, except on two or three bodies identified yesterday, which will be sufficient for a full inquiry into the cause of this most dreadful occurrence.

I trust that the course I have taken will be deemed satisfactory.

The jurors wish me to intimate that a Government Inspector should be sent down to make a careful examination of the works at the reservoir, and to give

evidence at the adjourned hearing on the 23rd instant, at the Town Hall, Sheffield.

— I am, Sir, your obedient servant, J. WEBSTER, Coroner.

The Right Hon. Sir George Grey, Bart.

Whitehall, 14th March, 1864.

Sir, — I am directed by Secretary Sir G. Grey to acknowledge the receipt of your letter, and to inform you that he has heard with deep concern of the dreadful calamity that has occurred at Sheffield.

Mr. Rawlinson, C.E., has already proceeded, by Sir G. Grey's direction, to Sheffield, with instructions to communicate, immediately on his arrival, with the local authorities, in order to render all possible assistance in the inquiry into the cause of the calamity

Mr. Rawlinson will be prepared to make a careful examination into the works of the reservoir, and will be instructed to attend at the adjourned inquest, for the purpose of giving evidence.

I am, Sir, your obedient servant,

H. WADDINGTON.

P.S. Mr G. Grey quite agrees that it will not be necessary to hold inquests in all, or even in any considerable number of cases, in which the facts are nearly if not identically the same. You will be justified in exercising your discretion in this matter, taking care that the inquiry which is to take place shall be full and complete.

#### THE ADJOURNED INQUEST.

Wednesday, March 23, 1864.

The inquest on the bodies of Thomas Elston and others was resumed at the Town Hall, Sheffield, on Wednesday, March 23rd.

The Coroner (John Webster, Esq.) conducted the inquiry. Among the professional and other gentlemen present were—Robert Rawlinson, Esq., C.E., and Nathaniel Beardmore, Esq., C.E., from the Home Office; M. Mille, member of the Legion of Honour, and engineer of bridges and roads to the French government, Robert W. Mylne C.E., F.R.S., of London; Wm. Lindley, Esq., C.E. (London), engineer of the Hamburg Sewage and Water Works; Colonel Ford, of York; Mr. Perronet Thompson, barrister, instructed by Messrs. A. Smith and Sons, solicitors to the Water Company; William Smith, Esq., chairman of the Water Company; the Mayor (Thomas Jessop, Esq.,) and the Town Clerk were present during a considerable part of the day; and Mr. Broadbent appeared for the friends of several of the deceased.

The CORONER in opening the proceedings, said the jury were met to inquire how Thomas Elston and others came to their deaths on the 12th inst. They would very likely hear very little about these people in the course of the proceedings. He proposed only to direct their attention to the death of Elston. Separate inquisitions could afterwards be made with regard to the other deceased without any particular inquiry. Having read the evidence taken on the previous occasion, the Coroner added that the course he proposed to take was to examine the engineer of the Company first, in order to get as far as possible a history of the embankment. If Mr. Leather could not give all the information deemed necessary,

he (the Coroner) would examine Mr. Gunson, the resident engineer, Mr. Craven, the contractor, and such other witnesses as might be necessary. If their evidence was not satisfactory, he would call Mr. Rawlinson, the Government inspector, and one or two other witnesses who had been engaged in examining the reservoir, and who would give their opinions upon the cause of the disaster. That would be the most direct way of getting at what they wished.

The following evidence was then taken:—

#### EVIDENCE OF MR. J. T. LEATHER.

Mr. JOHN TOWLERTON LEATHER, Leventhorpe, near Leeds, civil engineer, said:— I am the consulting engineer of the Sheffield Water Works Company. I was consulted by the company when they applied to Parliament for powers to make this Bradfield reservoir. I prepared the plans and specifications for the construction of the reservoir. That would be in the year 1858. Parliamentary plans and sections were deposited in 1852 for this and two other reservoirs, which we call the Bradfield scheme. I examined the country generally before depositing the plans, to see if water could be obtained. The contract for the Bradfield reservoir was let, I think, in 1858. Originally, the embankment was set out lower down the valley than where it is executed. That first embankment was never commenced, because it was found, on trial holes being sunk, that there had been a disturbance of the strata. I then altered my plans for the embankment to be where it now is. I examined the ground before we commenced making the embankment. The geological formation is just at the out-crop of the coal measures, and the commencement of the mill-stone grit. The strata consists of first—soil, then clay, then stone, then shale, with a gannister formation and a little coal in the centre of the valley. I had to deal with soil, clay, stone, and shale in the embankment. The only spring I ever saw in the valley was one in the site of the reservoir a little above the embankment. The first thing in forming an embankment is to sink the puddle trench in the centre of the base. The original plan provides for a puddle bank about ten feet below the surface. In sinking a trench we did not find a good foundation at that depth. It was not sufficiently water-tight. It was therefore necessary to sink until we did get to a water—tight foundation. We sank to a depth varying from ten to sixty feet, and got a water-tight foundation. A good deal of water came into the puddle trench during the working. We got rid of it by pumping. I do not remember what engine power the contractor had to pump the water. I came to see the trench, I think twice; but I cannot remember exactly. I came when I was wanted. I walked over the bottom of the trench when it was finished, and know it was water-tight. I am not aware that in wet weather the quantity of water in the trench was so great that they could not pump it out. I saw the puddle trench in 1861, and in 1863 I saw the puddle wall. I did not see the puddling of the trench in its progress—at all events, not at the lowest point I did not see the whole of the puddle, but what I did see was well put in, and good work. The water was not cut off altogether from the trench. The trench simply divided the water courses. The water came into the trench so long as it was open. The bottom of the trench was impervious, but the sides were pervious. The water was not got rid of, but blocked out by the puddle) as is usual. When, therefore, the puddle wall got to a certain height, there would be water against it on the upper side. The water that would get through the rock to the puddle wall would not have a tendency to injure it, for it is made with water. The object of a puddle wall is to keep out water, and therefore water is always against it in a reservoir. The water rises against the puddle wall, but does not percolate through

it. The water was not let off by any natural means; if it had the puddle wall would not be perfect. As the puddle wall was being constructed, the water rose with it, and was carried away. The embankment across the valley is 418 yards long.

Mr. RAWLINSON here interposed in explanation. The effect of the explanation was that as the puddle trench was filled with puddle the fissures from which water had issued into it were closed, so that the water, while resting against so much of the puddle as covered the surface of the fissures could not penetrate the puddle, which was waterproof.

Examination of MR. LEATHER resumed: The embankment is 500 feet wide at the base, and 12 feet at the top. The inner slope is 2½ inches to 1 foot, and the outer slope the same. The greatest height is 95 feet. The puddle is 4 feet wide at the top, and gets wider by an inch and a half at every foot in depth. Thus, supposing the puddle wall is 95 feet high, it will be 16 feet wide at the base. There is 60 feet of puddle below the surface, making the total depth of the puddle wall 155 feet. The reservoir would contain a little over 114,000,000 cubic feet of water. The surface area of water was about 78 acres. The area of the gathering ground is about 43,000 acres. We got the material for making the embankment from the inside of the reservoir, and in doing so bared the rocks. In places, we got a good deal of stone. The embankment is made of stone, clay, shale, and earth. I cannot say how the material was put in Mr. Gunson was not my servant. He was the resident engineer. He had the superintendence of the works, occasionally consulting with me. He could not deviate from my plans. There are two 18 inch pipes from the inside to the outside of the reservoir underneath the embankment. The pipes are about 500 feet long, made of lengths of 9 feet. There would be 55 or 56 lengths. They are joined with sockets and lead in the ordinary way. They are laid in a trench 9 feet below the surface of the ground. They are wrapped round with clay puddle to the thickness of, I think, 18 inches, the trench being then filled in. The pipes are laid obliquely, not diagonally, across the embankment in a straight line. The valves are at the lower end of the pipe, outside the embankment. If one of the pipes were to burst in the centre, it would be difficult to get to it to repair it. It would have to be reached by excavations. An instance of that kind occurred in the great dam at Crookes. The pipes were originally of wood. I removed them by excavating, and substituted iron pipes. That would be thirty years ago. The breaking of one of those pipes would most likely cause serious damage to the embankment. The embankment might possibly fall before we could find out the damage; I can't tell what might happen. I never knew an instance of that. The pipes were made double the usual strength. I should think there could not be an unequal pressure upon the pipes from the embankment. Being laid in the solid ground the weight above could do them no harm, unless it was a crushing pressure. There would not be an unequal pressure upon the pipes so as to raise them at any of the joints, or cause them to leak. We can insure a sufficient equality of material along the whole length of the pipes for all practical purposes. The Water Company have other dams constructed on the same principle as this, which have been in operation for a great number of years. Possibly water from the sources blocked up in filling the puddle trench might get into the pipe trench. If it did it would show itself. If water got in below the puddle trench it might be dangerous; if above, it would not. It would show itself by percolating out at the lower end. Water mains in streets do not often give way under external pressure; I never knew one even break or yield at the joint from external pressure.

Mr. RAWLINSON: Is it not a common thing for a new line of mains to have blemished joints, and leak? ..... Mr. Leather: The pipes of the company are

severely tested before they are put down ..... Mr. Rawlinson: I saw the testing apparatus, but nevertheless the question is a proper one. My experience is that they do give way.

Mr. LEATHER: My experience is the contrary; they scarcely ever do give way.

Examination of Mr. Leather by the Coroner resumed: I never heard of a pipe giving way because of water creeping along the pipe trench. I do not know that there was such a case at Birmingham. It would not have been better to have made a culvert for the pipes. Laying them in a trench is better, because in my judgement it is a more simple operation and more secure. In case of an accident a culvert would give readier access for repair, but with much greater liability to accident. I can hardly tell the pressure of water on the valve when the reservoir is full; I am not prepared with those calculations.

Mr. RAWLINSON, after a calculation, said the pressure of water on each valve would be from four to five tons, when the reservoir was full.

Mr. LEATHER examination resumed: When the water flowed freely through the pipes they are not likely to sustain much injury. The opening of the valve would not have a tendency to wrench the joints of the pipes. The pressure lessens as the valve is opened.

The CORONER: One of those valves took half an hour in opening on the night of the inundation, and there was a shaking and straining of the pipe during the opening not felt before or after. That is the reason I ask the question. What I mean is, would there not be a greater pressure upon the valve when the water was in motion ?..... Mr. Leather: No. There would be a greater disturbance in the way of noise in opening the valve, but the pressure would diminish as the valve opened. The pipes would run off 10,000 cubic feet of water per minute. Every inch that the water lowered would diminish the pressure of the water upon the embankment. At this rate, 190 hours, or about nine days, would be required to let off the whole of the water, supposing there was no addition.. Don't you think it necessary to have had some more complete control over the water ? —I have not thought so hitherto. One cannot tell how such a thing as this may change one's views. There might be great damage in letting off the water too rapidly in order to relieve the embankment. .... Not so much as in letting the whole off at once ? —That depends on circumstances. There might not be so much. I did all that I thought necessary to provide against danger. I know of no means of providing against danger except the pipes and bye wash. There is a drain all round the Redmires dam, but that is for another purpose altogether.

The CORONER: Ought you not, as a practical engineer, to minimise the danger as much as possible in making these large reservoirs. There has been no attempt to minimise the danger here..... Mr. Leather: Oh yes, there has..... The Coroner: No there has not; and there is no use in having an engineer unless he does that. You have had the management of these dams. You have placed a great embankment there, and collected an immense body of water behind it. But even though there was a suspicion that the embankment might give way, you have provided no means of taking the water in any other direction, so as to avoid its coming down in one body upon the people of Sheffield. I ask you is it not desirable in such cases that some means should be taken of lessening the danger ? ..... Mr. Leather: I cannot conceive any other way than that adopted ..... The Coroner: Did you never think of any other way ? ..... Mr. Leather: No..... The Coroner: Cannot you conceive any mode of obviating the danger? ..... Mr. Leather: No other mode than that adopted ..... The Coroner: There was not the slightest arrangement made

for doing away with the danger; that is what I complain of. Why, it would have taken eight days to have run off the water in the dam through outlet pipes if there had been no influx. The influx of water was so enormous that it would have taken three weeks to run off the water by the pipes..... Mr. Leather: I know of no means that could have been adopted to relieve such a difficulty..... The Coroner: I saw a large cutting near; could not that be made available, Mr Leather ? — No: a cutting should be at the bottom of the embankment of a reservoir to relieve it under such circumstances, and I know of no means of having such a cutting ..... The Coroner: I am only sorry I am not an engineer: I would do it or give it up. Let me ask you further: Could you not have drawn away any water that reached the puddle without the puddle being injured—drawn away from the outside I mean ? ..... Mr. Leather: Yes..... Has anything of that sort been done ?——I do not know that is has ..... It was no part of your plan to drain the puddle trench ?—No, except during the working ..... I mean afterwards.—No; I did not suppose any water would get there afterwards ..... I am supposing it has. Could not the puddle trench be so drained as to prevent water getting there ? ..... No; any water that might get there would naturally percolate through the embankment on the lower side..... It would get away without doing any injury—Yes ..... I am told that water was seen coming from the bottom of the embankment sometimes, that might be the reason ?—It might be; that would be the natural result if any water did get into the embankment ..... Would there not be a greater weight upon the escape pipes in the centre of the embankment than at the edges of it ?—The pressure would be greater ..... The embankment was 90 feet high in the centre. If this weight pressed the pipes down at the centre through the puddle, would it not necessarily dis-joint the pipes ? —No.

Mr. RAWLINSON called the attention of the witness to a report published by the Society of civil Engineers, in which it was stated that pipes laid under an entrenchment occasionally broke from pressure upon them not being equal; and mentioning an instance at Melbourne where the fracture had to be repaired by inserting a line of boiler plating inside. The pipes in this case were excellent castings, and had borne a very severe pressure both externally and internally, but by the weight of the embankment were flattened and distorted, more in the centre than at the sides, because the pressure was unequal. There was, therefore, a possibility of pipes subjected to an unequal pressure being injured ..... Mr. Leather replied that the pipes in the case cited by Mr. Rawlinson were laid in the embankment, not in a trough. Those of the Bradfield reservoir were, however, laid in a trench under the embankment. The cases, therefore, were quite different. The Coroner: But though the trough was made in the natural ground, the pipes themselves were laid in an artificial ground, which might offer more resistance in one part than another ..... Mr. Leather: There were 18 inches of puddle round them, but they would adjust themselves in the puddle.

By the JURY: How do you determine the strength of the embankment ? — It was ten times that of the pressure against it. I cannot tell how much water would run into the reservoir in 24 hours on a wet day. The pipes have not been examined since the flood. But as there was no leakage through or about the pipes before the accident, and as there was a full flow of water through the pipes when the valves were opened, it is fair to presume there was no leakage. I have seen the valves work under half the full pressure.

Mr. LEATHER, examined by Mr. Perronet Thompson: I have been the consulting engineer of the Company in respect of all their reservoirs. I have not previously had an accident, though some of the reservoirs are of greater extent than

the Bradfield reservoir. The embankment of the upper dam at Redmires is much larger. The plans and sections for this and for the reservoirs that have stood for years are precisely the same in principle, and there is a great similarity in situation and materials of some of the dams. I used all the means known to me as a practical engineer in the construction of these dams for ensuring the security of the work. So far as my observation went, the quality of the work was good throughout. The fact of the puddle trench being sunk to the depth of 60 feet, although the plans required only ten feet, is an illustration of the care exercised in providing for the safety of the dam. The specification provided for the trench being made deeper than ten feet if necessary. The weight of the water is measured by the depth, not the quantity of the water on the superficial area. One-fourth the water might have given quite as great a pressure if the depth had been the same. I have not known an instance in my experience of pipes carried under an embankment having given way. If the valves of the pipes had in this instance been unable to sustain the weight of water, the only result would have been that the water would have run away; no damage would have resulted. I have taken all reasonable means to provide against danger. The object of an embankment is to confine the water, and the business of an engineer is to make his embankment sufficient to resist the pressure of the water against it, not to provide any other means of letting the water off on the supposition that the embankment is not strong enough. This embankment was sufficient ..... You have told us the width of the puddle-wall.—Yes.

The CORONER: We have no fault to find with the puddle wall.

Examination by Mr. THOMPSON resumed: The puddle wall is the real security of the water. The only object of the embankment is to support the puddle wall, not itself to keep out the water. It is not, therefore, specially important that the earth of the embankment itself should be such as will keep out water. This puddle wall was 60 feet deep. The pressure of water in the pipes in Sheffield is much greater than in those at Bradfield, and there is scarcely ever a leakage from that pressure.

The CORONER: If an embankment is to support a puddle wall, and the embankment is insufficiently strong, the puddle bank will, of course, fall ? — Mr. Leather: Yes ..... Have you examined the embankment since the flood ? —Yes ..... Do you think it is properly made ?—Yes ..... Is the higher side made in the same way as the lower ?—Under the lower side there was a footing of stone, to prevent the embankment slipping.

By the Jury: What was the thickness of the 18-inch pipes ?— Mr. Gunson will tell you that..... The pipes would be carried through the puddle trench if not through the embankment ? Yes ..... Is it likely there would be any settling there ? You will find that proper precautions have been taken against that ..... If there was any settling there, is it not likely that the pipes would be broken by it ? — They might, but I have no doubt proper precautions would be taken against that.

By the CORONER: What is the cause of the embankment bursting I really do not know ..... What do you conjecture to have been the cause ?— I have very great difficulty indeed in forming any opinion — exceedingly great. I have no opinion worth relying upon. I can form conjectures, and so can anybody else, but they are not worth much ..... Your conjecture is perhaps worth as much as those we have heard in the town; what is it ? —There is a possibility of a landslip under the seat of the embankment having produced it, but that I cannot tell. I do not believe the embankment itself has slipped, but the stratification beneath it may have slipped.

By Mr. RAWLINSON: YOU mean that you do not think the embankment was the first to slip ? That is the more correct way of Putting it.

By the CORONER: Have you any other suggestion to offer ? — A fracture of the pipes has been suggested. If the pipes had broken, that might have caused it; but we have no indication of any such breakage.

By Mr. PAWSON (foreman): Mr. Leather said the puddle trench was carried down to a point where the ground was impervious.... Was any length of time allowed to elapse after sinking to that depth to see whether water would well up, or was the puddle filled in immediately ? — Mr. Gunson can tell you better about that; but I know some time elapsed, because they kept it open for me to see.

By the CORONER: Why do you hazard the conjecture that there has been a land slip beneath the embankment ? —Because we know they do take place; a land slip has taken place in this valley below the dam, and in many other valleys..... It would be a slip of the surface, not of the rock. You tell us that the puddle bank was based upon the solid rock at a depth of 60 feet. How could there be any slip there ? — I am speaking of a slip under the embankment; not under the puddle bank. Then you do not ascribe the bursting of the reservoir to unsound principles of engineering or to bad workmanship ? — Certainly not.

By Mr. Rawlinson: Was the embankment formed by wagons and tips, by barrows, or by both ? — You had better ask Mr. Gunson on that point ..... Would a blown joint cause equal injury with a crack in a pipe if such took place ? — Certainly not ..... Do you know the maximum volume of water ? — I do not, but it has been carefully recorded ..... A land slip may arise in this way. The substratum may be surcharged with water. The rocks might not under ordinary circumstances receive such a volume of water as would disturb the superincumbent material. On the reservoir being filled with water, however, the pressure through the natural fissures might create a landslip that would not have taken place without it ..... Is that anything like your view ?— No, I do not think that is it. My view is, the water that would produce the land slip is the water that naturally percolates into the strata getting between the face of the rock and the bed of clay resting upon it, and causing the superincumbent mass to slip off ..... That is constantly seen in railway cuttings ten or twelve years old ? — In that case there is not only the water but the concussion of the trains ..... You say the water through the fissures would be cut off by the puddle trench ? — Yes ..... Have you examined the bare stratification on the by-wash side of the reservoir since the flood ? — No ..... You don't know whether it may be taken for granted that it is pervious or impervious; whether it would retain water, or whether a potion would percolate into it ? ..... I have not examined, because I believe if the rock would allow the water to percolate such water would be cut off by the puddle trench.

By the CORONER: Suppose the percolating water was not stopped by the puddle, but went through the rocks at a lower level than the bottom of the puddle trench, might it not have the effect of washing down the embankment on the low side of the puddlebank ? — No. The probability is that it would find its way to a spring lower down the valley. Have you seen the embankment of the Rivington Water Works at Liverpool ? —No ..... Are you aware the reservoir bottom there was quarried the same as yours; and that subsequently a large quantity of water found its way below the stratification of the puddle bank and leaked out a considerable distance below the embankment ? —That is so probably; but I do not know of it. Are you aware that any special arrangements were made to prevent the water creeping alongside your two outlet pipes by putting collars around them ? — No ..... Did it come to your knowledge or not that one of the Birmingham

reservoirs six or seven years ago was destroyed by the water creeping along the cast iron pipe and blowing a hole through the embankment like a tunnel ? — I am not aware of it. I should think in any such case it would be detected by a previous leakage ..... I believe there is evidence that a considerable body of water was issuing under your side wall below the embankment before the bursting of the embankment. You are perhaps not aware of it ? — I am not ..... What is the extreme life of a pipe, such as your outlet pipes—I mean how long would they last,—they would come to destruction some time of course ? — I do not know. Everything will come to destruction sooner or later no doubt. I do not know how far the two pipes were placed apart.

JOHN GUNSON said: I am the acting engineer for the Sheffield Water Works Company, and have had the construction of the Bradfield reservoir from the plans of Mr. Leather. The embankment was made in the usual way, but it was found necessary to dig the puddle trench deeper than we originally intended, the reason being that there was so much water. We went to a depth of 60 feet. There was a very large flow of water, which was pumped out by two engines, one of them working a 12-inch and a 13-inch pipe. The other pumped two 12-inch pipes. Together they would be about 20-horse power, and they were kept constantly working for nearly two years. This shows that a large body of water comes through the rocks to the puddle. We got rid of the water by pumping it out. The water originally came out of the reservoir, about one hundred yards north of the embankment. It was caused by a fault or throw of the rock, and came from the tops of the hill, perhaps miles away. When we got the puddle trench in that was an effectual barrier, and the water from that spring was thrown back into the reservoir. The puddle trench was cut and worked in the ordinary way. When we got above the level of the spring, the consequence was of course that the water had to make its way back again. The trench laid for the pipes was nine or ten feet wide, and perhaps the depth was equal to the width, but ran up considerably less. The pipes were laid in puddle, at a distance from each other of two feet six inches. The depth of the puddle above and below the pipes was eighteen inches. It was the same kind of puddle as the puddle-wall—the best. The trench was filled up with the best material, thin layers of gravel, and very solid. We put in the materials of the embankment in layers or tips. There were barrows used, three-wheeled carts, two-wheeled carts and wagons. We did not take the material for the embankment indiscriminately from the banks of the reservoir, and tip it on the embankment. First, 25,000 cubic yards entirely of stone was placed on the outward slope of the bank, the stone forming an embankment itself up to within fifty feet of the top of the embankment. The object was to prevent the embankment slipping on the surface it was placed on; and to get that done effectually, we paid 3d. per yard additional for the work. The next process was so to lay the material that the finer sort came up to the puddle wall. The work was somewhat similar to that which is going on at present at Agden reservoir. The material is also generally the same, fit I consider for the work which it has to do. [Plans showing the course of the pipes were here produced, and handed for the inspection of the jury.] Great precautions were taken in laying the pipes in the puddle trench. The puddle trench was 40 or 50 feet below where the pipes went. The pipe trench was about 9 feet below the surface. About a couple of lengths of pipe went through the puddle trench proper. My fear was, if nothing was provided, the puddle in the puddle trench being deeper than in the pipe trench, it might sink; and so we made a special arrangement for the protection of the pipes, by an extension of the width of the puddle wall. This was done to the extent of something like 100 feet on either side. The pipes being socket

pipes, they would admit of some degree of inflection, without breaking. The pipes were inserted about six inches into each other, lead being used for from three to four inches. The pipes were laid in good strong shale, not compressible by pressure. No water could possibly creep along the pipes. The sockets of the pipes were cast a little larger back than they were in the front, so that the internal pressure of the water should not force the lead out. To do so it would have had to act as against a wedge. There were no collars put upon the pipes to prevent the water creeping along—the sockets of the pipes themselves formed collars, and they were very strong ones. The lines of pipes were 2ft. 6in. apart. The sockets were so large that had they been placed opposite it would have reduced the puddle to that extent—so I advanced one line of pipes a yard above the other.

The Court at this stage of the inquiry adjourned for half an hour.

Mr. GUNSON, on re-opening, was recalled and examined by the Coroner: The parliamentary plans are not here, only the working ones. The former can be given by Mr. Rawlinson. The plans carried out were not precisely the same as the parliamentary plans. We discovered that the ground where we first intended to put the embankment was faulty;—there had been what we call a land slip. I should say that land slip was some hundred years old. I did not observe it at first. After I discovered it would not be safe, I saw Mr. Leather, and he directed it should be made where it is. We had not begun the work at the first embankment, but the contracts were let. The rainfall of that district from 1859 was as follows:-

Year.				Inches.
1859	...	...	..	46.055
1860	...	...	...	44.280
1861	...	...	...	37.940
1862	...	...	...	40.060
1863	...	...	...	40.700

The smallest flow of water in the summer is half a cubic foot per second for each thousand acres of the water-shed, and the maximum 150 cubic feet per second per thousand acres. The gauge was placed in the Rivelin valley before we went to Parliament, and when we got the Act, I had it reconstructed. It was 18 feet wide. The heaviest flood we have had occurred in August, 1856. The overflow was sixty inches, and it took away the gauge. The gauge was kept at Redmires, about twelve hundred feet above the level of the sea. On the south side of the dam we have an artificial cutting. That was to divert the stream during the construction of the reservoir, and we used it till about a year ago. The embankment was finished before then, with the exception of where the weiring is at the south end, which is not finished yet. Some of the materials got out of the cutting might be brought into the embankment, others washed away. In August, 1856, we had nine inches of rain—the largest quantity in any month. It would take fourteen or fifteen inches to fill the reservoir, so no flood could materially affect it. When we bared the rocks we had no apprehension that mischief could arise: and I was perfectly satisfied that no water coming from the rocks could injure the embankment, because we sunk the puddle trench far down into the rock below any excavations in the reservoir. It was put down into measures quite impervious to water. The water seen coming out of the rocks where the reservoir has been flows into the river. It is possible it might drain into the embankment, but it would be stopped by our puddle. It was not at all a hazardous proceeding to bare those rocks. We might have got material elsewhere to make the embankment if we had bought 100 acres of land for the purpose. There are about 400,000 cubic yards in the embankment. We should not have required 100 acres if the material was anything like. I cannot say how many acres of the

rock we have bared; eight or ten, I should guess. We did not find all the material of the embankment in the baring of the rock.

Mr. RAWLINSON asked if it was not a mistake that they had laid bare so much of the rock, because the larger portion of the bottom of the reservoir was covered with a pervious shale ?..... Witness said there was very little which they had bared which was not rock in some form or other, though parts might be covered by shale.

Examination continued: Some of the puddle was got close to the embankment—some was brought from nearly a mile above. We first let water into the reservoir last June, and the water rose in the dam in two days upwards of 50 feet. The pipes were then closed. Some water came out of the rocks and got behind the embankment. The water coming into the reservoir by the flood was quite thick. The water from the rocks was clear as any crystal, but strongly impregnated with iron and sulphur. The water came from the rocks, but could not come out of the reservoir. He was confident that no part of the water came through the puddle wall. When there were fifty feet of water in the reservoir, many of those rocks visible now were not visible.

The CORONER pressed the question still further as to the water coming from the reservoir and getting behind the embankment, and there were several attempts to explain ..... Mr. Leather said the mis-understanding arose from Mr. Gunson speaking of rocks outside the embankment, and the Coroner thinking he meant those within.

The CORONER said he was satisfied with the note he had taken, and should draw his own inferences.

Examination of Mr. GUNSON continued: We are making the Agden reservoir on the same principle, except that the puddle trench is not below the outlet-pipe trench ..... The pipe is placed on a puddle trench in the solid rock ..... I suppose the principle of construction is the same ? — I hope not ..... Supposing it does burst, what will be the effect?—The same as we have seen ..... You don't anticipate that it will burst ? — No ..... The Coroner: But I do.

By the JURY: The excavations were not made to any great depth. I thought the embankment perfect up to the time of its giving way ..... Your work at Bradfield not being perfect, have you not reason to think that the Agden work will not be perfect ? — No ..... Suppose a pipe is fractured, how are you to discover and reach it ? — That would be a difficult thing, but it is not impossible ..... Would it not be better to provide in the original plan for getting at a fracture ? — Yes, if we had assumed there would be a fracture, but we did not.

The CORONER said the engineers ought to have assumed that a fracture would take place, and to have taken precautions accordingly. It would have been much better to have so constructed the dam originally as to have enabled them to get at any fracture in the pipes rather than to wait until an accident compelled them to devise means to get at it. The witness said he did not apprehend any danger.

The CORONER said that was the fault Mr. Leather and the witness had committed. Neither of them would look before him.

The WITNESS: We have made eight reservoirs.

The CORONER: Then you have made eight mistakes.

Mr. THOMPSON thought these were observations which ought not to be made in the present? of the jury.

The CORONER said he should make them at some other time if he did not make them now. He only wished to get the engineers to speak like rational men. It was not a question of criminality or liability in any way, but the engineers ought to

have devised some means of avoiding the danger before they made the reservoirs. Here nothing of the kind had been done, although everybody else could see that the method of construction was full of danger. This was a most serious matter, for they had lost 250 of their fellow townsmen from an accident that ought not to have happened, and which might have been avoided. No man who had looked at the place could say that the accident might not have been avoided. The company were constructing another dam on the same principle, and there would be the same mischief.

Examination resumed: I visited the dam three or four times a week, and sometimes oftener. I generally went on a stormy day. I was there the day before the flood, and also on that day. I went on stormy days to see the effect of the wind on the water. On the day of the flood I went because I had seen Admiral Fitzroy's prediction of a gale. I also had noticed that the wind would be blowing down the valley. I think the wind would not have any effect on the embankment. I have seen the wind and the waves ten times worse at Redmires. I did not observe the least sinking of the embankment, though I was watching it all the afternoon. I stood so that I could see the water level all the way across the embankment, and should have seen any sinking if there had been any. I did not cross the embankment that day because of the spray. I saw nothing of the crack that was seen afterwards. I could not have saved the embankment if I had seen the crack; at least I think not. Opening the pipes would not have had any good effect; for that was done. I have no idea what caused the crack. When I first saw it, a little after eight o'clock in the evening, I thought the action of the wind and waves, which had been playing against it all the afternoon, might have loosened the material of which the inner slope at the top of the embankment was made, so as to withdraw to some extent the support of the puddle wall, which would thus lean forwards and cause a crack in the embankment. I had gone home that afternoon without doing anything, being perfectly convinced that all was safe ..... There is a rumour that you had said, during the day, something about the embankment giving way. Is that so? — no. I never said such a thing, and never expected it would burst. After returning home, I received a message from Bradfield that I and Mr. Craven were to go up, Mr Hammerton having observed a crack in passing over the embankment after the men had gone. When I got there the valves of the outlet-pipes had been opened, and the water was running freely through them. I did not notice the slightest escape of water through the pipe trench.

By Mr. RAWLINSON: There were pipes at the end of the valve to carry out the water coming through the pipes. I believe all those pipes are there yet. To give the pipes a thorough examination would take from 6 to 12 months, because on the outer side of the puddle gutter the embankment is yet perfect, and there is a great deal of puddle on the other side. To expose the whole length of the pipes would probably cost £2,000. On reaching the embankment, after being sent for on the night of the flood, I found our foreman, Mr. Craven's partner, and the workmen waiting for me with lanterns. I examined the crack, which was ten or twelve feet from the top of the embankment measuring down the slope. I could just get my fingers edgeway into the crack, which was longitudinally on the embankment. I cannot say the length. It was where the breach is. The water was not coming over the top. I came to the conclusion that I had found a satisfactory explanation in the theory I explained. I came to the conclusion that if we could get the water a few feet down, we could so far relieve the pressure as to put a stop to all danger. I ordered the men to blow away the upper stones of the by-wash, intending to make

a broad opening for that purpose. I thought it was merely a surface crack and by getting the water below the surface of the level we should do away with all danger.

By Mr. RAWLINSON: I intended to make an opening sixty feet long in the by-wash. There was a drop in the by-wash which would have let all the water of that breadth go off. We were not able to make the breach in the by-wash I heard the shot go off after the embankment had burst. The water lowered rapidly in the meantime, though I did not see how much. After setting the men to work I said to the foreman, we will go carefully over the crack and examine it again. We did so, measuring from the top of the embankment to the crack to see whether the rack was above or below the surface water in the reservoir. We walked carefully over the crack, I stooping with a lantern to examine it. All seemed to be right—just as when we walked over it half an hour before. When I got to the end of the crack I straightened my back. The moment I stood up I saw that the water was foaming like a white sheet over the embankment. It came down to my feet, and dropped down the crack. I crept down the slope of the embankment, and got into the valve house, thinking I could come to some idea as to quantity. Mr. Swinden, who had more foresight than I at the moment, would have me out, saying it was dangerous. I turned round and came out. I cast my eyes up and saw an opening thirty feet wide in the top of the embankment like a weir. I had no sooner put my foot on solid ground than another tremendous rush of water took place, and shook the ground under my feet. I knew then that all was up. As I got half way down the embankment I saw one of our men coming from a house near with a lantern. I said run to Joseph Empsall's as fast as you can, and get him out of his house. Empsall's was the first house down the side of the river. He did so. He told me afterwards that he ran himself out of breath, and then sent other men forward. I followed the messenger. When I got to Empsall's house he had just come out, and he told me that he had got away his family, his cows, and everything except his pig. Before he had told his tale, another tremendous rush of water came and swept his cottage away like chaff. I went forward to Lower Bradfield, and found the flood at its height. Some time afterwards I was informed that it had subsided. I learnt that the bridge, corn mill, and schoolhouse had been swept away; and that a child was lost. I stayed at Bradfield all night. We knew nothing more until next morning, when we went up to examine. I never knew that there was any danger until the water flooded over the embankment, and there was then no time to send and warn people below to any greater extent than I did warn them. We could give no warning, nor do I think the workmen apprehended danger before, so as to give the alarm. The embankment gave way about half-past eleven. The accident was almost instantaneous. In the afternoon, at half-past five, the water would be at least six feet from the top of the embankment. When I had got down the valley about a mile from the dam, the flood was at its height; but at half-past twelve, I was told it had subsided within the banks of the river. The descent from Bradfield to Owlerton is at the rate of about ninety feet per mile. The water in the reservoir had risen very gradually before the accident. On the 10th of March it was two feet three inches below the weir; on the 11th it was one foot three inches below.

By the JURY: The quantity of water flowing in that week was not greater than the average; it caused nothing like a flood. I did not observe, because it was dark, if there was any sinking of the embankment when the crack was observed.

By Mr. THOMPSON: I have acted as engineer for this company for nearly thirty-three years. From my experience there was nothing left undone that could have been done as to safety of construction. After the lesson we have now learned, I should be prepared to let off the water in larger quantities, though I believe that

in this case any practicable means of the sort would not have been of the slightest service in avoiding this accident. Up to the present time, I do not know any instance of the extraordinary means now suggested having been adopted. I superintended the work carefully the whole of the time, and it was well constructed. The altering the site of the embankment entailed additional expense upon the Company, besides the loss of storage to the extent of several millions of cubic feet. To that extent it was a sacrifice of the pecuniary interests of the Company for the sake of safety. The puddle trench was carried into the solid rock, so that I cannot see that any leakage in the bed of the embankment would have any effect upon it. The material taken off from the interior of the reservoir was pervious to water. The pipes being enveloped in puddle would be saved from local pressure, as the puddle would to some extent give way.

By Mr. RAWLINSON: There were two valves upon the pipes, an outer and an inner one. I have seen a vertical water tower in a reservoir, connected with the pipes, which would enable one to stop the pipes from the inside; but have never heard that it is the invariable mode with the Hindoos. We have talked over such a project. When the flood took place in June, I thought we could afterwards let off the water when we had completed the Agden reservoir, and do any small work that was necessary.

By Mr. THOMPSON: The water I saw coming out behind the embankment was five or six yards from the embankment, perhaps more, and about six feet above the bed of the river. The soil of the embankment was not disturbed there at all. The water that came out there was of an entirely different quality from that in the reservoir, and that led me to believe it was not the same water. That water could have nothing to do with causing the breach in the embankment, as it is a long way from it, and the embankment at that part is still quite sound.

By Mr. RAWLINSON: I don't know that pipes have been ruptured under embankments. I have seen the Manchester reservoirs.

By the JURY: The puddle trench never was dry from the beginning to the finish. Water flowed in at the sides, but it was kept dry by the pumps.

By Mr. RAWLINSON: I might have believed that the water which came out behind the embankment was from the reservoir, and had cleared itself by filtration, only that it was so heavily charged with iron. Water came from below the embankment in three several places; that was in the solid before the embankment was constructed. We laid no drains to carry that water away. Drains are to prevent slips; but we placed the stone inside the embankment for that purpose. There was no necessity to make any special provision for drainage. I have never ascertained in the embankment the least signs of leakage. What water I have seen outside was colourless. I have no doubt if there had been water at the back of the puddle trench, it would have got through. I have always considered that water will get up to the face of the puddle, I have never experimented as to the degree of pressure a puddle wall will bear. The puddle wall was in proportion to the other reservoirs of the Sheffield Water Works Company, and I am not aware that some engineers put a thicker wall of puddle. If puddle had a small proportion of gravel in it, it would not be bad. The puddle used was good, first rate, both in point of quality and workmanship.

This closed the examination of Mr. Gunson.

## THE VELOCITY OF THE FLOOD.

Mr. RAWLINSON then said he thought it would be interesting to the public if he were to read over some calculations made by Mr. S. F. Holmes. The total fall from the dam-head to Owlerton was 450 feet, or 72 feet per mile; and he had calculated the velocity of the flood between those two points at 18 miles per hour, showing that the water travelled at the rate of 26½ feet per second. The average area of the cross section of the flood between the same points was 3,780 feet, showing that 40,170 cubic feet of water passed per second—a rate which would empty the reservoir in 47 minutes. That was a velocity that he could form no conception of, and it accounted for the destruction. The public ought to have this information given them, that after the dam broke a Derby horse could not have carried the warning down the valley.

The CORONER then announced that he should adjourn the inquiry till ten o'clock. on Thursday.

## THURSDAY, MARCH 24TH, 1864.

The inquest was resumed at the Town Hall, Sheffield, on Thursday, before J. Webster, Esq., the Coroner. The same gentlemen were on the Bench as on the previous day, but the Water Company were represented by Mr. B. Smith only, Mr. P. Thompson being unable to be present.

## EVIDENCE OF MR. M. B. JACKSON.

Matthew B. Jackson, of Sheffield, civil and mechanical engineer said: I have been engaged in the construction of reservoirs in Australia. I was chief engineer of the Melbourne Water Works, consulting engineer of the city of Adelaide Works, Ballarat Corporation Water Works, and first engineer for the Bendigo Water Works. I was on the embankment at Bradfield a few hours after the accident, and three times since I have examined it, in special reference to this inquiry. I am of opinion there is no fault to be found with the quantity of material or the slopes. The material was ample, and the slope sufficient. Perhaps in my own practice I should have preferred a slope of three to one inside. The puddle is good and sufficient. I have put in a greater proportion of puddle; but do not think at all that any accident would have arisen from that. I have no fault to find with the by-wash. I have examined the embankment. I should not have formed an embankment in the same way. I should distinctly prohibit the use of railway wagons on a bank, more especially on the inside slope; because, in the first place, I should make the bank in layers of not more than two feet thick. Railway wagons always travel in the same line, and tend to consolidate the embankment unequally. Dubbins and carts travel in different parts, and tend to consolidate the embankment equally. On the inside slope I should have insisted that layers, not exceeding two feet each, should have been carried over and through, each being perfectly finished before another was commenced. On the outside slope I would not object to a tip of three feet, because it is not so necessary to have the outer slope so impervious to wet. It is better open to let water have free exit. I mean by open, that it should be composed of more porous material. The embankment has not been erected in that manner. There are railway wagons on it now, showing that they have been used, and it is obvious the layers have been put on of a greater thickness than two feet. At the embankment at

Agden the layers are not being put down and completed consecutively, and if the one at Bradfield has been constructed in the same way, I should apprehend that there would be an unequal settlement. I did not measure the tips of the Agden; I saw they very much exceeded the measurement I have given. Unequal settlement is dangerous, because it may cause a slip. It is peculiarly dangerous if there are pipes passing under the bank in trenches. It might be possible to pass them safely through in a culvert. The danger is that the unequal settlement may break the pipes or spring the joints, so as to produce leakage. The depth of the tips I have mentioned is rather an extreme. In constructing another bank I should take the specifications of Mr. Leslie, of Edinburgh, which are the best I ever read. He restricts the tips to six inches, one layer to be finished before another is begun, and wagons to be prohibited. They are safer than mine, but more expensive. I approve of Leslie's stipulation that the puddle wall should be brought up to and kept on a level of six inches above the adjoining portion of the embankment. At my works at Melbourne I had two fractured pipes. They were under the embankment in the solid ground. They were laid on flags to the edge of the puddle trench, and in passing through the puddle each pipe of each main, which was only 6ft. 6in. in length was supported on an ashlar pillar. The pipes were puddled all round. The fracture in that case I have no doubt arose from an unequal settlement of the embankment, though made with the limited tips I have mentioned. (The witness explained that an embankment settled more in the centre from its length than at the sides, and consequently that if the pipes were laid straight through the embankment, the pipes must bend and break by the unequal settling.) My plan of putting the pipes at Melbourne in was a bad one, but not so bad as the plan at Bradfield. There was no puddle between the flags and pipes at Melbourne; it would not have made any difference if there had been. I have not the least doubt that the structure of the Bradfield dam caused an unequal pressure and fractured the pipes, and caused a leakage. There is this difference. The way my pipes were laid at Melbourne was more liable to cause fracture of the pipes; Mr. Gunson's plan was most likely to cause a drawn joint. I heard the mode described yesterday of keeping down the water in the puddle trench. The evidence of Mr. Gunson to a great extent dispelled a doubt I previously entertained. The doubt was as to whether the water had got under the puddle trench and risen immediately under the outside slope, inducing a settlement and slip immediately preceding the burst. I am inclined to think that such was not the case, and that the puddle trench was a good job, though I scarcely think the evidence of Mr. Leather and Mr. Gunson satisfactory that the puddle trench was dry, as that would depend upon the time of the year and the weather. I am inclined to think that, on the reservoir being filled, the unequal settlement of the embankment has occasioned a springing, or starting, of the pipe joints. If a joint were once sprung, the internal pressure of the water itself would be sufficient to blow the lead out. Making the pipes cast narrower at the entrance to the socket is a good precaution; they are, in fact, dove-tailed. It is, however, possible for the pressure of the water on the valve which was outside the reservoir to have started a joint between the valves and the puddle wall. The opening or closing of the valves would increase the probability of this.

Mr. LEATHER was appealed to, and he said he did not think there was any such probability.

Mr. JACKSON resumed: The probability of this would be diminished in proportion to the number of pipes below or outside the valve. There are four or five pipes below the valve at Bradfield. It is quite possible for the water to have

crept along outside the outlet pipes between the pipes and the puddle with fatal effect.

The CORONER here said it was the business of the jury to find out every possible fault in the construction of the dam. There had evidently been faults. According to the description of Mr. Leather and Mr. Gunson, the work was so perfect that it was almost impossible to improve it. His object was to show that there was something fatal in the design of the work, or the reservoir would not have burst.

Mr. B. SMITH begged to call the attention of the Coroner to the fact that the evidence on the previous day was that the bursting of the reservoir was caused, not by a fault in the embankment, but from a slip in the ground.

The CORONER: I am trying to find a fault in the embankment Your evidence yesterday was that the work was perfect.

Mr. B. SMITH: As perfect as human work can be.

The CORONER: Your witnesses went for rather more than human perfection, I think, and I am now trying to test their work.

Mr. JACKSON resumed: The outer surface of the pipe being cast-iron, would not unite with the puddle. At Melbourne I put shields round the pipes to prevent water creeping along them. They would have the same effect as the collars spoken of by Mr. Rawlinson. The shields have to be put on in two parts and bolted or otherwise fastened. I put four shields on each main. The shield was seven feet six inches in diameter. I have examined the stratification of the rock, both inside and outside the Bradfield Reservoir. I do not see any great objection to baring the rocks to the embankment; I see nothing to lead me to conclude that that would be fatal to the bank, provided proper means were taken to drain away all water percolating under the outside slope of the bank. The question of baring the rocks inside the reservoir is more a possible cause of waste of water to the Company, to be weighed against a certain economy in the construction of the bank, than anything else. No damage from such a cause would result to the embankment, by any water passing into the fissures of the rock, unless it flows up under or immediately adjacent to the seat of the outside slope. That it would necessarily do; it might come up half a mile lower down the valley- If it flowed up under the seat of the embankment it would do no harm if drained away.

The CORONER: It was not drained.

Mr. JACKSON: That is not in evidence. I have not the least doubt the proximate cause of the bursting of the reservoir was the drawing of the joints of one or more of the pipes, a leakage along the side of the pipes, or both causes together. It is possible there might have been a leakage through a fissure inside coming out under the outside slope of the embankment.

In reply to the Jury: I cannot say whether the joints were drawn or merely sprung. If the valves had been inside of the dam there would have been no tendency in the valves to draw the joints. Moreover, if a joint were drawn, and the water got to the puddle, the embankment would be torn away before any means of preventing it could be adopted, even if the valves were inside the dam.

By the Coroner: It is possible for a leakage from the fissures of the rocks to have re-appeared directly under the seat of the outside slope. That would be of itself a cause sufficient to burst the bank unless the water had free vent. That free vent can be obtained in one or two ways. By having the seat of the embankment under the outside slope efficiently drained by cutting trenches and filling them with large stones, that would admit a free passage for the water. Another plan would be to collect all the water in a longitudinal drain at the bottom of the puddle

trench, carried all the length of the puddle trench if necessary to the lowest point, and then transversely and up to the surface of the ground, or to the bottom of a drain under the seat of the outside slope. That is a perfectly safe way of getting rid of water, provided the bottom of the puddle trench be all rock. After the evidence of Mr. Gunson yesterday, I do not think anything of this kind necessary.

The CORONER: I then all this evidence is unnecessary.

By the jury: It is possible for water to have got under the outside slope, without being observed; the ground might absorb it. I cannot tell whether the ground under the embankment at Bradfield would do so without seeing it.

By Mr. Rawlinson: If the outlet pipes have been depressed by settlement of the embankment, it is possible that the puddle may not have followed it. There may thus have been an open space left between the top of the pipe and the puddle.

By the Jury: Could a vertical pressure press down the pipe and not the puddle ?

Mr. RAWLINSON: The pressure would not be equal. The pressure on the two sides may have depressed the pipe faster than the puddle from the side pressure being more rapid than the centre pressure; and the water is there to avail itself of the least opening; and if water thus got in, the consequences would be what we have seen. I have no desire to say a harsh word against those who made this dam, but the embankment has been destroyed; there must be a cause for its destruction, and it is our business to find out that cause if we can.

The CORONER: And the cause is a fault of some sort.

Mr. RAWLINSON: I do not go so far as that.

Mr. PAWSON (foreman of the Jury) said he concurred in the view of the desirableness of finding out the cause of the accident, and expressed his regret that the engineers of the Water Company, who necessarily knew most about it, had manifested so much reserve.

By the Jury: It might have been advantageous to have had a better and more rapid discharge of water than the two 18-inch pipes when danger was apprehended. I could have devised such a means. A tunnel might have been driven through the solid, round the end of the embankment, That, in my opinion, is by far the best way, and in any work I may have to do again I should lay pipes in a tunnel through the solid, and not under the embankment. Another mode is this — the stream supplying the reservoir might have been brought round to the by-wash by a channel, along the side of the reservoir, so as to have given complete control over the flood-water. The pressure upon the bank could then have been eased by the outlet pipes.

Mr. GUNSON, re-called, said the water was carried along an artificial course during the whole time of the construction of the dam.

Mr. JACKSON resumed, in reply to the Jury: I have constructed larger reservoirs than this in Australia, but none so deep, and it is depth that involves danger. Another suggestion for the safety of the dam is to construct the by-wash at a lower level than it is intended ultimately that the water should stand. This plan was suggested to me last night by Colonel Ford, and is valuable, as the water might thereby be regulated by lifts according to circumstances until the bank is thoroughly consolidated. It would be a great protection to a new bank. The by-wash might be ultimately raised to the height, required by erecting sluices along the top of it.

By the Jury: If my reservoir at Melbourne had not had valves inside, it would have burst like this. It is better to have them inside because then, if a leakage occurs in the pipe, the water can be shut off. I am of opinion that the

accident has not occurred from the rising of water under the outer slope of the embankment, because Mr. Gunson's evidence shows that the rock to which the puddle trench was sunk was impervious.

By Mr. B. Smith: The works I constructed at Melbourne were 3000 acres, the contents were 38,000,000 of cubic yards, and the depth 25 feet. I have been an engineer since 1846. The wagons on the bank are not what are ordinarily understood as railway wagons; they are much smaller. They are, however, wagons running on rails. Leslie advises six-inch layers, and I two-feet layers. Engineers, like lawyers, disagree. I have carried pipes under embankments. That has been the universal practice until now. There has been no great disaster from it until now. It has been an error of judgement committed by the most eminent engineers. I should not, after what has occurred here, again lay pipes under or through the embankment. I should take the water through the solid, round the end of the embankment, by culverts or otherwise. I laid my pipes at Melbourne on stone, not puddle, like Mr. Gunson. The two plans have their advantages and disadvantages. Neither of them are good jobs. I collared my pipes and bestowed great pains upon them. My plan was therefore not the right one, but I saved the embankment by having valves inside the reservoir. The pipes would be more liable to fracture on the stones than on puddle. The shields might cut the puddle, and prevent its adhesion to the pipe. I still think they are the best, but another engineer might think differently. After my experience at Melbourne and here, it seems to me foolish to think of placing pipes under an embankment again.

Mr. B. SMITH suggested that the question for the jury was not so much what was to be done in future, but whether the servants of the Water Company had used reasonable care and skill in the construction of the reservoir.

The CORONER: No. That your men have used reasonable care and skill there is no doubt; but we want to get at the real cause of the accident.

Mr. B. SMITH: This inquiry has to do with criminal responsibility only.

The CORONER: Strictly, that is so; but I repeat, we want to find out the cause of the accident.

Mr. B. SMITH: Mr Rawlinson is here to pursue that inquiry. He will find that out, no doubt, and his report to the government will be published.

Mr. PRIDEAUX suggested that if the outlet pipes were bared, the jury would get at the information at once.

Mr. JACKSON: If that is done, you will find it as I say, I have no doubt. What we want to know is, whether there is a leak outside the puddle, because that would settle it.

The CORONER: We can shorten this inquiry if the Water Works Company will be at the expense of baring their pipes, as we could arrive at a result at once. I, of course, have no means of paying for it.

Mr. B. SMITH: I cannot pledge the Water Company to anything without consideration. They want, for their own satisfaction as well as for that of the public, to ascertain the cause of the accident, and will take such means as are in their power to do so. At present, however, we are fighting in the dark, and I must again submit that the question for the jury is simply whether anybody is criminally responsible.

The CORONER: If you wish us to do so, we can soon find Mr. Leather guilty of manslaughter, and send the matter for further investigation at York.

Mr. SMITH: That is a matter for the jury.

The CORONER: The jury have made up their minds not to find anybody guilty of manslaughter. The cause of the accident is too remote to involve such criminality.

Mr. SMITH: We can carry on an inquiry from day to day if you think that is the best course; but I very much doubt whether the Coroner's Court is the best medium for such an inquiry.

Mr. BLAND (a Juror): Is there no means of ascertaining what we want to know without baring the pipes ?

Mr. JACKSON: A few at the end might be bared, and if they have started you might safely come to the conclusion that others have started too.

Mr. RAWLINSON: YOU might bare the outer end, plug up the pipes; then bare the inner end, plug up the pipes and use hydraulic pressure.

Mr. JACKSON: That would answer the same purpose.

Mr. BEARDMORE: But there was such a violent disturbance of the embankment when the bursting took place; the whole ground was shaken, and that may have done mischief to the pipes. If, therefore, you find that mischief has been done to the outlet pipes you won't know when it was done, or when the embankment gave way whether it was done before. That is the real difficulty.

Mr. SMITH: Mr. Beardmore has anticipated what I was about to say. The bursting of the reservoir created a violent commotion of the ground, which may have broken the pipes, however perfect they were before. The fact of the pipes being broken or drawn now, is no proof that the accident arose from that.

Mr. JACKSON said there could be no doubt that if the pipes were bared, they would be found to be broken just outside the outer edge of the puddle wall. He was satisfied of this, because, on visiting the dam the other day, he found water bubbling up at the top of the fore bed. It was also bubbling up at a lower point. Whether, however, the leakage was from a fracture of the pipe or from a drawn joint he could not say. It was these appearances that made him express, on the same day, a positive opinion that the fracture or dislocation of the pipes had been the immediate cause of the accident.

Mr. RAWLINSON explained that the present condition of the pipes under the embankment, supposing it was ascertained by baring them, could not be received as evidence of the condition in which they existed before the bursting of the embankment. He wished the jury distinctly to understand this. If a dozen joints were found to be drawn now, no human being could say that they were drawn before the flood.

Mr. PAWSON: Suppose a pipe should be found to be fractured in the region of the puddle bank, would your remarks hold good.

Mr. RAWLINSON: Yes. It would be impossible to say whether it was fractured before the embankment was broken or not.

Mr. JACKSON thought some conclusion might be drawn, and remarked that the portion of the embankment nearest the by-wash had "hogged" down considerably since he first saw it.

Mr. JACKSON'S examination by Mr. B. Smith resumed: I do not think there is any disadvantage in collars or shields round the outlet pipes when they are carefully puddled round. I am decidedly of opinion that the embankment has not burst in consequence of leakage arising from the baring of the rocks. If I had a dam to make tomorrow I should not hesitate to bare the rocks, which is one of the commonest practices. The plan of keeping control of the water of a reservoir by making a culvert through the solid ground round the end of the embankment is not a new idea, but it is one which has not been much acted upon. The other plan I

have named is in use at Manchester. When the crack was seen the mischief was done.

By the Foreman: They could not in an hour or two have drawn off sufficient water to prevent the accident. We might, if we were starting to construct a reservoir, have devised other means which would have done it, such as driving a tunnel as large as a railway tunnel; but that would have been an outrageous proceeding.

By Mr. Smith: If I were planning a reservoir again, I should undoubtedly put in a culvert for the pipes. That has been suggested to me by this accident and that which I experienced at Melbourne.

By the Foreman: There was no danger in baring the rocks inside the dam. If they were covered with impervious material it would have been wise to have left that.

The CORONER: That is on the assumption the water percolating through the rocks gets under the embankment; as there is no doubt it does.

Mr. SMITH (to witness): Is that your opinion ?

WITNESS: I think water got under; but after hearing Mr. Gunson's evidence, I think it was not a question of danger, but rather a loss of storage.

Another question being asked by a juryman as to the present condition of the pipes, the FOREMAN (Mr. Pawson) interposed, and said: The Jury will give this point up if the Water Company will promise, for ulterior purposes, to have the pipes laid bare, and an examination made. The reason for this is that there are other dams in this locality constructed, and being constructed, on the same principle.

Mr. SMITH Would undertake, on behalf of the Company, that as to the baring of those pipes they should place themselves in the hands of Mr. Rawlinson. It was more important to the company than to anybody else.

The FOREMAN said the Jury should take advantage of the power they had, because the examination sought had a bearing on the other works. Although they should endeavour to confine themselves strictly to their province, they could not forget that they were townsmen as well as jurymen.

Mr. SMITH: Do you want more than that it should be left in the hands of Mr. Rawlinson ?

THE FOREMAN: We are satisfied.

#### MR. GUNSON RECALLED.

Mr. GUNSON was recalled, having expressed a wish to make some explanation. He began by saying that he had been misunderstood on the previous day in reference to the water seen behind the embankment. He did not think it had come from the reservoir.

The CORONER stated that he was quite satisfied with the note which he had taken on that point.

Mr. GUNSON was then examined as to the variance which had taken place in the actual work from the specifications. These, it appeared, had been considerable. A specification, he said, was simply a guide; and when the specifications for the Bradfield reservoir were drawn up, Mr. Leather was not aware of the materials to be got in the excavation of the reservoir.

By a JURYMAN: Mr. Leather was more than twice—perhaps six times — at Bradfield during the construction of the work. I used to go over and see him. He had to come once a year at least to report.

The CORONER: He is a "consulting engineer," gentlemen, an ornamental officer. He is expected to do nothing but simply present a report.

Examination continued: We are not complying with the specification and carrying up the puddle wall of Agden simultaneously with the embankment, because that was impossible.

The CORONER: Oh ! I don't believe in impossibilities.

Examination continued: stones may fall among the puddle if the embankment be carried up before the puddle wall, but I have taken every means to prevent any remaining there.

The CORONER strongly denounced the departure made from the specifications. A specification, he said, they would understand in future, was not a guide, but a farce and a deception. Here was one made for the purpose of not being carried out. He was out of all patience. If the reservoir at Bradfield had been constructed in the same way as this one was being made at Agden, he was not surprised at what had occurred. It would not be so bad if the Water Company would admit they had made a single mistake. They assumed that everything had been perfect.

Mr. GUNSON: Not perfect, but we did everything for the best so far as our knowledge went.

The CORONER: Very well then; I am sorry you have got so very little knowledge.

Mr. GUNSON: It is a great misfortune.

Examination resumed. The witness said that Mr. Leather saw the alterations that had been made in the Agden valley reservoir as compared with the specifications.

The CORONER: And didn't he find any fault with them ?

Mr. GUNSON: No.

The CORONER: Then he ought to be ashamed of himself.

The CORONER replied that the engineers might say what they liked, but they had no business to depart from specifications. He did not care what all the engineers on the bench might say to the contrary. They drew up specifications, and executed the work in precisely the contrary manner to that specified; and then, when destruction came upon us, they said the work was perfect. It would not do at all.

A JURYMAN: I think you should take it more deliberately.

The CORONER: It is difficult to do so, when there is the broad fact that the work has destroyed nearly 300 of our fellow citizens. (To Mr. Smith): Have you any witnesses ?

Mr SMITH: I will say, if the jury are not satisfied, the Company will be at the expense of calling the most eminent engineers in the world. The Company court inquiry into the disaster. As to the evidence of Mr. Jackson, he has shown that the points questioned in the construction of the work were matters of doubt.

The CORONER: If you cannot point out a reason for the embankment breaking, we have a right to assume that it has failed from bad workmanship.

Mr. SMITH: I don't think that. One conjecture was that it arose from a natural failure of the ground.

The FOREMAN, addressing the Coroner, said he had made a statement that morning which must have relieved Mr. Leather's mind, which was that the jury believed he had not been guilty of criminal neglect. Perhaps he would now ask Mr. Leather if he had formed any additional conjecture as to the cause of the disaster.

Mr. LEATHER: I have heard the evidence of Mr. Jackson this morning as to those pipes, and I think it possible such a thing may have happened as the drawing of the joints. At the same time, I think if such a thing took place the result must have shown itself long before, at the foot of the bank or in the valve-house. The theory seems very doubtful, but the gentleman spoke so confidently that it may be entitled to some credit. I still think the accident has been caused by a slip of the land outside the bank.

The CORONER: Is there any evidence of that ?

Mr. LEATHER: It may have taken place and been covered with the ruins of the embankment.

A JURYMEN asked if there were any witnesses who had seen the crack before Mr. Gunson ?

The CORONER: It was seen about three hours before by a party who was here yesterday, but it was not thought necessary to call him.

Mr. GUNSON said, that now the suggestion had been made as to a land slip, it was right to state he had been told there was a house opposite the reservoir, which, though above the road considerably, showed some symptoms of giving way.

An adjournment here took place for half an hour.

#### MR. LEATHER RE-CALLED.

Mr. LEATHER recalled: I did not disapprove of the contract taken by the Company for the construction of the work. Seven tenders were sent in; two were below my estimate; that of Mr. Craven, which was taken, was £900 more than my estimate. He is carrying out the work under the same contract, and has received a large sum for extras.

Mr. B. SMITH said the original contract was £27,469. About £1,000 was added on the change of situation of the embankment. The extras were upwards of £6,000, and they were going on still. Mr. Leather certifies for the extras on the reports of Mr. Gunson, occasionally coming over to look at the work himself.

#### EVIDENCE OF MR. RAWLINSON.

Mr. R. RAWLINSON, Government engineer, was sworn, and said: I have had experience in the construction of waterworks. I have executed water works at Wigan, Berwick-on-Tweed, Swansea, and other places. As inspector, I have made myself acquainted with the great works erected during the last twenty years, and have personally inspected many of them, including those at Liverpool, designed and executed by Mr. Hawksley, and those of Manchester, designed and executed by Mr. Bateman. I have inspected carefully the Bradfield reservoir, which has failed, and other reservoirs of the company, and the reservoir at Agden now being constructed. I have also carefully looked over the specifications. As a practical engineer, I think no water works embankment ought to have pipes laid through it so as to prevent repair or renewal when necessary. The engineer should be master of his work; not let it be master of him. I know of many instances of failure when pipes and culverts have been laid through the main embankment. Cast iron pipes having plain socket joints, although previously tested in four times the head of water they may have to carry, are occasionally found fractured and defective when the water is turned on, although in the street trenches in which they are laid they

have only four feet of earth to bear. With the most careful jointing, the joints are sometimes found to be blown or defective. Pipes laid in the streets can be repaired without much damage. A defective pipe in this embankment may have worked the destruction we have witnessed, and no human ingenuity could prevent it under the circumstances in which those pipes exist. I do not say that it did do so; I wish that to be clearly understood. That, therefore, is not a legitimate way in which to lay pipes for the making of a reservoir. In my own practice, I have formed a tunnel or culvert through the solid stratification on one side of the valley, and perfectly free from the loose earth of the embankment. That culvert is executed in the very best possible manner with hydraulic lime, and puddled to make it perfectly water-tight over the top. Within that culvert or tunnel the outlet pipes are ultimately laid. Provision is made for closing the pipes inside the reservoir. The centre portion of the tunnel — namely, that under the heaviest portion of the embankment — is closed by brickwork set in cement, so as to make a perfectly watertight plug at that point. Valves are placed at the outer end of the pipes in the usual way, to work the pipes. In the inner shaft arrangements are made to draw the water at various heights in the reservoir, or to exclude it from the shaft, so as to enable the pipes to be examined. Such an arrangement renders any accident to the pipe for mischief absolutely impossible. Where I have laid cast-iron pipes through puddle under small heads of water, as pipes leading to a valley syphon, I have found it necessary, in order to prevent the water creeping along the outer surface of the pipe, to put on collar shields, as described by Mr. Jackson. I have done this because I found I could not make puddle adhere to the cast-iron pipe so as to be water-tight, even under only five feet of pressure. Unless those precautions are taken the water does creep along the surface of the pipe. In land draining, where ordinary drain pipes are laid in a clay sub-soil, the best drainers make no provision for an open substratum. They know that water will find its way to the pipes; and I believe the pipes drain as much by their external surface as by their inner capacity. I believe there is an outer creep along every pipe. The result of that experience teaches me that a smooth line of cast-iron pipes, with joints such as described by Mr. Gunson, are not to be trusted as certain to be water-tight in such an embankment, although lined the whole length with puddle. I heard Mr. Gunson's evidence as to the mode in which he had laid the pipes through the embankment. I expected to learn that the crossing of the puddle trench had been provided for, so as to give a bearing to the pipes uniform with that of the solid ground on either side. I was surprised to learn that in place of this an artificial trench had been excavated, at a flat slope from the bottom of the puddle trench until at the surface line it exceeded 200 feet in length; that this had been filled with puddle to the depth of 20 feet in the puddle trench, thinning itself to 18 inches of puddle in the solid at either end, leaving upwards of 200 feet of pipes, in 9 feet lengths, with no bottom support other than the puddle beneath them. This would be in that portion of the embankment where there would be the greatest possible weight, namely, under the apex. I have had considerable experience on railway work. I have seen 60 feet embankments — and this was 90 feet — carried apparently over solid ground; I have executed bridges and culverts on such ground beneath those embankments. Serious fractures always, total destruction occasionally, resulted. I have known it settle so much as to move the grass surface 300 feet away on either side. That occurring in a naturally compressible stratum, I should dread placing jointed pipes in an artificially formed compressible substratum. If that line of pipes has been depressed into the puddle, in all human probability it has not gone down equally in the puddle trench and under the loose embankment. But if it can be

proved it has gone down equally as whalebone would bend, and not drawn a joint, in my opinion it has left a cavity in the puddle trench above it, because the puddle is an artificially and carefully-formed material, made so solid that if the puddle is as perfect as I believe, it could not follow the compression of the pipe equally on either side of the puddle wall. We have been told that the bank was formed on the same plan as the Agden reservoir in course of construction; the material not being water-tight on each side. The inference is, that the water as it rose would penetrate the bank, and search out its weakest point. The reason the embankment did not show signs of failure on the first admission of the first 50 feet of water would arise from the fact that the lower half, being upwards of 200 feet wide, may have been sufficiently tight to prevent any access of water to the puddle wall. As the water rose foot by foot in the reservoir it narrowed the intervening space between the water and the puddle wall 2½ feet; and from my inspection of that bank, and from its state as it exists now, to be seen by any one, it is obvious that the upper half of the bank is not made of water-tight material, but contains a very large proportion of rubble stone. I measured one not on the surface more than four feet long, two feet wide, and nine inches thick. The water would thus penetrate to the puddle wall, gradually creep vertically down the face of the puddle wall, and inevitably find out the weakest point. On the opposite side of the puddle wall, there is the same defective arrangement of rubble stone dangerously close to the puddle wall. That this was so through the deepest part of the bank is evidenced by the description of the ultimate breaking down of the top of the bank. The first top water has been described as coming over in sheets and waves of foam. That water did not flow down the slope of the embankment, but was absorbed vertically into it. We have been told this reservoir embankment was made exactly as the Agden embankment. From the mode of tipping the wagons and the material tipped, I have no hesitation in coming to the conclusion that the substance of that bank is as porous as a sieve. The specification limits the tips to three feet each in thickness—the tips at present in work are at least double that height. This method of working rolls the largest stones continually to the foot of the tips, and makes, in fact, a rubble embankment open and porous in layers. With regard to the mode of obtaining material to make the embankment, I hold it is most objectionable to take the material for making your embankment from within the reservoir and below the water mark, excepting a trial shaft has shown that that material is in its whole substance water-tight. In the Bradfield reservoir several acres of surface have been bared by excavation. Many square yards of fissured rock have been bared. Into that rock I found by examination that surface water readily flows without pressure. With pressure the flow of water into them would be greater. No engineer can tell what is to become of that water. It may waste itself harmlessly below, but there is a possibility of its communicating with fissures beneath the external slope of the embankment. In such a case the engineer has no right to run the risk of letting water into the substrata, because the water will be beyond his control, and it will be impossible for him to tell what will become of it, except by experience. I do not undertake to say that water has done any injury. I have no evidence, neither can anybody say it has not done injury. I have examined the by-wash, and do not think it adequate to convey away the flood water. I would have made a very much larger by-wash. In this case the by-wash has not been the cause of any injury, as the water never rose to it. I do not approve of a sloping by-wash such as the whole of the Sheffield Water Works possess. I think it is always better to break your by-wash channel by a series of steps. I think for such a capacity of water and such a drainage area the two 18 inch pipes totally inadequate to give safety to the bank in

the case of anticipated danger. To take away the incoming water of a flood from the reservoir, the by-wash and pipes ought always to be equal to safely removing the greatest possible flood on a full reservoir. I have no wish to make statements away from this special question, but shall be glad to answer questions.

By the Jury: I would not have put pipes in the embankment. Wherever put, the pipes should have been larger. It is a fatal objection to the scheme that there have not been valves to shut the water off from the pipes inside the dam. The pipes and by-wash would not carry away a flood coming when the reservoir was full. There ought to be a goit to carry away the flood water when the dam was full. I am surprised that the engineers destroyed the one they used while the embankment was being made.

Mr. PAWSON: Mr. Gunson had told us that the puddle trench was sunk down to an impervious stratification of rock, and that the trench was dry at the bottom after that time. But a jurymen supposes that water may have afterwards welled up through the stratification of the rock into the trench so made; and the removal of the soil from the bottom of the reservoir may have let into the rocks the water that under pressure has so welled up at the base of the puddle itself. Ought not some provision to have been made against such a contingency ?

Mr. RAWLINSON: I have not seen the puddle trench, and cannot form an idea. The only answer I could give would be to say what it has been considered necessary to do in other cases. I know instances in which water has been found in a puddle trench which deep sinking would not get rid of. In such cases drains were laid so as to cover the orifices from which the water issued, and collect the water to one point, provision being made for carrying it safely to the outer part of the embankment.

By the CORONER: Several causes may have led to the catastrophe. A fractured pipe, a blown or drawn joint, a creep along the pipes, a pressing down of the pipes in the puddle trench by the heavy material on both sides of it; or a washing away of the outer slope, as suggested by Mr. Leather, by a land slip, caused by undiscovered fissures and springs, in communication with the interior of the reservoir, which fissures and springs, had they existed and had such communication, would become active for mischief as the water rose in the reservoir. Those are the methods which occur to my mind as agents which may have caused the destruction of the bank—one of them, or more of them combined, may have done it. My opinion is that it was the most fatal mistake to lay the pipes in the centre of the embankment upon an artificially formed compressible material. I think also that in the formation of the embankment the stones which are being tipped into the Agden embankment should be kept away from the puddle wall; the three feet layers are much too thick; and that six-inch layers, as suggested by Mr. Leslie, are the only safe way of making the embankment.

By Mr. SMITH: There are many instances, especially of late, in which pipes are not laid through the embankment. At Dublin, the culvert plan round the embankment is being made; I think also at the Rivington reservoirs.

Mr. SMITH: It is a mere opinion of yours, I suppose, that the pipes have caused the accident ? — It is humanly impossible to speak to that without an examination of the pipes. I almost fear that with an examination a positive conclusion could not be come to.

Mr. SMITH: Reservoirs built on the same plan as this have existed in Sheffield for twenty-five years, without the slightest accident before. Is not that a fair reason for considering the plan a tolerably safe one ?

Mr. RAWLINSON: You have never had such a head of water in Sheffield before as in this reservoir. In this case, if the inner part of the embankment could have kept the water from the puddle, we should probably never have heard of the accident. To a certain extent this embankment was safe, for it had stood with the water at fifty feet since June. When, however, the water mounted up the bank, something took place which altered all the conditions. I think the water found its way between the puddle wall and the embankment.

Mr. B. SMITH: That is merely a theory. I understand you to suggest that springs from the bared rock may have gone into the puddle trench and worked mischief.

Mr. RAWLINSON: It may have done so ..... You say you have no evidence that it has done so ? ..... I have no such evidence ..... Then we are yet in the dark as to the real cause of the accident, except that we have some opinions about it ? . . . You are. You have the great fact of destruction, swift and terrible. As men capable of reasoning we must use our own judgement to the best of our ability, and come to some conclusion. I, as a practical man, with some reputation, feel bound fearlessly to express my opinion. The rupture of the embankment is not over the line of the outlet pipes. The pipes are laid diagonally, and the rupture is straight through the bank ?—That is so; I think I can account for it. Unquestionably the deepest part of the fracture is the upper end of the pipes. When the water got in the middle of the embankment it would not follow the line of the pipes, but rush straight through the embankment at right angles with the pipe ..... Mr. Jackson told us that the rupture took place outside the puddle wall. That is his opinion ? ..... But I suppose it is not yours ?..... I do not know. I have no opinion about it. If the Water Company should have the pipes examined, and it should turn out that they have not moved at all, I dare say you will not be much surprised?..... I shall be glad to have the evidence; but the condition in which the pipes are found, whatever it may be, will not be evidence which a scientific witness would accept, because, after the enormous rupture there has been, I could not give any decided opinion as to what has injured them, if they are injured.

Mr. B. SMITH: Any examination shall be made that Mr. Rawlinson may direct.

Mr. A. SMITH: Within any reasonable expense; we must speak as poor people now.

Mr. B. SMITH: I am informed the by-wash was calculated to take away double the quantity of any known flood that has come down the valley. Mr. Rawlinson. If so, it was then sufficient. You have not measured it, I dare say ? . . . I have measured it, but not worked the calculation. But there are certain things one can tell by the eye; and I must say that I would not try a by-wash with that opening to carry the amount of water away that would descend that valley. Indeed, I would not make a sloping by-wash at all. What sort of a weir or by-wash would you recommend ?..... No mischief has been caused in this instance by the by-wash, and therefore it is perhaps useless to discuss it, but I should make a by-wash with steps. I repeat, however, that in this instance the by-wash has had nothing whatever to do with the accident.

#### EVIDENCE OF MR. N. BEARDMORE.

Nathaniel Beardmore, civil engineer, London, said: I was requested by Sir George Grey to come down and assist Mr. Rawlinson in examining the reservoir, with the object of making a report. I have examined both the Bradfield and Agden

reservoirs. I have heard the evidence of Mr. Rawlinson, Mr. Jackson, Mr. Leather, and Mr. GUNSON. I agree substantially with the evidence of Mr. Rawlinson. I do not think the Agden embankment is being made in the secure manner such a work requires. In dealing with water, security should be taken against the remotest contingency of accidents. It would be very difficult to get everybody to agree as to the immediate cause of the bursting of the reservoir. The disruption being so great it will be difficult to discover the difference between causes and effects. My impression is that the puddle is a most excellent work. I think that the immense depth excavated must have removed danger from the springs, and the probabilities must point to the pipes being the source if not the cause of the accident. The disruption itself implies an immense volume of water blowing up the material of the embankment. To my mind the most natural conclusion is that the pipes led the water to do that mischief. Telfourd, the great engineer, never, I believe, put pipes through the embankment of a dam. I agree generally with Mr. Rawlinson and Mr. Jackson as to the dangers arising from putting pipes under embankments.

Examined by Mr. B. Smith: You say you prefer culverts through embankments to pipes?—Yes. We have been told that there are objections to culverts, that they require to be built with extraordinary solidity of masonry? — They must be made as solid as cast-iron. Then you think there may be objections to culverts? — Culverts have no doubt given way; it is necessary to take care that they are made secure ..... You mean a culvert under the embankment? — Culverts, whether under the embankments or through the side rocks, should be made very strong..... You said that Telfourd did not adopt precisely the present system of laying pipes? — He did not; the fact is that Telfourd was a little before this sort of pipes were either made or used, though he tried cast-iron a good deal in his day ..... Mr. Rawlinson has described to us the appliances at Dublin, where a culvert has been made through the solid rock away from the embankment. Have you seen such a culvert.— I don't think I have ..... Then the making of culverts is a new invention — a mere theory as yet? — Every work must be dealt with according to the circumstances. What is a good plan in one-class of circumstances is not practicable in other circumstances ..... You would not say that these side tunnels are practicable under all circumstances?— No. The great point is to get as strong an embankment as possible, and as good a foundation as possible..... You are aware, no doubt, that the rupture of the embankment has not taken the line of the pipes?—That remains to be discovered. It appeared to me, from the description given yesterday, that the pipes burst out very nearly where they might have been expected to do — that they burst out somewhere about the line of the greatest pressure. It is a concatenation of circumstances that makes one great accident; there may have been several remote causes at work to produce the calamity... May not a landslip have started it? — Yes; a slip may have taken place, and brought it down at once.

The CORONER: DO YOU call any witnesses, Mr. Smith.

Mr. B. SMITH: I assume from what has been said, that the jury entertain no idea of holding anybody criminally responsible. In that case, I do not know that there is any good in pursuing the inquiry any further at present. The evidence we could produce must of course be theoretical.

The CORONER: Like that we have had on the other side.

Mr. B. SMITH: And of equal value, no doubt. I may say, on behalf of the Water Company, that every inquiry shall be made as to the cause of the accident, and made more maturely than we have had time to make them hitherto. The jury heard what passed as to Mr. Rawlinson's examination. So far as our means will

reasonably go, we will place ourselves in his hands to make any examination he may wish. The suggestions that have been made as to the Agden reservoir shall have the attention of our engineers. Our object, of course, is to make a secure reservoir; not to spend £50,000 or £60,000 in an embankment only to have it washed away. If the Jury have made up their minds that no criminal charge will be made, it would be needlessly occupying them to prolong the investigation.

Mr. PAWSON said the jury wished to consult with the Coroner privately on the question of criminality.

The Jury were absent about twenty minutes, and on their return.

The CORONER said: Mr. Rawlinson and Mr. Smith,—The jury have come to a verdict in this matter, so that it will be altogether unnecessary for me to sum up. I am rather glad it is so, because if I had summed up, I might perhaps have spoken more strongly than people would like, and have expressed my opinion in language that would not have pleased some people, and which they might have said was not such as could fairly come from this bench, but which in my opinion the case fully justified.

#### VERDICT OF THE JURY.

The Jury then delivered the following verdict:—

We find that Thomas Elston came to his death by drowning in the inundation caused by the bursting of the Bradfield dam on the morning of the 12th instant.

That in our opinion there has not been that engineering skill and attention in the construction of the works, which their magnitude and importance demanded.

That in our opinion the Legislature ought to take such action as will result in governmental inspection of all works of this character, and that such inspections should be frequent, and sufficient, and regular.

That we cannot separate without expressing our deep regret at the fearful loss of life which has occurred from the disruption of the Bradfield Reservoir.

The proceedings then terminated.

\*\*\*\*\*

#### MEASURES OF RELIEF.

We now come to the most pleasing part of this sad narrative — to the silver lining of this dark cloud of calamity and suffering. Sympathy for those who had lost their property, and for those who had sustained the far severer bereavement of losing those whom they loved and upon whom they were dependent, was a feeling at once evoked from all quarters, and which soon displayed itself in active efforts for the alleviation of the wide-spread misery which prevailed amongst those who had been so suddenly deprived of their friends or of their homes. Men of all parties, of all sects, and of all classes, at once came forward with open-handed liberality, and with well-directed zeal. Political differences, religious animosities, and the distinctions of caste, were at least for a time forgotten; and no rivalry seemed to remain, except that of who should be the most prompt and self-denying in carrying out those measures of relief which were so urgently called for in this great local emergency.

## PRELIMINARY MEETING AT SHEFFIELD.

On the very day on which the flood swept over the town, the Mayor issued circulars to a number of the principal gentlemen of the town, convening a meeting at the Council Hall on the following Monday, "for the purpose of considering and adopting such measures as may be deemed necessary to meet the sufferings occasioned by this dreadful calamity."

A numerous body of gentlemen responded to the call of the Mayor. Among those present were F. W. Bagshawe, Esq., W. F. Dixon, Esq., James W. Dixon, Esq., Aldermen Brown, Jackson, Hoole, Fisher, Vickers, Holland, Saunders; T. Dunn, Esq., George Wostenholm, Esq., M. J. Ellison, Esq., M. Firth, Esq., E. Vickers, Esq., E. Bramley, Esq., J. Jobson Smith, Esq., T. W. Watson, Esq., H. Watson, Esq., H. Wilson, Esq., W. Wake, Esq., B. Wake, Esq., W. Fawcett, Esq., R. Sorby, Esq.; the Revs. Dr. Sale, J. Livesey, W. Wilkinson, C. Wilkinson, J. Battersby, J. H. James. C. Larom, J. P. Campbell, and others.

The MAYOR said: It is unnecessary for me to allude to the unfortunate and sad calamity which has befallen us, as you will doubtless have visited the scene of wreck, or have read the accounts which are given of it in the newspapers. I was communicated with by Mr. Jackson, our excellent Chief Constable, on Saturday morning, and at once went down to the Town Hall. From there I went to the Wicker, and although the water had subsided I could see what fearful havoc had taken place. I spent most of the Saturday at the Town Hall rendering what assistance I could to Mr. Jackson and our excellent Town Clerk; and here I must bear my testimony to the great exertions and attention of Mr. Webster, the Coroner, who was there anxious to aid and assist in every way possible. (Hear, hear.) About noon on Saturday information was received that a number of persons in the neighbourhood of Hillsbro' and Owlerton were carrying off furniture and property not belonging to them, and the civil power not being sufficient to meet all demands, I applied to the Colonel at the Barracks, who readily granted me any number of men that might be required. (Applause. ) Those men were on duty during the remainder of the day and night and again yesterday. Vast crowds of people visited the scene of the calamity yesterday, and by the admirable arrangements of Mr. Jackson everything went off exceedingly well, and I believe there are very few offences, in fact I do not know of more than two which have been committed in consequence of the calamity. I think that speaks well for the good feeling and orderly disposition of the inhabitants of Sheffield. (Hear, hear. ) You are aware this is a preliminary meeting, and that it will be followed by a town's meeting, which I should like to be held tomorrow. I should wish it to be held on that day, in consequence of a letter which I have received from the noble Lord-Lieutenant of the Riding, and which I will read:—

"Wentworth Woodhouse, Rotherham, March 13th, 1864.

"DEAR SIR,—I am anxious to hear some account of the terrible calamity which had occurred at Sheffield, and to learn to what extent the vague reports which have reached me are true.

"These reports place the numbers who have perished at considerably more than 300. I also wish for information as to what steps have been and are now being taken for the relief of those families which have suffered.

"I feel sure that in a town whose inhabitants have on previous occasions shown such a large amount of liberality, the immediate want of the sufferers will have been attended to. It will be necessary, however, that some enlarged and

systematic scheme of relief should be set on foot, as many persons no doubt will be plunged into the deepest distress, if not left entirely destitute.

“Should any committee have been already formed for this purpose, I beg that my name may be added to it. I could attend a meeting on Tuesday at eleven or twelve o’clock, unless I learn in time that one has been arranged for tomorrow (Monday). I suggest Tuesday, as it would give one day to give notice on the subject.

“I feel sure you will forgive me troubling you on such a distressing occasion.— yours respectfully,

“The Mayor, Sheffield.” “FITZWILLIAM.”

Whilst the Mayor was reading the letter, Lord Wharncliffe entered the room, and was loudly cheered.

Mr. DUNN moved: “That the persons present in this meeting, being inhabitants of the borough of Sheffield, respectfully request the Mayor to call a public meeting, to be held at the Town Hall, for the purpose of considering and adopting such measures as may be deemed necessary for the relief of the distress and suffering occasioned by the late great calamity.” The resolution was confined altogether to the raising of subscriptions to relieve the distress. (Hear hear.) All who had been up the valley along which this calamity has occurred would be aware at once of the vast amount of distress that must have been caused, not mental distress merely from the loss of friends and relatives, but real bodily suffering from loss of property and want of food and clothing.

JOHN BROWN, Esq., said: I regret very much it is a duty incumbent upon me this morning to second this resolution. I am sure that the inhabitants of this town and neighbourhood have but one feeling with reference to the sad calamity which has befallen us. I feel persuaded that, as Sheffield men, we shall deal with this question in a practical manner. (Hear, hear.) We have, unfortunately, before us substantial marks of wreck, distress, and loss of life, and our first duty and desire will be, as in times past—without stopping to investigate the cause of the calamity, or who is to blame for it—to meet, and relieve in a practical and warm-hearted manner the sad consequences which are now before us. (Applause.) We have now in Sheffield an amount of distress unparalleled—certainly unparalleled in my time—and that distress must be relieved as quickly as possible. (Hear, hear, and applause.) We are not to stop to say, “Let the parties who are responsible meet the calamity; let us wait until circumstances show whose duty it is to relieve this suffering;” but we have a practical matter before us, and it must be met in a practical way. I quite concur in this being a preliminary meeting, but let us put our names down for something at once, and do not let that which is already bad be made much worse by delay. (Applause.)

The proposition, on being submitted to the meeting, was carried unanimously.

Lord WHARNCLIFFE was received with cheers and said: Mr Mayor and gentlemen.— I must begin by apologising for being late in my attendance here to-day, but there were so many people in the train coming to see the results of the calamity, that it was delayed, or I should have been here in time to assist at the beginning of the meeting. The Mayor has been good enough to put into my hand a resolution which I have pleasure in moving, and I hope you will believe me when I state, with the greatest sincerity of mind and heart, that nobody in the town or district feels more acutely the intense suffering, both of mind and body, that has been caused by this fearful visitation of Providence. (Applause.) The resolution

which I have the honour of submitting to you points to the fact that those who sympathise ought to subscribe. (Hear, hear.) It is about a year ago since I had the honour of addressing an audience in this room on the distress in Manchester and Lancashire, and we contributed then according to our means, I may say handsomely—(hear, hear.)—but it is now incumbent upon us to do more. (Hear, hear.) Whatever may have been our feelings towards operatives elsewhere, they must be warmer and more sincere now that our fellow townsmen and neighbours want assistance. (Hear, hear.) We must now lay aside every thought of niggardliness and avarice, and come down handsomely for the credit of the town and for the relief of those who are suffering. (Applause.) The town of Sheffield has not occupied the position in the eyes of England in this particular that it ought to have occupied. There can be no doubt of this. (Hear, hear.) I don't think we are held in equal estimation with some towns of smaller population and less prosperous trade, but events like this, which call us together give us opportunities to raise ourselves in this matter and to improve our reputation. Don't pinch your contributions. (Hear, hear.) I have now to move—" That this fearful inundation, which has caused such an awful loss of life and immense destruction of property, necessarily occasioning wide-spread misery, the inhabitants of this borough and neighbourhood are called upon to sympathise with the sufferers, and to subscribe as far as possible." If we carry that we shall then be in a position to say what we have done for ourselves, and we shall be able to say that we have not shown any backwardness in coming forward on this occasion. (Applause.)

W. BUTCHER, Esq., seconded the proposition, and it was carried unanimously.

Mr. DUNN announced that during the time Lord Wharnccliffe had been addressing them, the following sums had been promised:— The Mayor, £200; Messrs. W. Jessop and Sons, £200; the Sheffield Coal Company, £200; Messrs. James Dixon and Sons, £200; Messrs. Naylor, Vickers, and Co., £200; Messrs. John Brown and Co., £200; Messrs. Thomas Firth and Sons, £200; Messrs. Sanderson Brothers, £200; Messrs. W. and S. Butcher, £200; Henry Wilson, Esq., £200.

Alderman SAUNDERS said: Perhaps it will not be wrong if I, as chairman of the Sheffield Board of Guardians, inform the meeting of what has been done at the Workhouse. There must be great anxiety existing to know what is being done for the poor people until the subscriptions for their relief are raised. Mr. Jackson, the Chief Constable, sent up to my house early on Saturday morning, and, I believe, to other members of the Board, and about seven o'clock, I and the deputy chairman went to the Workhouse, and gave directions as to the distribution of relief. To the relieving officers we gave simply one order, and that was, without considering whether or not the applicants were persons belonging to the Sheffield union, or in each officer's district, all who came to them suffering from distress in consequence of the flood, were to be relieved, not with the usual stint, but liberally, and those who had no friends to go to, were to be received and provided for in the house. (Hear, hear.) So far, the number of applicants has not been large, but I have not the least doubt they will be so very soon. We had dead bodies in the house to the number of 102, which were placed in the dead house and four other rooms. The sight was a fearful one. Two thousand persons, all saying they were looking for their relatives, applied to see the bodies, no mere lookers on being admitted, and I have no doubt that the loss of life will turn out to be greater than has been represented in the newspapers. With regard to burying, we are providing coffins for all those whose friends have not the means to provide them, and those

whose friends are unable to bury them, we bury. Without considering the poor laws, or consolidated orders, or anything of the sort, we are trying to do everything in our power to relieve the distress. (Applause.)

S. MITCHELL, Esq., said:—As Vice-Chairman of the Ecclesall Board of Guardians, allow me to say that the poor have not been neglected there. A portion of the Ecclesall Union extends to Malin-bridge and Owlerton, and down to Philadelphia, which, I understand, is greatly damaged. I have directed the relieving officers to give ample relief to all who may be in need of it. (Applause.)

F. HOOLE, Esq., said: Yesterday a telegram was handed to me. It is directed to my brother, and I find it to this effect;—“Reform Club.—Mr. Hadfield to Mr. H. E. Hoole.—I will send you £500 tomorrow. Please consult the Mayor.”

The reading of the telegram was received with cheers.

W. FAWCETT, Esq., thought it very wise that a public meeting should be held, but was of opinion that a temporary relief committee should be appointed at that meeting, so that those who were then suffering distress should not have to wait for relief.

R. J. GAINSFORD, Esq., said he had no doubt that ample funds would be supplied, and one great thing would be to see that it reached those who were actually in distress, and was not taken advantage of by persons who were not entitled to it.

The following additional subscriptions amongst others were handed in:—Messrs. Mappin Brothers, £100; George Wostenholm, Esq., £100; Messrs. Spear and Jackson, £100; Henry Unwin, Esq., £100; Messrs. T. and H. Wake, £100; Messrs. R. Sorby and Sons, £100; Fras. Hoole, Esq. and wife, £100; Henry Newbould, Esq., £100; Messrs. W. and B. Wake, £100; Charles Atkinson, Esq., £100; Thomas Youdan, Esq., £100; Messrs. Tennant Brothers, £100; Frederick Thorpe Mappin, Esq., £100; Thomas Marrian, Esq., £100; Henry Harrison, Esq., £100; Alfred Rowbottom, Esq., £50; Messrs. Bramley and Gainsford, £50; Messrs. Thomas and Rodgers, £50; Henry Rodgers, Esq., £50; Messrs. W. Fisher and Sons, £50; Rev. John Livesey, £50; Messrs. H. Wilkinson and Co., £50; John Jobson Smith, Esq., £50; Messrs. Davy Brothers, £50; Messrs. Daniel Doncaster and son, £50, many smaller subscriptions were also announced, making the total amount promised at the meeting, £4,775.

On the motion of Alderman JACKSON, seconded by Mr. E. VICKERS, the Mayor was appointed treasurer.

Lord WHARNCLIFFE moved, and Mr. Councillor IRONSIDE seconded, a vote of thanks to the Mayor, who, in acknowledging the compliment, expressed a hope that through this trying time he would have their sympathies, aid, and support.

#### PUBLIC MEETING AT SHEFFIELD.

A public meeting was held in the Town Hall, Sheffield, on Tuesday March 11th, for the purpose of considering and adopting measures to relieve the distress and suffering occasioned by the flood. The Mayor (Thomas Jessop, Esq.) presided. The Right Honourable Earl Fitzwilliam, the Honourable Lord Wharncliffe, and nearly all the gentry of position in the town and neighbourhood, were present, including—J. S. Stanhope, Esq., Ald. Brown, T. Dunn, W. F. Dixon, W. Butcher, S. Butcher, H. Vickers, T. W. Rodgers, H. Rodgers, J. W. Hawksworth, H. Wilson, J. N. Mappin, Ald. Matthews, R. J. Gainsford, H. Unwin, C. Atkinson, Ald. Jackson,

H. Harrison, M. J. Ellison, Revs. Dr. Sale, Blakeney, Newman, Aldous, W. Wilkinson, C. Wilkinson, Loxton, &c. The meeting was crowded.

Earl FITZWILLIAM, who was received with loud cheers, moved — “The fearful inundation which has caused such awful loss of life and such immense destruction of property, necessarily occasioning wide-spread misery and desolation, calls upon the inhabitants of this borough and neighbourhood, and all who sympathise with the sad event, at once to subscribe so as to alleviate as far as possible this great distress, and that a subscription be now commenced.” On such an occasion as this, said his Lordship, it affords me the very deepest gratification to perform a duty at once so pleasing and so melancholy. A subscription has already been commenced; noble sums have already been subscribed to alleviate the sufferings caused by this dreadful calamity. We must bear in mind that the first thing to be done is to alleviate those whose all has been taken from them. (Applause.) I fear that to a very large extent this will be found to be the case. Not only have persons, but families, been swept away. Those who we are accustomed to call the “bread winners” have been swept away in many cases, leaving fatherless families. These are the cases which must first call for our attention, and to these cases our subscriptions must be first directed. (Cheers.) That there is other wide-spread distress no doubt is true, and that I hope can in time be alleviated. But the first must be alleviated, and that immediately. (Cheers.) I do not know whether any kind of subscriptions are yet made known, but I wish, on behalf of myself and family, to subscribe’ £1000. (Protracted and reiterated cheers.) To the Mayor and gentlemen who will form the acting committee, I must be allowed to say that I hope what I give will be most speedily placed to the use of those who most need it. (Loud cheers.)

Lord WHARNCLIFFE, who was greeted with loud cheers, said: Yesterday I addressed a meeting in the Council Hall, and I ventured on that occasion to recommend the people of Sheffield to make such a subscription as should be worthy of the town, and I am happy to find that the few words I said on that occasion have borne some fruit. (Hear, hear.) The Mayor informs me that the sum of £6000 is available for the purpose of relieving the distress occasioned by the inundation. I have often occasion to sit in the place in this court where your worthy Mayor now sits, and although my duties on those occasions are sufficiently melancholy in their nature, yet these only refer to evils which we may hope in the course of time to extirpate altogether, but this is one of the calamities which no human means by any possibility can totally and thoroughly alleviate. (Hear, hear.) It is a calamity involving not only the loss of fortune and happiness, but involving also the loss of life, which is the thing that touches us most nearly. The example which has been set us by the highest in this room, ought to be followed down to the lowest. I believe we shall find that the whole of England will rally to the assistance of the people whose homes are desolate in the same way as we have rallied to the relief of their distress in every other part of the country when any calamity has fallen upon it. We need not refer to the Holmfirth or the Hartley catastrophies, or to the more extended calamity which prostrated the whole of Lancashire. I hope we shall find the whole of England will meet together to render assistance to us in the time of need; but, as I said yesterday, we must first set our own shoulders to the wheel—we must set the example. (Cheers.) That we did yesterday to some extent; don’t let us fail to-day in doing our part. I have great pleasure in seconding the resolution proposed by the noble Earl. (Loud cheers.) The resolution was carried.

The proposition was then put and carried unanimously.

Rev. Dr. SALE moved:—

“That a Committee be appointed, consisting of the following Gentlemen William Fawcett, Esq., Edward Vickers, Esq., William Butcher, Esq., Town Collector- Alderman Matthews, the Rev. Canon Sale, D.D., Thomas Sorby Esq. Henry Newbould, Esq, Thomas Dunn, Esq., Alderman Francis Hoole, Alderman John Brown, John Firth, Esq., J. H. Barber, Esq., John Jobson Smith, Esq., Alderman William Fisher, Charles Atkinson, Esq., William Moore, Esq., Alderman George Lemon Saunders, Alderman John Webster, Robert John Gainsford, Esq., Robert Leader, Esq., Alderman Henry Vickers, Councillor William Harvey, Thomas William Rodgers, Esq., Henry Watson, Esq, Henry Wilkinson, Esq., Councillor Alexander Robertson, Michael J. Ellison, Esq., Rev. George Sandford, Henry Harrison, Esq., Councillor John Parkin, Alderman John Beckett, Joshua Moss Esq., Marcus Smith, Esq., Bernard Wake, Esq., Alderman Robert Jackson, Councillor Robert Thomas Eadon, Samuel Mitchell, Esq., Rogers Broadhead, Esq. Councillor Henry John James Brownhill, Rev. David Loxton, Rev. Brooke Herford, Rev. James Breakey, Rev. W. Ashberry, Rev. Canon Fisher, Rev J. H James Rev. J. Gutteridge, with power to add to their number, to arrange and collect Subscriptions and the distribution of the same.”

He was deeply thankful to see those who were the ornaments of the neighbourhood so nobly come forward as had Lord Fitzwilliam and, Lord Wharncliffe. (Cheers.) Their munificent examples would not be lost. Yesterday he saw the Archbishop of York on another matter, and learnt from him that he had forwarded a subscription of c£50. His Grace said that he had been so much affected by the description which he had read of the calamity that it had kept him awake all night, and that if he had not had two important meetings in York to-day nothing would have prevented his being at the meeting to show his sympathy with the sufferers.

Mr. DUNN said it had often been his lot to address them from that place; but never with feelings such as now weighed upon him. The dark side of the picture had been alluded to. It was wisely ordered by Providence that the darkest picture of this life should have its bright side. The committee comprised men of all parties and grades, all, he believed, equally anxious to aid in this good work. The business of the committee would be to distribute the munificence of the public in the relief of that distress.

The proposition was carried unanimously.

Alderman BROWN moved that the Mayor be requested to act as treasurer. (Cheers.)

Alderman VICKERS seconded the resolution, stating that the Town Trustees, at a meeting held this morning, had voted £500 towards the subscription. (Cheers.)

Mr. JAMES DODWORTH suggested that the working-men of the town should give up one day's wages for the relief of the sufferers. By that means the sum of at least £10,000 would be raised and constitute the working-men's' contribution, He had named the matter to the men in his employ, and they had agreed to it, and even more if it was necessary. He had no doubt that if proper organisations are set on foot working-men generally would respond in the same way. He should be glad to give £25. (Cheers.)

Mr. HENRY LEVY said 2,894 pennies had been dropped into a box placed outside his premises in High street. He proposed to continue the box there for some time longer, being satisfied that a handsome sum would be thereby realised towards the subscription.

The proposition was carried unanimously.

Mr. W. F. DIXON moved the appointment of Mr. Yeomans (the Town Clerk,) Rev. J. Aldous, Mr. D. Doncaster, and Mr. Thomas Chambers, as honorary secretaries.

As it was found Mr. Doncaster was unable to accept the office, the Committee subsequently requested Mr. Plimsoll to take his place.

Mr. T. W. RODGERS seconded the proposition. God in his inscrutable wisdom had permitted a great calamity to fall upon us. It was our business to mitigate the suffering to the utmost of our power, which he had no doubt would be done. He suggested that persons should form themselves into small committees, and examine into cases of distress in their districts, and report them to the committee.

W. S. STANHOPE, Esq., of Cannon Hall, expressed his intention of promoting the calling of a meeting at Barnsley in aid of the distress fund. Such meetings would no doubt be held throughout the length and breadth of Yorkshire.

Earl FITZWILLIAM moved a vote of thanks to the Mayor for the able way in which he had occupied the chair.

Lord WHARNCLIFFE seconded the resolution.

Mr. J. H. SALES said he should not like it to go forth that the people of Sheffield had not done their duty, as was imputed by Mr. Harvey. He believed Sheffield had done its duty most nobly. He announced that his warehouse in Pepper alley was open for the reception of old clothing for the use of the distressed. (Hear, hear.)

The vote of thanks to the Mayor was carried with acclamation. In responding, his Worship said he was a Sheffield man, he had lived nearly all his life in the town, and he knew what the working men could do. They raised large amounts for Lancashire, but here the distress was at their own doors. He was satisfied that an adequate amount of money would be raised, and he would do all in his power to ensure that it should be properly and judiciously distributed. (Cheers.)

#### MEETINGS OF WORKING MEN IN SHEFFIELD.

A meeting was held in the Council Hall, Sheffield, on Friday night, March 18, Mr. J. Dodworth in the chair, to take steps to promote the movement amongst the working men of the town, to give one day's wage to the fund for the relief of the sufferers. There was a good attendance, but the meeting was merely preliminary to a public meeting on Tuesday. The representatives of the workmen of many firms attended, and stated that their fellow workmen had determined either to give a day's wage or to make a subscription, but the feeling appeared to be strongest in favour of giving a day's wage. An appeal was made to employers to aid their men in doing this.

On Tuesday night, March 22, a meeting of the working-classes was held in the Temperance Hall, Sheffield, to support the movement to contribute one day's wage to the relief fund. The Mayor presided, and about 300 persons were present. Many of them were present in the capacity of delegates from the manufactories in which they were, employed.

The MAYOR, in opening the proceedings,, said they were all aware of the nature of the calamity which had befallen the town. He appealed to the working men of Sheffield, one of whom he had himself been, for he was proud to say he had toiled himself, and in his intercourse with working men of Sheffield, with

whom he had been associated all his life, he had ever found them full of sympathy, open hearted, and ready and willing to assist their fellow-workmen when in distress. (Cheers.) He knew what the poor did for each other. He knew how the poor helped the poor. He could appeal to their benevolence, and he was sure that a more well-disposed body of men 'than the working men of Sheffield did not exist. He knew they would come forth nobly to relieve the distress of their fellow-creatures. He did not think that the giving of one day's wage was asking them to do too much. He was sure there were few men that would feel it a hardship to do that. He would remind them what a large sum would be realised in this way from a large and industrious population. The merchants of the town had come out well and nobly to assist the sufferers by this unfortunate circumstance. (Hear, hear.)

Mr. JAMES DODWORTH—(Cheers)—moved the following resolution:

“That as the majority of the victims by the recent melancholy calamity were of the working class, this meeting feels that a most serious and solemn duty devolves not only upon it but upon the entire of the working men of Sheffield? calling upon all imperatively to assist in alleviating the sufferings of the bereaved, or those impoverished by that occurrence; and hereby pledges itself to assist in forwarding the raising of subscriptions to the relief fund by the working classes of the town generally.”

Mr. W. DRONFIELD seconded the resolution, and urged the trades of the town to act unitedly in the matter, in order to raise as large a sum as possible.

Mr. H. WOSTENHOLME gave some explanations of the operations of the committee that had undertaken the superintendence of this movement. He stated that beyond the necessary charges for printing, not one penny of expense would be incurred by the committee, all of whom were giving their services gratuitously. With reference to the remark that anything that could be done by these subscriptions would be in mitigation of claims upon the Water Company, he said the amount of mischief done was so vast, that the company would have enough to do to meet the claims against it, even when all the subscriptions both of the working classes and the rich had been applied. (Hear, hear.) The committee had received reports from more than fifty factories in favour of this movement, and they found that the contributions from the working people of Sheffield and other places amounted already to £796. The reports received showed that that sum would be increased to £1500, of which about £1,200 would be contributed by the working men of Sheffield; and he had no doubt, after such an auspicious beginning, that they would raise the sum which it had been said they could and ought to raise, viz., £10,000. (Cheers.)

Mr. ROBINSON moved —

“That this meeting recommends the contribution to the relief fund of ‘one day's wage’ by every member of the working class of the town; and that the earnings of Good Friday or some other early day be set apart for that purpose.”

The resolution was seconded by Mr. CAMPSALL.

Mr. JOHN WILSON supported the resolution, and referred to the operations of the workmen's tools sub-committee. The men who had lost their tools had acted with the most perfect fairness; and whenever, after receiving compensation for tools supposed to be lost, they had found them again, they had made the fact known to the committee, and had deducted the value from the amount they were otherwise entitled to receive. (Cheers.)

Mr. S. JACKSON (nail maker) asked if the men who had suffered by the flooding of their houses would be expected to contribute to their various factories? (Laughter.)

The MAYOR replied that no man would be expected to give more than he could afford— The resolution was carried.

Mr. J. W BURNS moved a resolution appointing a committee to carry out the preceding resolutions, and requesting the representatives of trades to communicate with them.

Mr. GEORGE TURNER seconded the motion.

The proposition was carried; and a cordial vote of thanks to the Mayor for presiding, brought the proceedings to a close.

### THE QUEEN AND ROYAL FAMILY.

Her Majesty the Queen from the first took a deep interest in the case of the sufferers from the flood, and nobly came forward to set an example to her subjects in all parts of the country. The following is the correspondence which took place with reference to Her Majesty's contribution to the relief fund.

“March 17, 1864.

“My dear Sir,—I send you enclosed the letter I received last night from Col Sir C. B. Phipps, and also its enclosure—viz., a cheque for £200 from Her Majesty. I answered his letter, begging him to express to her Majesty my gratitude and thanks, which I presumed to offer in my own name, and in that of my constituents, to her Majesty, for her kind sympathy and benevolence in this our dread hour of suffering.

“I am much obliged for your appreciation of my efforts, and beg you to believe me, yours very truly,

“J.A.ROEBUCK. [sender]

“Thomas Jessop, Esq., the Mayor.” [recipient]

“Windsor Castle, March 16, 1864.

“Sir,—I have had the honour to submit to her Majesty the Queen your letter received last night.

“Her Majesty had already directed me to make inquiry whether any subscription had been commenced for the relief of the sufferers by the fearful accident which has occurred near Sheffield.

“The Queen has commanded me to inform you that it is her Majesty's intention to contribute £200 towards the objects advocated in your letter.

“Her Majesty has commanded me to add the expression of her deep sympathy for the poor persons thus suddenly overwhelmed with grief and exposed to suffering of every description, in consequence of this unexpected and dire calamity.

“As I am not aware of the name of the treasurer, I shall be very much obliged to you if you will take the trouble to forward the enclosed cheque to the proper quarter.

“I have the honour to be, Sir,

“Your most obedient humble servant,

“C. B. PHIPPS. [sender]

“J. A. Roebuck, Esq., M.P.” [recipient]

His Royal Highness the Prince of Wales so early as March 15, authorised Mr. Roebuck, M.P., to say that he would head the subscription. The Princess of Wales and other members of the Royal Family also gave liberal donations.

#### HELP FROM OTHER TOWNS.

From the first it was seen that the Sheffield Flood was not merely a local, but also a national calamity, and that nothing less than a national subscription would adequately meet the emergencies of the case. We do not propose to occupy much space with what was done in other towns in aid of the sufferers. It will be sufficient to say that nearly every town in the kingdom came forward in a liberal spirit, and sent in a handsome contribution. The Lord Mayor of London opened a subscription list, which the corporation of the City of London headed with a donation of £500.

#### THE SUBSCRIPTIONS.

It is pleasing to add that in about two months the noble sum of about £50,000 was raised. A list of the subscribers would fill a volume by itself. The sum obtained was more than sufficient to relieve all cases of urgent distress, and in May a notice had to be issued that further subscriptions would not be required.

#### SANITARY MEASURES.

In consequence of the vast quantities of water and mud carried into the houses and cellars in the low parts of the town, great fears were entertained lest some epidemic should break out, and add pestilence to the other consequences of the flood. Measures were therefore promptly taken to guard against such a contingency.

Every effort was promptly made to clear away the debris which had been deposited by the flood. The engines of the various fire offices were employed in pumping out the water and mud which had accumulated in the cellars of the principal shops in the Wicker. At Trinity Church, in Nursery street, an engine from the Sheffield office, with a body of men under the superintendence of the Rev. J Aldous, was employed to draw the water from the church, in which the water had risen to about the height of three feet, doing considerable damage to the furniture and books.

Drs. Aveling and Allan, Mr. H. Walker, and Mr. Sykes, visited all the worst localities, and their recommendations were actively carried out by the committees of the districts. At the meeting of the Health Committee of the Town Council, Dr. J. C. Hall attended, and offered his services. The committee accepted the offer, and requested Dr. Hall to co-operate with their Inspector, Mr. Chapman. Another resolution authorised Mr. Chapman to procure lime to cover over the heaps of decomposing matter which could not be removed and instructions were also given for the removal of all carcasses of animals and other sources of effluvia. The men previously employed were reinforced by a number of labourers from the estate of the Duke of Norfolk, and by a force of navvies, with horses and carts, employed by Messrs. Craven upon the Water Company's works. Thus, by prompt and energetic measures, the health of the town was preserved, and the horrors of

the flood were not augmented the additional evil of plague or pestilence. Some weeks after the flood fever broke out at Owlerton; but not to a serious extent, and measures to arrest its progress were at once adopted.

#### PROCEEDINGS OF THE RELIEF COMMITTEE.

A meeting of the general committee of the Bradfield Inundation Relief Fund, was held on April 29th, in the Council Hall, Sheffield, the Mayor presiding. Ald. Saunders submitted the following return, made up by the district committees:—

Amount of money given in relief .....	£2,974	0	7
Cost of Food .....	1,460	18	7
Do. clothing .....	1,022	16	10
Do. furniture replaced.....	2,555	0	0
Total cost of relief of all kinds to present date.....	£16,678	4	3
Probable amount of future relief .....	£2,358	13	5
Number of widows caused by the flood .....	11		
,,   ,, orphans.....	40		
,,   ,, deaths .....	250		
,,   ,, persons relieved .....	20,537		
,,   ,, houses in the district .....	4,953		
,,   ,,   ,, flooded.....	4,357		
,,   ,,   ,, destroyed and abandoned.....	798		

The clothing committee have spent an additional sum to that mentioned above, and that, including several cases of relief above £5 also not included, makes the total expenditure about £19,000.

CLOTHING DISTRIBUTED.—Boots and shoes, 4407 pairs; trousers, 593 pairs; coats, 516; vests, 178; calico and linsey, 5814 yards; shirts, 1141; dresses and petticoats, 1986; stockings, 2107 pairs; shawls, 204; flannel and woolsey, 1119 yards; sheets and beds, 325 bonnets and caps, 201; various, 4000.

The Mayor read the following financial statement, in which were included the amounts paid to the various district committees:—

To Sheffield and Rotherham Bank (Balance) .....	£14,861	17	0
,, Sheffield Banking Company .....	6,887	15	1
,, Sheffield and Hallamshire Bank.....	1,813	15	2
,, Cheques issued to District Nos. 1 & 2 .....	£3,229	4	10
,, Ditto Ditto 3 .....	667	13	11
,, Ditto Ditto 4 .....	2,441	1	7
,, Ditto Ditto 5 .....	1,571	14	2
,, Ditto Ditto 6 .....	1,057	4	2
,, Ditto Ditto 7 .....	451	19	3
,, Ditto Ditto 8 .....	1,036	7	2
,, Ditto Ditto 9 .....	3,041	13	0
,, Ditto Ditto 10 .....	1,208	15	11
,, Ditto Ditto 11 .....	657	7	0
,, Stationery .....	69	18	0
,, Petty disbursements per Secretary .....	10	0	0
,, Stamps, &c.....	17	14	11
,, Advertising.....	616	12	0
,, Payments per Chief Constable .....	100	0	0
,, Working Men's Tools Committee .....	1,333	1	6
,, Clothing Committee .....	2,311	11	3
Total of Disbursements .....	£19,811	18	8
Subscriptions actually received .....	£42,751	2	5
Amounts known to be lying in London and elsewhere, at the order of the Committee, also other sums promised here, estimated at .....	10,000	0	0

	52,751	2	5
Paid as above .....	19,811	18	8
Balance .....	£32,939	3	9

THE WATER COMPANY AND ITS LIABILITY.

Within a very short period of the occurrence of the catastrophe, the question arose of the liability of the Waterworks Company to make good the damage. It cannot be wondered at that considerable anxiety was felt both for the Water Company, and for those who had claims to make for compensation. As the capital of the Water Company was only between; £400,000 and £500,000, and as the shares were all fully paid up, except a comparatively small amount, doubts were entertained as to the ability of the Water Company to meet the claims, even if the question of liability were settled. There were cases in which shareholders were at first willing to part with their shares for nothing merely on being secured from further responsibility. But this feeling did not extensively prevail, and better hopes began to be entertained as to the position of the Company. Its revenue was unimpaired, and it had the monopoly of the supply of water to a large manufacturing town. Hence, most of the shareholders felt confidence in the value of the property, and were not disposed to make a ruinous sacrifice. Before the catastrophe the shares of the Water Company were in excellent repute as one of the safest local investments, and £100 paid-up shares were quoted at £146. After the flood they fell to £40, and subsequently underwent various fluctuations which it is not necessary here to particularise.

The Bradfield reservoir was made under the powers of the Water Company's act of 1853, authorising them to take water from the Loxley, the Rivelin, and their tributaries. It was passed a year after the Holmfirth flood, and to that circumstance may be ascribed the insertion of the following stringent and comprehensive clause, of which the marginal note is—"Company to make good all damages to be done by reservoirs bursting," &c.

"LXVIII. That the said Company shall, and they are hereby required from time to time, and at all times for ever hereafter, to pay and make good to the owners, lessees, and occupiers of all mills, manufactories, buildings, lands, and grounds, and to every person whomsoever, all loss, costs, charges, sum and sums of money, damages and expenses whatsoever, and for all injury of what nature and kind soever, as well immediate as consequential, which such owners, lessees, or occupiers, or other persons might suffer, incur, pay, expend, or be put unto by reason or in consequence of the failure or giving way of the reservoirs, embankments, water courses, or other works of the said Company."

Counsel's opinion was taken, and it was to the effect that the Water Company was liable to make compensation for all the damage occasioned by the flood, but that, while the property of the Company might be taken in satisfaction as far as it would go, the private property of the individual shareholders could not be touched.

Subsequently the Water Company applied to Parliament for increased powers, so that they might be enabled to give compensation to the sufferers. The result may be briefly stated. After very strong opposition from the Corporation and private parties the Bill of the Water Company passed successfully through Parliament, and received the royal assent on July 29th, 1864. The following were the principal provisions of the Act:—That William Overend Esq., Q.C., J. Jobson Smith, Esq., and M. Foster Mills, Esq., be the Commissioners to assess the claims

for damages caused by the flood. That all actions at law be stopped, and that all claims for compensation be settled by the Commissioners. That the Water Company be authorised to raise £400,000 additional capital by borrowing or otherwise. That the Water Company be empowered to increase the water rents by 25 per Cent., for a period of 25 years, and that at the expiration of that term the lower rates be reverted to. That interest on substantiated claims for damages be allowed from the date of judgement by the Commissioners. That in the case of claimants for compensation for loss of life of those on whom they were dependent, proof of negligence on the part of the Water Company be not required. That the whole of the uncalled up capital of the Water Company be got in within twelve months. That the justices of the peace have power to inquire whether the reservoirs are secure. That the charges for water be levied impartially upon all persons, except that a reduction be made for the sanitary purposes of the town. That the works be completed by 1873; but that a constant supply of water be given to the town by July, 1869, that is, in five years from the passing of the Bill.

END