

Demolition of the medieval bridge at Rochester, 1856–60

Times, Thu 27 Nov 1856, p 7

An application has been made by Colonel H. Sandham, the director of the Royal Engineers' establishment at Brompton, to the authorities, to allow the troops under his command to be employed in the destruction and removal of old Rochester-bridge. The application was made in consequence of the very favourable opportunity which presents itself for exercising the officers and men in the demolition of ponderous works, and of the success which attended the destruction of the immense docks at Sebastopol by the troops belonging to the Royal Engineers. The authorities have accorded permission for the men of the Sappers and Miners to be employed in the undertaking, and a party of the Royal Engineers, under the command of Captain A. Schaw, R.E., have been engaged for a few days past at old Rochester-bridge making the necessary preparations for its removal. As soon as the troops have removed the upper portions of the bridge the piers and foundations will be destroyed by means of submarine explosions, in which undertaking the most skilful of the divers belonging to the corps will be employed.

South Eastern Gazette, Tue 2 Dec 1856, p 5

Destruction of Old Rochester Bridge. -- For several days past a number of the troops belonging to the Royal Engineers have been employed on the Strood side of old Rochester bridge, in making the necessary preparations to destroy a portion of the foundation by means of gunpowder. A considerable portion of the structure has been already removed. The application for the troops of the Royal Engineers to be employed in assisting in the demolition of the old bridge was made by Colonel H. Sandham, to practice the officers and men under his command in the destruction of massive works. The troops employed are under the command of Captain H. Schaw. As soon as the superstructure has been removed the piers and foundations will have to be destroyed, and this will be effected by means of submarine explosions. It is expected that one of the piers on the Strood side will be blown up during the present week.

South Eastern Gazette, Tue 9 Dec 1856, p 5

Fatal Accident to a Corporal of the Royal Engineers. -- On Saturday morning Corporal John Bourbridge, belonging to the corps of Royal Engineers, was accidentally drowned at old Rochester-bridge under the following melancholy circumstances. The deceased was employed with a number of troops of the Engineers in making the necessary excavations on the Strood side of old Rochester bridge for blowing up the foundations of the structure. For this purpose he wished to cross over to an advanced part of the works, to see how the men were progressing. Two of the arches having been already removed the only communication with the other part of the bridge was by means of a narrow nine-inch plank, which was laid across from one of the starlings to the other. The unfortunate deceased was in the act of walking across this plank, when the wind, which was then blowing almost a gale, blew him off into the river. He was an excellent swimmer, but being encumbered with his great coat, was unable to save himself, and the tide at that spot running with great velocity he was carried some distance down the river, and sank before assistance could be rendered. The corporal was a man of excellent character and had been in the service about nine years. He was considered to be the tallest man in the corps, being upwards of six feet in height. The body was recovered about three hours afterwards near the spot where the deceased was drowned, and removed to Brompton barracks, to await an inquest. The unfortunate deceased was much respected, and had served with his corps in the Crimea.

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Old Rochester Bridge. -- The troops belonging to the Royal Engineers, who are engaged assisting in the demolition of the old Rochester bridge, have been employed for about a fortnight, under the direction of Capt. H. Schaw, R.E., in sinking three large shafts in the piers on the Strood side, preparatory to that portion of the structure being blown up. Two of the shafts will be bored to a depth of about 30 feet, and the third to about sixteen feet. The shafts are dug of sufficient diameter to permit the men passing up and down. As soon as the shafts have been excavated to the required depth, which will not be for some days, the Engineers will then drive a gallery connecting them, and in this gallery will be deposited the large charges of gunpowder required for blowing up the foundations. The charge will be ignited by means of the voltaic battery.

South Eastern Gazette, Tue 16 Dec 1856, p 6

The Fatal Accident at Old Rochester Bridge. --

On Monday evening an inquest was held at the Duke of Wellington tavern, Brompton, before T. Hills, Esq., on the body of Corporal John Banbridge, of the Royal Engineers, who met with his death whilst at work at old Rochester bridge, under the circumstances already detailed in this paper. Charles Cronk, a private in the Royal Engineers, said the deceased, who was corporal in the Royal Engineers, was at work with a party of men on old Rochester bridge. The deceased had charge of a party of three men, of which witness was one. The party were employed in sinking a shaft, and for that purpose had occasion to blast. As soon as the blast was in readiness the holes were charged, and the deceased stopped to ignite the fuse. After the light had been applied witness and the two men went down the ladder and under the arch to get out of the way of the stones blown up. The deceased retired down the ladder, but instead of following the other men, crossed over a single plank, which was laid from <>of the starlings to the other, and retired under the staging. The explosion having gone off witness ascended the ladder to return to the pier, and the deceased also attempted to return by crossing the plank, but just as he had got one foot on it he fell into the water. Witness was ascending the ladder when he heard the splash, and on looking round he saw the deceased swimming in the river. The deceased called out for a rope, "but," said witness, "I had none to throw him, as there was not one there." The tide was running down very hard at the time and the wind was blowing very strong. Deceased was carried down the river so rapidly that witness had not time to go on the opposite pier for a rope. The party working there had to cross that plank to go to the opposite pier. There was a boat lying near the new bridge, but no men in it. They had no boat attached to their party, therefore they were not able to render the deceased any assistance. Deceased sank about 50 yards from the place where he fell in. He had his big cloak on, which impeded his efforts in the water. A man got over the new bridge and put off in a boat to rescue deceased but was half a second too late, as deceased sank when the boat was within a length of him. Witness had no doubt that if they had had a boat attached to the party they could have saved him. Deceased was a very good swimmer, and when in the water made an attempt to take off his cloak. The plank over which they had to cross was a 14in. one, spiked at both ends, and about eleven feet between the bearings; it was under water at high tide. There was no

means of crossing that way but by the plank. -- The coroner remarked that it was lamentable to see the carelessness there too often was where human life was concerned, and especially in the case before them, where there certainly ought to have been some precautions observed. The jury having consulted together returned the following verdict: -- "That the deceased was drowned; and the jury cannot but regret that there was no boat or other appliance provided in case of accident, as, had there been, the life of the deceased might have been saved." The deceased bore an excellent character and was very much respected in the corps.

Times, Wed 17 Dec 1856, p 7

The troops belonging to the Royal Engineers who are engaged, under the command of Captain H. Schaw, in making the necessary excavations for blowing up the piers and foundation of old Rochester-bridge have succeeded in sinking three shafts, which are carried down to some distance below the old foundation of the structure to be destroyed. Two of these shafts have been excavated to the depth of nearly 30 feet, but, owing to the interruptions experienced by the engineers from the breaking in of the water they could not be carried any lower. The other shaft has not been carried to so great a depth. The engineers are now engaged in driving a gallery at the base of the excavations, and in this gallery will be deposited the gunpowder used for destroying the works. Some idea of the character of the foundations it is intended to demolish may be formed from the fact that for one of the charges 5 cwt. of gunpowder will be required. The destruction of the first portion of the works will take place in the course of next week. The shafts have a diameter of 4½ feet.

Times, Tue 13 Jan 1857, p 10

The troops belonging to the corps of Royal Engineers who have been for some time past engaged, under the direction of Captain H. Schaw, R.E., in making the necessary preparations for the destruction of old Rochester-bridge, have completed the excavation of a shaft on one of the piers of the bridge from which the arches have been removed by manual labour. At the base of the shaft two galleries have been driven, in which to deposit the gunpowder used in destroying that part of the works. The progress made by the troops has been such that it is intended to blow up that portion of the

bridge this afternoon, when six charges of gunpowder will be deposited in the galleries and dired simultaneously by means of the voltaic battery. Each of the charges will be of about 50lb. weight. The explosion will take place at the time of high water, and will be under the general superintendence of Colonel H. Sandham, director of the Royal Engineers' establishment. General Sir John Burgoyne, G.C.B., Inspector-General of Fortifications, will be present to witness the undertaking. The destruction of a much larger portion of the bridge will take place by the Royal Engineers on Thursday next.

Times, Wed 14 Jan 1857, p 5

DESTRUCTION OF OLD ROCHESTER-BRIDGE.

ROCHESTER, Jan. 13.

The destruction of the first portion of old Rochester-bridge by the Royal Engineers was successfully accomplished this afternoon, under the general direction of Colonel H. Sandham, Director of the Royal Engineers' establishment at Brompton Barracks, Chatham, in the presence of Lieutenant-General Sir Charles W. Pasley, K.C.B., Major-General Sir Harry D. Jones, K.C.B., and a large number of Engineer officers belonging to that garrison, as well as several scientific gentlemen, who were anxious to witness the destruction by gunpowder of such immense works.

As soon as the demolition of old Rochester-bridge -- which has stood upwards of four centuries -- was decided upon Colonel Sandham made application to the proper authorities that the Royal Sappers and Miners and the East India Company's Engineers might be employed in its destruction, as it was considered that the rare occurrence of removing such a huge mass of masonry was one admirably adapted for practising the officers and men of the Royal Engineers in destroying great works, especially as the troops belonging to that branch of the service had given such successful evidence of their skill in the demolition of the immense docks at Sebastopol. The authorities immediately granted the application, and on the 24th of November last a body of Sappers and Miners, under the command of Captain H. Schaw, Royal Engineers, who has ever since very ably superintended the undertaking, commenced making the necessary preparations for destroying the bridge. For this purpose the engineers commenced sinking three shafts on different piers, which were excavated to the respective

depths of 24 feet, 21 feet, and 15 feet, it being found impossible to sink them any deeper owing to the constant breaking in of the water. Each shaft had a mean diameter of 4 feet. As soon as the shafts had been completed to the required depth the working parties commenced driving a series of galleries, leading in horizontal directions from each shaft, in which to deposit the gunpowder used in blowing up the structure. The portion of the old bridge destroyed to-day was one of the large piers, near the Strood side, from which the arches and superstructure had been previously removed by manual labour. This pier was 36 feet in length, 21 feet wide, and 13 feet in depth, and was calculated to contain considerably more than 12,000 cubic feet of masonry, weighing 800 tons. From the shaft which had been excavated in this pier sprang six galleries -- viz., two of 10 feet in length, from the extremity of each of which branched at right angles another gallery of 3 feet in length; there were also two other galleries diverging from the central shaft, each 4 feet 9 inches in length, the galleries being each 4 feet deep by 3 feet in breadth, to enable the Sappers and Miners to traverse them. The weight of gunpowder required to be used in destroying this pier was 300lb., consisting of four charges, each of 60lb., and two lesser charges, each of 30lb., one charge being placed in each gallery. The powder was contained in tin cases enclosed in wooden boxes. The Royal Engineers were engaged at the old bridge during the whole of last night in preparing the galleries, after which the powder was deposited in the places selected. The operation of "tamping" then commenced, which consisted of surrounding the charges with materials to render the explosion more effective, and stopping up the head of each of the galleries with wet clay. The wires for firing the charges were laid in wooden troughs, to prevent accidents, and, a communication having been effected with each gallery, the charges were exploded simultaneously by means of the voltaic battery, which was under the direction of Captain C. E. Cumberland, Royal Engineers. The wire used for conveying the galvanic spark was the same as used by the Sappers and Miners for blowing up the Royal George at Spithead.

The effects of the explosion were most satisfactory, and the destruction of that part of the old bridge most complete, the large blocks of stone of which it was composed being rent asunder and hurled into the river, the only sight visible to the spectators being a violent upheaving of the water and the disappearance of the large pier. Notwithstanding the immense number of spectators present, the operations passed off without the slightest accident.

There will be another explosion of a still larger portion of the bridge by the Royal Engineers on Thursday afternoon, on which occasion there will be four charges fired, two of 250lb. each, and two of 150lb. each. His Royal Highness the Duke of Cambridge is expected to be present on that occasion.

Colonel H. Sandham, commanding the Royal Engineers, has published a "memorandum" to the troops, in which he offers his best thanks to Mr. Wright, the engineer of the bridge works, for his ready concurrence in the whole of the proceedings, and also for the valuable assistance he has rendered the troops during the progress of the operations.

The whole of the troops belonging to the Royal Engineers and East India Company's service, as well as those of the Provisional Battalion at Chatham, were present to witness the operations.

Times, Thu 15 Jan 1857, p 6

Destruction of Rochester-bridge. -- The following memorandum has been issued by Colonel H. Sandham, in command of the Royal Engineers' establishment, Chatham, respecting the arrangements which are to be observed by the troops on the occasion of the destruction of another large portion of old Rochester-bridge, which will take place this afternoon by the Royal Engineers: -- "On Thursday, January 15, after the blasts in the keystones of the arch shall have been fired, the two charges in the pier, each of 250lb., will be exploded, and then, after a short interval of time, the two in the abutments, each of 150lb. Captain H. Schaw, Royal Engineers, who has conducted the whole of the mining operations, and Captain C. E. Cumberland, who has made the arrangements for firing by the voltaic battery, will fire each set on mines at the sound of the bugle 'to fire,' after the sound of 'the preparative' has been given as a warning. The wires will be led from the charges to the voltaic battery, which will be placed in the office of Mr. Wright, the engineer of the bridge." The troops of the Royal Engineers who are employed in the undertaking were engaged until a late hour last night in making the necessary arrangements, and depositing the great quantity of gunpowder required for the explosion, in the galleries which have been driven at the base of the shaft. The whole of the troops belonging to the Royal Engineers, and the regiments of infantry at Chatham, will be drawn up to witness the operations.

Times, Fri 16 Jan 1857, p 10

DESTRUCTION OF OLD ROCHESTER-BRIDGE BY THE ROYAL ENGINEERS.

ROCHESTER, Jan. 15.

The experiments which are being performed in this city by the corps of Royal Sappers and Miners for the destruction of old Rochester-bridge were continued this afternoon, on which occasion a still larger portion of the ancient structure than that destroyed on Tuesday last was blown to pieces by successive blasts of gunpowder, in the presence of General Sir Charles W. Pasley, K.C.B., General Sir Harry D. Jones, K.C.B., General T. Blanshard, C.B., General P. Yule, Royal Engineers, and a large number of officers.

Since Tuesday a careful inspection of the large pier destroyed on that day by the troops of the Royal Engineers has been made by Colonel H. Sandham, director of the Royal Engineers' establishment at Chatham, and a number of other Engineer officers, who have ascertained the results of the experiment to be very satisfactory, and the object for which they were undertaken fully realized, the large mass of masonry composing the pier, which was 45 feet long, 21 feet in depth, and 13 feet in width, having been shivered in pieces, and the huge blocks of stone loosened from their position, and rendered capable of being easily removed. This pier was built on piles, which were driven into the bed of the river, and so far as the state of the tide has permitted an examination to be made it is evident that the force of the gunpowder has had as great an effect in loosening the foundations as it has had upon the superstructure. The quantity of gunpowder used on Tuesday afternoon was 300lb. weight, divided into six charges, and some surprise was expressed by the scientific persons present that such a comparatively small quantity only should have been used in the destruction of such a large portion of the structure; but the object of the engineers was not so much the blowing up and scattering the materials of which the pier was composed as it was to shake the fabric to its foundation, and loosen the pier so that the materials might be readily detached without filling up the bed of the river -- a result which was most successfully accomplished.

The portion of the bridge destroyed by the troops this afternoon was very large, and consisted of the pier and abutment on which the large arch on the Strood side rested, and was calculated to contain several thousand tons of masonry. The weight of powder used in the explosions

was nearly 1,000lb., and was divided into the same number of charges as in the previous experiments. Since November last the Sappers and Miners have been engaged in sinking two shafts in this portion of the bridge, which were excavated to the respective depths of 24 and 21 feet; one shaft having been sunk in the pier, and the other in the abutment, this portion of the undertaking having been conducted from the commencement by Captain H. Schaw, Royal Engineers. At the base of each shaft sprang two galleries, each 9 feet in length, and in these were deposited the charges of gunpowder used in the destruction of the works. The powder was contained in tin waterproof cases, which were enclosed in wooden boxes, 500lb. weight being required for blowing up the pier and arch, and 300lb. weight in destroying the abutment. <>They keystones of the arch were removed by means of smaller blasts. The Royal Engineer troops were engaged last night and this morning, under the command of Captain Schaw, in making the requisite preparations for the explosions, and at an early hour this morning the four charges of gunpowder were deposited in the galleries, when the operation of "tamping" was proceeded with, and the whole of the approaches to the galleries carefully stopped up. The voltaic battery was worked as before by Captain E. C. Cumberland, Royal Engineers.

In order to prevent accidents Colonel Sandham issued the following notice: --

"On Thursday, the 15th inst., after the blasts in the keystones of the arch shall have been fired, the two charges in the pier, each of 250lb., will be exploded, and then, after a short interval of time, the two in the abutments, each of 150lb. Captain H. Schaw, Royal Engineers, who has conducted the whole of the mining operations, and Captain C. E. Cumberland, who has made the arrangements for firing by the voltaic battery, will fire each set of mines at the sound of the bugle 'to fire,' after the sound of 'the preparative' has been given as a warning. The wires will be led from the charges to the voltaic battery, which will be placed in the office of Mr. Wright, the engineer of the bridge."

As soon as the arrangements had been completed Colonel Sandham ordered the bugle to be sounded, as a warning to those present to remove from the places of danger, and immediately afterwards the bugler sounded "to fire." The charges in the arch were first exploded, followed by those in the pier. The effect was very striking, the ground for some distance reverberating as if from the effects of an earthquake, while the pier crumbled in pieces and disappeared. The large arch of the bridge was blown into the

river, and the abutment on the Strood side entirely removed, the sight of the massive stonework of the arch being blown high into the air being very grand. Nearly one-half of the bridge has now been destroyed, and the remaining portion will be demolished as speedily as possible.

The whole undertaking was considered perfectly satisfactory by Colonel Sandham and the general and other officers present, and reflected much credit on Captains Schaw and Cumberland, under whose arrangements the explosions took place.

Notwithstanding a very heavy rain an immense number of persons were present to witness the operations, and the troops of the Royal Engineers and the provisional battalion were drawn up on the bank of the river and on the new iron bridge.

The whole of the operations of this day and Tuesday passed off without the slightest accident.

South Eastern Gazette, Tue 20 Jan 1857, p 5

DESTRUCTION OF OLD ROCHESTER BRIDGE BY THE ROYAL ENGINEERS.

The troops belonging to the Royal Sappers and Miners and the East India Company's Engineers, who have been for some time past engaged, under the direction of Captain H. Schaw, R.E., in making the necessary excavations for the demolition of old Rochester bridge, performed their first series of experiments on Tuesday and Thursday last, on which occasions nearly one half of that ancient structure was destroyed. It will be remembered that on the opening of the present handsome bridge, the wardens announced their intention of accepting tenders for the removal of the old bridge, but owing to the magnitude and uncertain nature of the undertaking, we believe that no tenders were forwarded to the bridge wardens. After waiting a short time, Messrs. Foord and Son, the extensive builders, were employed by the wardens to commence removing the bridge, and operations were accordingly commenced on the Strood side. Colonel H. Sandham, the director of the Royal Engineers' establishment at Brompton barracks, Chatham, being anxious for the troops under his command to be employed on the rare occasion of the destruction of such an immense structure, with the view of practicing the young officers and Royal Engineers, addressed an application to the proper authorities, and this was most readily granted. The Royal Engineers then commenced making the necessary preparations for destroying the piers of the bridge by means of gunpowder, and on the 24th November last a number of

Sappers and Miners, were sent down under the command of Captain H. Schaw, R.E., who has since most ably conducted the engineering operations. The first proceeding of the Sappers and Miners was to sink a large shaft in the isolated pier on the Strood side of the bridge, from which the arches and superstructure had been previously removed by Messrs. Foord and Son. Two other shafts were also dug on the opposite pier and abutment on the Strood side, the shafts being sunk to the respective depths of 24, 21, and 13ft., the constant breaking in of the water preventing them being sunk lower. Each shaft was nearly five feet in diameter. At the base of each was a series of galleries diverging from the shaft in various directions. The central pier had six of these galleries driven, two of them being each 10 feet in length, from the extremity of each of which branched at right angles another gallery of 3ft. in length; there were also two lesser galleries each 4ft. 9in. in length. On the remaining pier and abutment there were two galleries to each shaft, each being 9ft. in length. As soon as the galleries were completed the charges of gunpowder were deposited in them.

The portion of the bridge destroyed on Tuesday last was one pier, which was calculated to contain upwards of 12,000 cubic feet of masonry, and weighing nearly 1,000 tons. To remove this immense mass six charges of gunpowder were used, of the gross weight of 300lbs., viz., four of 60lbs. each; and two of 30lbs. each, one charge being placed in each gallery. The powder was secured in waterproof tin cases, inclosed in wooden boxes, a connection being made with the wires leading from the voltaic battery. After the powder had been deposited in the galleries the operation of "tamping" was performed by the Engineers, which consisted of stopping up the entrance to the galleries by means of wet clay. It was considered advisable for the siege operations to take place at the time of high water, which happened at about three o'clock on Tuesday. A very large number of persons were present at the appointed hour to witness the experiments, among whom were several officers of distinction, including Lieutenant General Sir C. W. Pasley, K.C.B., Major-General Sir Harry D. Jones, K.C.B., Governor of Sandhurst College, Colonel J. W. Gordon, C.B., aide-de-camp to the Queen and Deputy-Adjutant-General, besides a number of scientific gentlemen from London and other places, anxious to witness the operations.

As soon as every thing had been prepared the bugler sounded a warning, and immediately afterwards the order "to fire." The voltaic battery was then charged by Captain C. E. Cumberland, R.E., and in an instant the pier was blown to pieces, the effect of the explosion being most

complete. It was stated that the wire used for conveying the electric spark was the same as that used in raising the Royal George by the Sappers and Miners. An inspection of the remains of the pier destroyed was subsequently made by Colonel Sandham and other Engineer officers when it was ascertained that the huge mass had been shivered in pieces, and the blocks of stones so loosened that <>they could be removed with ease.

The siege operations were continued on Thursday afternoon by the officers and men of the Royal Engineers on a still larger scale, as the portion of the old bridge was nearly three times the size of that blown up on Tuesday. Notwithstanding a heavy rain, an immense concourse of persons crowded the new bridge and the banks of the river to witness the operations. The corps of Royal Engineers, accompanied by their band, and also the troops belonging to the Provisional Battalion, were present on both days. Among the distinguished officers who were present on Thursday were General Sir C. W. Pasley, General Sir H. D. Jones, General T. Blanchard, C.B. and General P. Yull, together with many other officers belonging to the Royal Artillery at other stations, and nearly the whole of the officers now at Chatham garrison. The first of the operations on Thursday -- the whole of which were performed during heavy rain -- consisted of blowing in the crown of the last pier on the Strood side, after which the two charges of gunpowder, each of 250lbs., deposited in the galleries of the shaft, were fired. The effect was particularly grand, the arch being lifted bodily up, after which it turned over and disappeared in the water, whilst the ground for some distance rumbled like the shock of a distant earthquake. The abutment was afterwards destroyed by means of two charges of powder, each of 150lbs., the total weight of gunpowder used on Thursday being nearly 1000lbs. The whole of the operations were most satisfactorily performed and passed off without the slightest accident. Nearly one-half of the old bridge has been destroyed, and we believe it is the intention of the Royal Engineers to demolish the remaining portion.

Times, Fri 23 Jan 1857, p 9

On the application of Colonel H. Sandham, commanding the Royal Engineers' establishment at Chatham, the authorities have accorded permission for the troops belonging to the Royal Engineers to continue their operations in destroying old Rochester-bridge.

South Eastern Gazette, Tue 28 Apr 1857, p 5

Old Rochester Bridge. -- We understand that the authorities at the War Office have determined on allowing the troops of the Royal Engineers to be employed in the removal of old Rochester bridge, and the men belonging to that corps will at once proceed with its demolition.

South Eastern Gazette, Tue 12 May 1857, p 5

Old Rochester Bridge. -- The bridgewardens, at their last meeting, having decided on proceeding with the removal of old Rochester bridge, Messrs. Foord's workmen have been busily engaged during the past week in removing the superstructure of the remaining arches. The whole of the balustrades have been removed, and are deposited in a convenient spot, in readiness to be used in the construction of the promised explanade. As soon as the entire superstructure has been removed, the Sappers and Miners will commence making the necessary excavations and driving the galleries in order to blow up the remaining arches. The antiquarians of the neighbourhood are in eager expectation of making a number of interesting discoveries as soon as the foundations of the old bridge are reached.

South Eastern Gazette, Tue 14 Jul 1857, p 5

Removal of Old Rochester Bridge. -- The demolition and removal of old Rochester bridge is being carried on as fast as circumstances will permit, by Messrs. Foord and Sons, and nearly the whole of the superstructure is now removed, the arches alone remaining standing. These will be immediately destroyed by the troops of the Royal Engineers, who will continue their operations until the whole of that ancient structure is entirely removed. Yesterday a number of men belonging to the Royal Sappers and Miners commenced preparations for sinking shafts and driving the galleries in order to blow up the remaining arches.

Times, Sat 18 Jul 1857, p 5

The Deputy Adjutant-General, Colonel J. W. Gordon, C.B., R.E., Aide-de-Camp to the Queen, accompanied by Colonel F. E. Chapman, C.B., arrived at the head-quarters

of the Royal Engineers' establishment, Chatham, on Thursday afternoon, for the purpose of inspecting the troops at Brompton Barracks. The whole of the officers of the staff then proceeded with the Deputy Adjutant-General to Old Rochester-bridge, where the Sappers and Miners were engaged in some siege operations for the destruction of that structure. Two heavy charges of gunpowder were exploded by means of the voltaic battery, which destroyed the crown of two of the arches of the bridge. The experiments were under the direction of Major F. C. Hassard, Royal Engineers.

Times, Mon 24 Aug 1857

The troops belonging to the Royal Engineers at Chatham were on Saturday engaged in a series of operations at Old Rochester-bridge, for the purpose of destroying that ancient structure. On Wednesday another large portion of the old bridge will be destroyed by the Sappers and Miners.

South Eastern Gazette, Tue 25 Aug 1857, p 5

Explosions at Old Rochester Bridge. -- On Saturday the troops of Royal Engineers, under the direction of Captain W. H. Noble, were engaged in the destruction of a large portion of old Rochester bridge. The portion of the structure destroyed on that occasion were the approaches and the second arch on the city side, the first arch having been blown in on previous occasions. In order to facilitate the operations, excavations had been made in the approaches, in which were deposited three charges of gunpowder, each weighing 42lbs. This great weight of gunpowder was fired by means of Groves's voltaic battery, worked by Captain H. Y. D. Scott, R.E. The effects of the explosions were most satisfactory; the large abutment, containing many thousand cubic feet of earth, being so shattered and separated that it could be easily separated by the spade, while the large blocks of stone were separated and blown into the river. In the afternoon two other explosions took place, in the presence of Colonel H. Sandham and a large number of officers of the Royal Engineers, when it was intended to blow up the two <>pieces which supported the second arch. By the first explosion the outer portions of the arch were removed. Owing to the force of the charges it seemed miraculous that no accident occurred, although there must have been several thousand persons collected together to witness the experiments. One large stone,

weighing, it was computed, quite 1-½cwt., was hurled a great height into the air, and descended in the yard adjoining the City Arms public-house, where it was imbedded nearly two feet in the ground. There were hundreds of persons wedged together in a mass within a few feet of the spot where the stone fell, which was just inside the gateway leading from the pavement. As the stone was seen descending close to the crowd, an exclamation of terror arose. It is intended to preserve the stone in the exact position in which it fell, as a memento of the destruction of old Rochester bridge. The experiments on Saturday afternoon were not considered so successful as was anticipated, the arch defying the large charges of gunpowder used to demolish it, the piers only being shaken. During the second experiment a large number of stones of considerable size fell in the yard of the Crown Hotel. We understand some further explosions will take place at the bridge to-morrow (Wednesday.)

South Eastern Gazette, Tue 1 Sep 1857, p 6

Rochester Bridge. -- The troops belonging to the Royal Sappers and Miners succeeded in blowing up and destroying another large portion of Rochester-bridge on Wednesday afternoon, under the direction of Colonel H. Sandham, director of the Royal Engineers' establishment. On this occasion the two large piers and arches, which defied the heavy charges of gunpowder used on the former occasion of the attempt made to remove them, were successfully destroyed, the quantity of gunpowder used being nearly doubled. In order to insure the charges taking effect on the mass to be removed, eighteen chambers had been excavated by the Royal Engineers, under the direction of Captain W. H. Noble, to whom the arrangements for destroying the old bridge had been confided, and in these were deposited the charges of gunpowder, which varied in weight according to the force required to be exerted on the mass. On the signals being given the whole of the charges were fired simultaneously by means of Groves's voltaic battery, worked by Captain H. Y. D. Scott, R.E., the effects of the explosions, being so complete that no portions of the piers or arches acted upon by the gunpowder remain standing. Another portion of the bridge on the Strood side was also successfully blown up yesterday morning. Notwithstanding the large number of spectators present the operations passed off without any accident.

South Eastern Gazette, Tue 22 Sep 1857, p 6

Explosions at Old Rochester Bridge. -- Nearly the whole of the remaining portion of old Rochester bridge, with the exception of the large centre arch and one on each side, will be blown to pieces by the troops of the Sappers and Miners this (Tuesday) afternoon. The structure is of great strength and solidity, and in the course of the excavations which have been made by the Sappers and Miners, great difficulties have been encountered in sinking the shafts in which to deposit the gunpowder, the masonry being considerably harder than the solid rock; in fact, to use the expression of one of the Engineer officers, "the bridge appeared to have been built for all time." About 1,000lbs. of gunpowder will be used in blowing up that portion of the bridge to be destroyed to-day, and in order to prevent accidents the public are cautioned not to take up their positions too near the bridge, as on the last occasion of the explosions a large stone, weighing about 2cwt., fell within a few feet of the spot where a number of persons were standing. It is expected that H.R.H. the Commander-in-Chief will be present to witness the explosions, as his royal highness has signified his intention of paying a visit to Chatham garrison this day, for the purpose of inspecting the troops and examining, in conjunction with General Sir J. F. Burgoyne, G.C.B., Inspector-General of Fortifications, the field-works now in course of construction by the Royal Engineers. The time fixed for the explosions at the old bridge this afternoon is half-past two.

Times, Wed 23 Sep 1857, p 10

OLD ROCHESTER BRIDGE.

ROCHESTER, Tuesday.

A series of grand explosions took place this afternoon at the old Rochester-bridge, for the purpose of demolishing the remaining portions of that huge structure, the handsome bridge which now spans the Medway having been for some time open to the public. The idea of employing the troops of the Royal Engineers in the removal of the old bridge originated with Colonel H. Sandham, the director of the Royal Engineers' establishment at Chatham, who considered it would be unwise to allow such a rare opportunity to pass for the men of the Royal Sappers and Miners to take part in the destruction of the works, especially as the Royal Engineers had been so successful in the siege operations for destroying the

great docks at Sebastopol. On the proposal being made to the authorities permission was at once accorded, and for nearly 12 months past the Royal Engineers have been engaged, with scarcely any intermission, in sapping and destroying various portions of the ancient structure, the works being carried on under the superintendence of Captain W. H. Noble, R.E., an officer of great intelligence and experience.

The old bridge, which has been built nearly five centuries, originally consisted of 10 large arches, resting on nine piers and two abutments; the Royal Engineers have already succeeded in destroying five arches, three piers, and the abutments; but, owing to the immense strength and solidity of the structure, the operations have necessarily been carried on but slowly. Six piers, five arches, and nine "starlings" remained to be destroyed, and nearly the whole of these were successfully blown to pieces this afternoon in the presence of the Earl of Romney, the wardens and assistants of Rochester-bridge, Lieutenant-General Sir Charles W. Pasley, K.C.B., besides a large number of officers of the Royal Engineers and the Royal Artillery, the whole of the operations being under the superintendence of Colonel H. Sandham, assisted by Major F. C. Hassard, Royal Engineers.

The operations commenced this afternoon by the destruction of the lower portion of No. 4 arch from the Rochester side, which was thrown down by means of two charges of gunpowder lodged in one of the voussoirs of each haunch of the arch, and two charges lodged in the voussoirs next the keystone. A charge of 30lb. of gunpowder placed under the soffit of the keystone of the upper added portions of the arch was next exploded, the effect of which was to throw down the whole of that portion of the arch acted upon. The troops next proceeded to destroy the third arch in a similar manner. Nine charges of 4lb. each were placed in the voussoirs of the haunch, and also nine of 1lb. each in the voussoirs next the keystone of the old portion of the arch before the bridge was widened. These charges were fired simultaneously by means of the voltaic battery, the result being that the arches were destroyed, and the masonry of which they were composed entirely detached. The finest explosions of the day, however, were reserved for the latter part of the operations, when three of the massive piers were blown down by means of several charges of gunpowder, weighing in the aggregate about 1,000lb. In order to facilitate the operation, the Sappers and Miners had previously excavated a shaft in each of the piers to be destroyed, which was sunk to a depth of about 30 feet. Each of the shafts was about four feet square, and at the

base projected a number of galleries, in which were deposited the large quantity of gunpowder required for the explosions. In the third pier, which was the first blown up, 400lb. weight of gunpowder was laid in two charges, each containing 200lb. The galleries were then firmly closed by means of "tamping." The second pier had likewise 400lb. of gunpowder placed in the galleries, also in two charges, and the first pier 266lb. At the sound of the bugle the charges in the third pier were ignited by means of the voltaic battery, worked by Captain H. Y. D. Scott, Royal Engineers. The effects of the explosions were most complete, the large mass of earth and masonry, containing, it was computed, about 20,000 cubic feet, being lifted up from its foundation and scattered into fragments, retaining not a vestige of its original form. The second pier, after a short delay in fixing the wires, was destroyed in the same manner, the shock of the explosions being felt at considerable distance, the ground being sensibly shaken as if from the effects of a distant earthquake; the river, also, being considerably agitated. The first pier, which contained as large a mass of stones and earth as the other two, was the last destroyed, several of the huge stones of which it was composed being hurled to some distance.

The whole of the operations were highly successful, and, notwithstanding the immense number of spectators present, not a single accident occurred.

During the operations a body of the Royal Engineers, not engaged in the explosions, were employed in forming a bridge of rafts with General Blanchard's pontoons across the Medway, some distance above the old bridge. The river at that spot is very wide, which prevented the bridge being extended from shore to shore. It was, however, carried out a considerable distance into the river, and when completed the whole of the troops, together with a large body of spectators, took up their position upon it for the purpose of witnessing the operations at the old bridge.

The Royal Sappers and Miners will continue their operations at the bridge until the whole of that structure is entirely removed.

Morning Chronicle, Wed 23 Sep 1857, p 5

GREAT EXPLOSION OF ROCHESTER OLD
BRIDGE BY THE ROYAL ENGINEERS.

[FROM OUR OWN REPORTER.]

ROCHESTER, Tuesday Evening.

For some days considerable excitement has prevailed in

this neighbourhood since the announcement that the grand explosion of the Old Bridge, which has been put off several times, would take place this afternoon at high spring tide. The bridge thus doomed to destruction is of great antiquity, having been built about the year 1350, and of amazing solidity, justifying the remark of a perspiring Sapper the other day, that it seemed "built to last through all eternity." It is a few yards from the new bridge, which it is quite certain will not last as long as its predecessor. The corps of Royal Engineers have had entrusted to them the work, a very arduous work, of demolishing this venerable structure. They have found enormous difficulties in the way of sinking the shafts to deposit the gunpowder, the masonry being harder than the solid rock.

The Duke of Cambridge was expected to-day, to witness the explosion, but was unable to be present. The Mayor had a day or <>ago issued a notice, cautioning the public not to stand on the Rochester end of the new bridge -- a warning not ill-timed, for on the last occasion a fortnight or three weeks ago, a stone weighing 2 cwt., was thrown up into the air, and came down within a yard or two of a crowd of people, ultimately dropping in the yard of a low public-house, at the Rochester end of the new bridge, where it sank several inches in the ground. The only casualty which occurred to-day was a smash of several panes of glass in the windows of a gentleman's residence at the foot of the bridge. Several scientific gentlemen were present, on this occasion to witness the operations, including General Sir Charles Pasley, K.C.B., F.R.S. Amongst the general company were the Earl of Romney, and party; Mr. William Masters Smith (late M.P. for West Kent), and party, &c.

The explosions were by the voltaic battery, under the management of Captain Scott, R.E.; the end of the wire being placed in the bridge-chamber. The mining operations were directed by Captain Noble, R.E. The whole of the works at the bridge are controlled by Colonel Sandham, R.E. The weather being beautiful, the sight was a very brilliant one. Both banks of the Medway were lined with spectators, among whom the military uniforms presented a lively variety. The heights of the venerable old castle, which frowned in its lofty security over the destruction of its younger neighbour, were crowded with soldiers, and the more adventurous and juvenile portion of the public. Several hundred of the Royal Engineer corps were stationed on a cleverly constructed pontoon bridge, which spanned at least one-third of the river.

About a quarter to three the first sound of the bugles was heard, and the lower portion of the fourth arch from the Rochester end was thrown down by two charges of 4 lbs., each lodged in one of the voussoirs of each haunch, and two charges of 1 lb. each lodged in the voussoirs next the keystone. Two charges of 30 lbs. each were then exploded under the soffit of the keystone, after which the added portions of the third arch came to similar grief. The "smash in" of the third arch followed, caused by 9 charges of 4 lbs. each in the voussoirs of the haunch, and 9 charges of 1 lb. each in the voussoirs next the keystone of the old portion of the third arch, which were fired simultaneously. The grand explosions were then effected. Two charges of 200 lbs. each, placed in the third pier from the Rochester end, were exploded, and destroyed in the neatest and completest manner the third pier and the fourth arch, which were heaved up as if by invisible agency, for there was no noise of an explosion, and crumbled into pieces. Two other charges of 200 lbs. each destroyed immediately afterwards the second pier, and the first pier went the way of all the others next, but it only took 266 lbs. to do his business. This terminated the proceedings, which appeared to give as great satisfaction in a scientific point of view as it did to the uninitiated portion of the community, who were born, perhaps, like Lord Derby, in the "prescientific era."

South Eastern Gazette, Tue 29 Sep 1857, p 6

GRAND EXPLOSIONS AT THE ROCHESTER OLD BRIDGE.

The troops of the Royal Engineers were on Tuesday afternoon engaged for nearly three hours in a series of explosions, at old Rochester Bridge, for the purpose of destroying nearly the whole of the remaining portion of that massive structure, with the exception of the large central arch and one of the smaller arches on each side. Our readers are probably aware that the old bridge, which has for about five centuries spanned the Medway, is of amazing strength and solidity, and there is little doubt that had the piles of the foundation remained perfect, the bridge might have stood for several centuries longer. The requirements of a modern age, however, necessitated its removal, a far more commodious and handsome structure of iron having been erected to supply its place, the navigation of the Medway being at the same time rendered less dangerous. As soon as it was announced that the old bridge was to be destroyed, Colonel H. Sandham, the director of the Royal

Engineers establishment at Brompton barracks, applied to the proper authorities for permission to employ the Sappers and Miners, under his command, in sapping and blowing up the ancient structure, urging that such an excellent opportunity which presented itself for the instruction of the young officers and men in sapping and mining operations, and in the destruction of a work of such magnitude, ought not to be disregarded. The proposal of Colonel Sandham having been acquiesced in, the troops, a large number of whom were employed in the destruction of the great dock of Sebastopol, have been engaged in sapping and mining operations at the old bridge for several months past. Portions of the bridge have been blown up from time to time, but by far the largest and most successful undertaking of the kind took place on Tuesday, on which occasion it was computed that as many as from 15,000 to 20,000 persons were present to witness the imposing spectacle; the new bridge, the old Castle walls, the banks of the river, the baths, and, indeed, every inch of vantage ground being crowded with spectators; a large number of ladies and gentlemen also took up their positions inside the Castle, from which an excellent view of the explosions were obtained. The Earl of Darnley, Lieutenant-General Sir Charles Pasley, K.C.B., Colonel Eden, commandant of the garrison, and a considerable number of officers of the Royal Engineers from Chatham, Woolwich, and other places were present.

Shortly before the hour for the commencement of the operations, a large body of troops of the Royal Engineers rowed up the river from Chatham, on rafts, formed with General Blanchard's pontoons. On arriving near the land-wall, a pontoon bridge was formed with amazing rapidity, and the whole of the troops of the Royal Engineers, not engaged in the operations, were marched to the bridge, where they took up their positions for the purpose of witnessing the explosions.

The operations commenced at half-past 2 o'clock by the destruction of the lower portion of the fourth arch from the Rochester side, two charges of powder of 4lbs. each having been lodged in one of the voussoirs of each haunch of the arch, and two of 1lb. each in the voussoirs next the keystone, the charges being fired simultaneously by means of a powerful voltaic battery placed in the bridge-chamber, and worked by a body of Sappers under the direction of Captain H. Y. D. Scott, R. E. In order to prevent accidents and to lessen the force of the missiles hurled from the bridge, a number of fascines were laid on the crown of each of the arches; notices were also issued, warning the public against approaching too near the old bridge, a caution

rendered necessary when it is recollected that a stone, weighing nearly 2cwt., was on the occasion of the last explosions hurled a frightful distance, falling close to several hundred spectators, happily without causing any injury. After the explosion of the first charges of 30lbs. of gunpowder, placed under the soffit of the keystone of the upper added portion of the fourth arch, was fired, the result being that the whole of that portion of the massive arch acted upon was blown away. The charges in the third arch were next fired; these consisted of nine charges of 4lbs. each in the <>voussoirs of the haunch, and nine of 1lb. each in the voussoirs next the key-stone. Owing to the weight of gunpowder being greater than was used in the fourth arch, the effects on the third arch were more decisive, the whole of it being completely blown in, leaving nothing but the immense piers remaining.

Preparations were now made for the grandest explosions of the day, the three piers requiring upwards of 1,000lbs. to blow them to pieces, which will give some idea of their prodigious strength. In order to give the greatest effect to the charges used, a shaft has been excavated in each of the piers, carried to a depth of about 30 feet; at the base of each shaft ran a number of galleries, which had been driven by the Sappers, and Miners for the purpose of receiving the heavy charges of gunpowder. The third and fourth piers had each two charges, of 200lbs. each, and the first pier two charges of 130lbs. each. The gunpowder was placed in tin cases, wrapped in waterproof material, and having been deposited in the galleries, the operation of "tamping," that is, filling up the gallery and shaft with wet clay, was performed. The first pier that was destroyed was the third from the Rochester side, and contained, it was computed, about 12,000 cubic feet of masonry. At the sound of the bugle, the spark was flashed through the wires from the battery, when suddenly the huge mass was seen to rise bodily several feet into the air, and in a moment after toppled over a shapeless mass of ruins. After a short interval the second and first piers were destroyed in a similar and equally successful manner, the spectators cheering loudly at the grand spectacle.

The mining operations were conducted by Captain W. A. Noble, and were carried out under the direction of Colonel H. Sandham, and the whole of the operations passed off in a highly satisfactory manner. Although there were so many thousand spectators present, not a single accident was reported. The house of J. Nightingale, Esq., which directly faces the old bridge, had a narrow escape from the showers of stones and earth which fell near it, but the only mischief which occurred was the breakage of about

half-a-dozen panes of glass.

The only portions of the old bridge now left standing are the middle arch, and one on each side, which, we understand, are to be removed by means of scaffolding, in order that the navigation of the river may not be impeded by their being blown down.

South Eastern Gazette, Tue 22 Jun 1858, p 6

Explosions at Old Rochester Bridge. -- The troops belonging to the Royal Sappers and Miners were engaged on Thursday afternoon last in some further siege operations at old Rochester bridge, for the purpose of demolishing the remaining arches of that ancient massive structure which has spanned the Medway for upwards of four centuries. The last explosions at the bridge took place some months ago, since which Messrs. Foord, who are engaged in removing the bridge, have made considerable progress in taking away the earth and stone work of the piers, which had been loosened by the Royal Engineers. They have also succeeded in entirely removing the large centre arch, a work of great difficulty and requiring some skill, but which was successfully accomplished without a single casualty. The stones of that arch have been removed to Chatham dockyard, where the arch will be again erected, as an "invert" to some of the works now in progress at that establishment. The operations which were carried out on Thursday consisted in the destruction of the arch on each side of the central opening. As on former occasions the whole of the works in connection with the explosions were intrusted to Captain W. H. Noble, R.E., an officer of considerable engineering ability, the entire management of the day's proceedings devolving on Colonel H. Sandham, director of the Royal Engineer establishment at Chatham. In order to give effect to the charges of powder used in the explosion, a number of holes, or "chambers," were excavated by the Sappers and Miners in the solid masonry of the arches. It was originally intended to sink a shaft and drive galleries in the piers, but after the shaft had been commenced it was found that the shortness of the time would not permit of the Engineers carrying out the original plan, and the chambers were excavated instead. With a view to prevent the stones and missiles hurled from the bridge falling among the spectators, a large number of fascines, similar to those used by the Royal Sappers and Miners in their ordinary siege operations, were laid on the crown of the arches, and on the other parts of the bridge to be blown away, and the result showed that this was a

wise precaution. The explosions were arranged to take place at 3 o'clock in the afternoon, and at that hour the banks of the river and the balustrades of the new bridge were lined with spectators; the whole of the men of the Royal and East India Company's Engineers, not engaged in the siege operations, were also drawn up to witness the explosions. Shortly before 4 o'clock the first of the explosions took place, by the destruction of the outer added portion of the arch on the Strood side of the bridge. The charges of gunpowder were fired by means of the voltaic battery, worked by a party of Sappers and Miners who were stationed on the scaffolding beneath the centre opening of the bridge. The platinum wire conveying the voltaic current weighed only a grain and two-thirds to the yard! After the outer portion of the arch had been destroyed the other added portion was blown up by similar charges. After this portion of the arch had been blown away, a singular accident occurred, which fortunately was unattended with any serious consequences. The charges in one of the "chambers," it appears, did not go off with the other, and Captain Noble and the Royal Engineers were rushing forward to ascertain the effects of the discharges when the charge, by some means, exploded as the party were close to it. At first it was feared that some of the men were killed, as the stones flew about in all directions, but as soon as the smoke had cleared away it was ascertained that none of the party had been injured. The remaining arch on the Rochester side of the bridge was blown down in a similar manner, the total number of separate explosions being seven. The effect of the discharges at the moment of the explosion was very grand, masses of stone, weighing several tons, being lifted from the place where they had stood for centuries and tumbling into the river, while large stones, weighing, in some instances, a hundredweight each, were hurled at least a hundred feet into the air, causing in their descent considerable consternation among the spectators. Notwithstanding the number of spectators there was only one accident reported, the sufferer being a person named Allen, residing in Strood. He was standing in a very exposed situation on the new bridge, and although warned by the police that he was in the way of the missiles he remained standing there, when he was struck on the forehead by a piece of stone and severely cut. The blood flowed in considerable quantities, and he was at once removed to the surgery of Dr. Brown, when the wound was dressed, and he is now recovering. The house of J. Nightingale, Esq., which exactly faces the bridge, had several panes of glass broken. As may be supposed, there were several narrow escapes,

the most remarkable of which, perhaps, was that which occurred to a party of ladies and gentlemen who were standing on the gallery of the baths. A large stone, weighing at least half a hundredweight, was thrown into the air, and descended into the river close to the baths, the rails of which it struck, falling within a few inches of the spectators, several of whom were wetted to the skin. The two arches were entirely destroyed by the explosions, and the stone work so loosened that it can be easily removed. On Friday afternoon the Royal Engineers, under the direction of Captain Sable, were engaged in some further explosions, to complete the destruction of the arches. On this occasion some of the stones were projected a surprising distance, one of them, weighing about 80lbs., falling on the Common, while another descended at the back of the premises of Mr. Ringe, grocer, High-street. An amusing incident occurred during the explosions on Thursday, which caused a great deal of laughter. Just as the bugle had sounded to prepare to fire, a barge passed through one of the arches of the bridge, when the whole of the crew rushed down below and allowed the barge to drift as it pleased. The note to "fire," however, was not sounded till it was out of danger, when the men came up out of their place of safety, looking exceedingly uncomfortable. The only portions of the old bridge now standing are four of the piers, and these will be removed by the Royal Engineers as soon as the necessary shafts have been excavated.

Times, Th 22 Sep 1859, p 7

Since the 27th company of Royal Engineers returned to head-quarters, Chatham, from Woolwich, where the men were employed in completing the Armstrong gun factory, the whole of the officers and men have been put through a course of instruction in submarine operations and diving at Rochester-bridge, with the diving apparatus invented by Mr. Heinke, in order that they may be perfected in this portion of engineering instruction previously to embarking for the Mauritius to join the 22d company. The divers work at a depth of about 40 feet, and since they have been employed at Rochester-bridge have succeeded in removing a considerable portion of the foundation of the old bridge. In consequence of the hazardous nature of the work in which they are engaged each man receives a daily sum, as working pay, in addition to his regimental pay. The diving operations are all being carried out under the direction of Major J. W. Lovell, C.B. Notwithstanding the number of men who are daily employed under

water, not the slightest accident has happened to any of the divers, the apparatus invented by Mr. Heinke being so much under the control of the diver himself as almost entirely to prevent the possibility of an accident occurring.

Times, Fri 28 Sep 1860, p 10

A party of Royal Engineers have been engaged in engineering operations at Rochester, where they have been employed in blowing up the remaining portions of the foundation of old Rochester-bridge, and clearing away the piles and other obstructions from the bed of the river.