

The accident (38) which occurred in Hatton Garden on the 16th June was a curious one. The circumstances are set forth in some detail in Appendix W., but it may be stated briefly here that one or more of the lights, which were of an experimental character, having been supplied for trial between two and three years ago, and suspended during this period exposed to all weathers against the south wall of the house, took fire, evidently spontaneously, for the premises were closed at the time and no other discoverable source of ignition was to be found. An investigation of the circumstances showed that the signal had contained a charge of green fire mainly composed of chlorate of barium and shellac, and in contact with or embedded in this were some strands of ordinary quick-match (*i.e.*, cotton impregnated with gunpowder), and it is surmised that the ignition proceeded from the contact of the sulphur in the gunpowder with the chlorate in the green fire. The case bears a strong resemblance to the case of ignition of some green lances at Messrs. Pain's factory, in 1890, which was clearly shown to have been due to the contact of a composition containing chlorate of barium with one containing sulphur.* The case appears further to assist our conclusions as to the importance of forbidding the use of chlorate and sulphur in the same composition or in intimate contact, though it is to be feared that the terms of the Order in Council, No. 15, on this point would not reach a case like this.

Accident with experimental life-saving signals. (No. 38.)

Another accident (88), attended in this case with injury to four persons, has to be added to the list of those caused by socket signals,† though it must be admitted that in this instance little if any blame attaches to the article itself. It appears that a person discharged a socket sound signal from the top of a house in a street at Liverpool, using an old tin canister as a socket. The article (which in some accounts is spoken of as a "sound signal rocket") ascended only a short distance and fell into the street, where it exploded, injuring four children who were standing in the street at the time, and breaking some windows. Proceedings have been instituted against the persons who fired the signal but have not yet been concluded.‡

Accident from socket sound signal. (No. 88.)

Only one accident (66) with an unknown, doubtful, or unauthorised explosive came under our notice during the year, and that was a case at Barnsley, where the bottom and side of a grate were blown out by an explosive in the coal, due it is surmised (as has not infrequently happened before) to some unexploded portion of a charge used in coal-getting, and which had remained unnoticed in the coal.

Accident with unknown explosives. (No. 66.)

GOVERNMENT ACCIDENTS.

Some small accidents, scarcely to be dignified by the name of "explosions," have occurred at the Government Cordite Factory, Waltham Abbey, in the process of pressing cordite; and the following may serve as a type of this class of accident:—

Waltham Abbey.

A cylinder of a squirting press was being filled with paste in a hydraulic ramming machine, when a pretty loud explosion, "considerably louder than that of a rifle," took place. The man working the machine says he was either knocked down, or in starting back, fell down, most probably the latter. On examination, nothing was found wrong with the machine. The cylinder on being taken out appeared to be full of paste, about 1 lb. On removing the latter, a small space was found over the wire gauze, and under the column of paste, and from the smell it was evident that the explosion had occurred there. The paste was carefully examined, but no trace of anything likely to do harm could be found.

Although an accident of this character might, if developed, have produced serious results, the circumstances in this case, as in other similar cases which have occurred, appear, if anything, rather to testify to the safety, or rather perhaps non-sensitiveness, of cordite, so far as communicated explosive effects are concerned; for in the case above noticed, there was, as has been explained, a small quantity of the paste exploded, while the remainder, though under considerable pressure, was unexploded. The quantity exploded was, no doubt, very small, for the plunger had not been forced back against the slight water pressure (not exceeding 150 lbs. per square inch), nor was the paste ejected from the cylinder.

It has not been possible to assign a definite cause for these small explosions; they may have been due to a small hard knot in the dry guncotton, which had escaped

* Annual Report for 1890, p. 35; Special Report No. XCIV.

† See Annual Report for 1893, page 43.

‡ Whilst this Report has been in the press the case has been decided, and a penalty of 2*l.* and 4*s.* 6*d.* costs inflicted.

gelatinisation by the acetone, becoming fired by friction; or they may have been due to the presence of some foreign substance producing explosion by physical, or even, perhaps, by chemical causes.

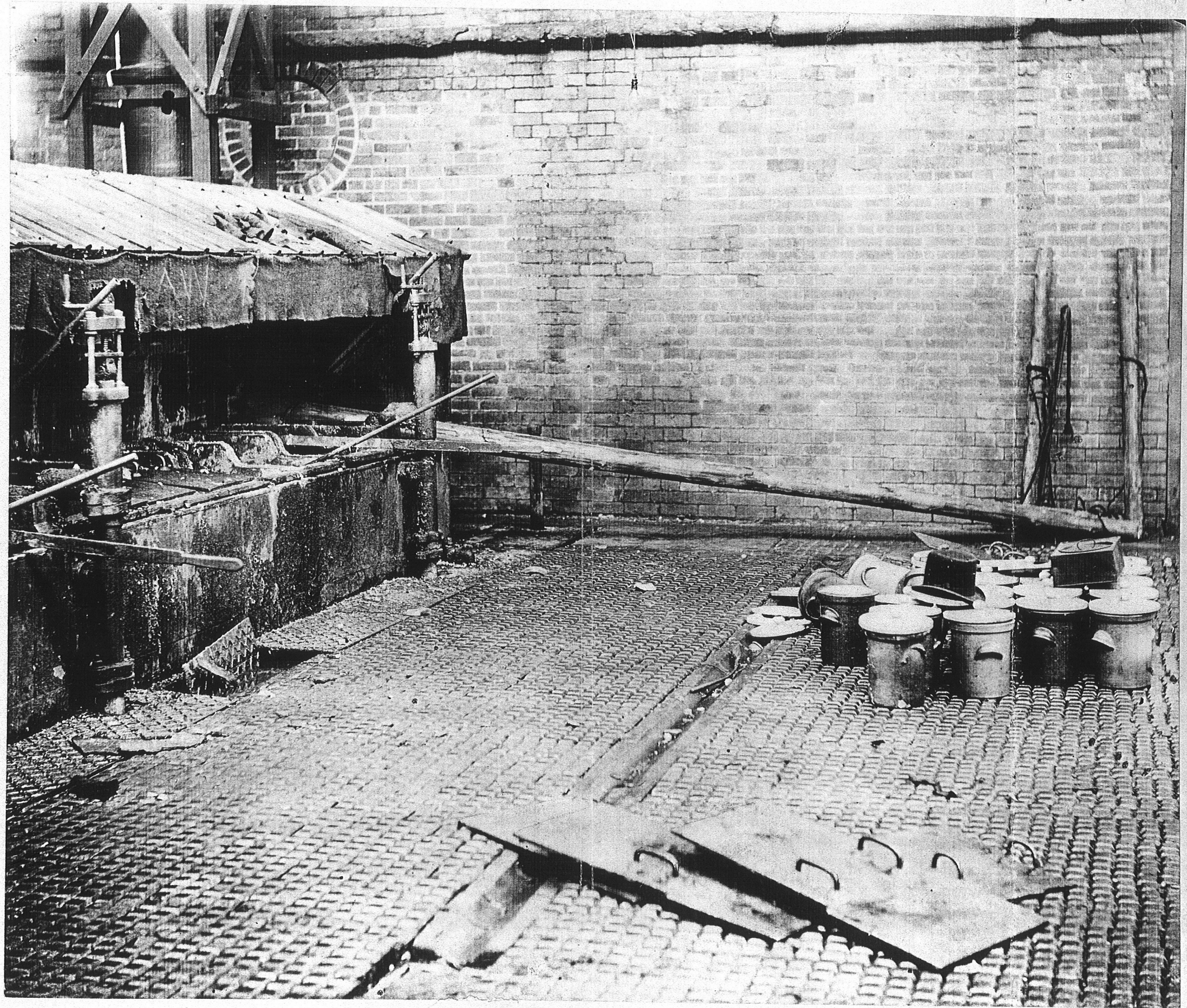
Explosion at
Royal gun-
cotton
Factory,
Waltham
Abbey.

An explosion occurred in the Guncotton Factory, Waltham Abbey, on 1st March, which resulted in the injury, more or less severe, of three persons.

Mr. Findlay, master worker to the gunpowder factory, was carrying out an experiment to determine whether the degree of nitration of guncotton can be raised by re-dipping the finished material in strong acid.

For this purpose he placed 1 lb. of dry guncotton in a stoneware pot, and poured in 13½ lbs. of mixed acids. He then commenced to stir with an iron spatula. The guncotton exploded somewhat violently and severely injured Mr. Findlay, while two men who were assisting were slightly hurt.

Dr. Dupré, who investigated the case for the War Department, came to the conclusion, that some portion of the guncotton escaped immersion in the acids, and became sufficiently heated to explode. He considers that under any circumstances re-dipping guncotton in fresh acids is a more or less dangerous operation.



- Royal Gunpowder Factory, Waltham Abbey -
- Scene of explosion at Gunpowder Shipping Room on 1st March 1894 -



- Royal Gunpowder Factory, Waltham Abbey -
- Scene of explosion at Gunpowder Dipping Room on March 1st 1894 -

The Times, Mar 02, 1894; pg. 11; Issue 34201; col F

Explosion At Waltham Abbey.

Category: News

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1-3-1894

EXPLOSION AT WALTHAM ABBEY.

Another serious explosion took place at Waltham Abbey yesterday afternoon, and this time it was at the Government gun-cotton works at Quinton-hill, about half a mile from the scene of the previous disaster. The master worker, Mr. James Findlay, was engaged in the dipping house with Mr. Alfred Cook, foreman of the gun-cotton works, when the material which was being dealt with suddenly exploded with great force, though with comparatively little report. Several men who were near ran to the rescue and found Mr. Findlay lying on the ground, having received serious injuries to the lower part of the body. Mr. Cook was severely wounded about the face, and two other men who were assisting them were injured, but were able to walk with assistance. Several lads were severely shaken. The wounded were quickly wrapped in blankets and carried to the stream that runs through the works. Here they were placed in boats and conveyed to the Recreation-hall, about three-quarters of a mile distant, where the survivor of the fatal explosion in December is still lying. Dr. Priest and Dr. Beaumont were promptly in attendance, and found that both Mr. Findlay's legs were broken. Mr. Findlay has for many years held the responsible position of master worker. He is chief permanent official at the factory and a prominent member of the Local Board of the town.

1.3.1894

128-20

Explosion of Gun-cotton

THE WEEKLY TELEGRAPH FOR WALTHAM ABBEY
CHESHUNT, AND DISTRICTS.

FRIDAY, MARCH 3, 1894

TERRIBLE EXPLOSION AT
WALTHAM ABBEY.THE MASTER WORKER DANGEROUSLY
WOUNDED.

Once more has the town of Waltham Abbey been the scene of a disaster, and once more in its effort to wish at least one human life has been placed in great danger, and three others have received injuries of a more or less serious character. The scene of the disaster was Gun-cotton Hill, where the Gun-cotton works have since erected some extensive ranges of buildings for the purpose of carrying on therein the manufacture of gun-cotton and gun-cotton. The first indication of the disaster was a loud explosion, but no much notice was taken of this in the town as such noises are of frequent occurrence in the works where trials of gunpowder and cordite are often made. Shortly afterwards the cry ran through the town "another explosion" and police were seen running about in all directions seeking medical aid. In a few minutes a report was current that Mr. James Findlay, master worker, who is under Colonel McClelland, the chief permanent official in the factory was dangerously wounded, in company with Mr. Alfred Cook, foreman of the gun-cotton works, and two workmen named Mark Pollard and Daniel Peck. This report proved too true.

It would seem that Mr. Findlay and Mr. Cook were engaged in the dipping house, inspecting some gun-cotton in a pot, when an explosion suddenly took place. The glass and framework of the building were blown out, and several men and boys at work near were thrown to the ground. Assistance was promptly rendered. On entering the building it was found that Mr. Findlay had been thrown to the ground, and the lower part of his person was seriously injured. Mr. Cook was also seriously injured about the head and face. The two men at work in another part of the building also received manifold injuries from the flying pieces of earthenware and other missiles.

Missiles and magazines with explosive, were found from the stores. Dr. Priest, shortly afterwards arrived, and by his orders Mr. Findlay and the other men were carried down to the small river which runs through the works and placed in boats and floated to the Resuscitation Hall, about three-quarters of a mile distant. Mr. Findlay was quite unconscious, and the scene at the landing wharf when the boats arrived with their mangled cargoes was painful in the extreme. The news of the explosion ran in this time spread far and wide, and a number of wives and daughters of men employed on the works, had gathered to ascertain whether any of their relatives were among the injured. The first they brought on shore was the master worker. Among the wounded group was one of his daughters and a son. The other sufferers were also men or women relatives. The attention of Dr. Priest was first directed to the case of

This has been a sad year at the gun-cotton factory. In the year ending the 1st March there have been no less than four serious explosions. The first was on the 1st of March, 1892, when about a ton and a half of gun-cotton, in the process of manufacture, exploded, seriously without loss of life. About a week afterwards a boiler exploded, killing one man and injuring three others. On the 18th December occurred the dreadful explosion at the gun-cotton, which nine men lost their lives, and now we have to record this fourth disaster.

It is a noticeable fact that one poor fellow, Carr, the last of the sufferers of the earthenware explosion, still lies in the Resuscitation Hall, where the victims of this last disaster have been taken, it having been deemed unsafe to remove him.

Last Sunday afternoon divine service was held in the hall for the special benefit of Carr, which was attended by a number of his fellow workmen.

Three nurses have arrived from London to attend on the wounded men.

G.C. Dipping Room

1.3.1894

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11/3/1892

Late on Friday evening, March 11th, an explosion occurred at what is known as an incorporating mill at the Government factory. The incorporation is a process the powder undergoes after the ingredients have been mixed, and this process imparts the principal strength to the explosive. It consists of a given quantity of the mixed ingredients spread on the mill bed, and then a pair of very large and heavy iron rollers are then set in motion, revolving and twisting upon it for a given time; the time allowed for the different powders varies, but the charge of powder that exploded was, we believe, for the use of the small arms, and had nearly completed the allotted time for incorporating or milling, and was therefore of a very strong and dangerous nature. At about 10.45 p.m. this charge unaccountably exploded, causing considerable damage to the adjoining and surrounding buildings, but providentially the millman on duty, who had been in the mill a few seconds before, had just left, and so escaped a terrible death.

15/12/1902

Christmastide was saddened by the fatal explosion that occurred at the Royal Gunpowder Factory at noon on December 15th, two days after the ninth anniversary of a similar disaster which cast its dark shadow over the parish during the Christmas of 1893, when nine men were mortally injured.

On this mournful occasion three workmen, named Eli Page, Walter Iron, and William Henry Mecklenburgh, lost their lives at the post of duty, and several others had a narrow escape. The deepest sympathy for the bereaved mourners is felt throughout the parish, and especially for the poor young widow of Eli Page, and her infant of eighteen months, who have been deprived at one terrible stroke of their natural protector and breadwinner. We trust that the God of all consolation will assuage their grief, and support them in the future according to His most gracious promise.

"In the midst of life we are in death." How forcibly does this startling event remind us of the truth of this impressive line in the beautiful Burial Service of the Church of England, which at a time like the present has a peculiar significance to all those who are engaged in such dangerous work as the manufacture of explosives. This sudden calamity is a solemn warning to them especially, as it is to us all generally, to stand constantly prepared for that great change which must inevitably overtake us sooner or later, and may come upon us at any moment, without the slightest intimation of its approach.

The Funeral Service was conducted at the Abbey Church on Saturday, December 20th, by the Rev. F. B. Johnston, assisted by the Rev. J. H. Stamp, in the presence of a large congregation, which included the mourners, and the officials and workmen at the Royal Factory. The interment afterwards took place at the

Cemetery, where the committal sentence was read by the Vicar, who also preached an appropriate sermon on the evening of the following day.

1/3/1894

Another explosion of a disastrous nature occurred in the Royal Gunpowder Factory on March 1st, although we are glad to add that, by the good providence of God, no lives have been lost in consequence. We regret, however, to learn that Mr. James Findlay, the master-worker, has sustained terrible injuries, and Mr. Alfred Cook, the foreman of the Guncotton Works, was also severely wounded. Two men named Mark Pettitt and Daniel Peck

were also slightly injured. The sufferers were immediately removed to the temporary hospital at the Recreation Hall, where Drs. Priest and Beaumont attended to their injuries. Mr. Cook is progressing favourably, and great hopes are entertained of Mr. Findlay's recovery, although he still lies in a critical condition. In a sermon preached on the following Sunday evening the Vicar referred to the accident in these terms: "During the last few months several dreadful troubles have fallen upon the parish; disaster upon disaster, and sorrow upon sorrow, have caused physical and mental suffering to many families. The parish was just recovering from one great disaster when another had occurred. Yet they must recognise even in the times of trial and trouble, the working of the finger of God. He hoped the congregation had earnestly joined in the petition that the chief sufferer might be spared, and his family comforted in this season of trial. Such calamities as that recently felt in the town spoke to them of the necessity of laying hold of the imperishable gift which was offered by God in Christ Jesus."

W. J. Carr, the survivor of the explosion on December 13th, is still making satisfactory progress. On the occurrence of the last accident he was removed from the Hall, and has been most kindly provided with accommodation in a room at the residence of Col. McClintock, R.A., the Superintendent, where he receives every comfort. A service has been held for his special benefit every Sunday for some weeks past, and he takes a most lively interest in the proceedings.

4/12/1894

A serious accident occurred in the Royal Gunpowder Factory on December 4th to a workman named James Luck, who has been employed in the Factory for thirty-six years past. His hand was badly crushed in the machinery, and necessitated his immediate removal to the Sandhurst Hospital. On the arrival of Dr. Priest it was found necessary to remove the injured member. The sufferer was the only child of the late Mr. James Luck, one of the seven victims of the fatal explosion which took place in 1843, near the scene of this accident. We are glad to learn that he is bearing his misfortune bravely and patiently, and is progressing favourably.

The "Sandhurst" Hospital in the Royal Works was opened during last month by Lord Sandhurst, and placed under the care of Nurse Baynes, who, in conjunction with Nurse Jones, rendered such excellent services to the sufferers from the recent explosions in the factory. We regret to add that a few days after this interesting ceremony the new building was called into requisition. Mrs. Lawrence, of Church Street, was so severely burned by the explosion of a lamp that Dr. Priest ordered her removal to the hospital. But, notwithstanding the kind ministrations of doctors and nurses, the poor sufferer succumbed to her injuries a week after her admission. Much sympathy is expressed for her husband, mother, and family.