

Appendix:

Accounts of some of the Accidents at Westquarter Works.

DATE	VICTIMS	REPORTED DETAILS
17 May 1878	Margaret Thomson (18) Mary Heaps (17)	<p>An explosion, resulting in the death of two young women, occurred at the Westquarter Factory of Nobel's Explosives Co. (Limited) at Redding yesterday morning.</p> <p>Various opinions are expressed, but in all probability none of them are absolutely correct. However, we must accept as correct the narrative of Alex Strang, the foreman, whose escape seems to be little short of a miracle. He states that the various sheds were all properly cleaned on the previous evening, and that everything was finished up in the proper and usual way – the detonator powder and loaded caps being put into the magazine. Yesterday morning after the doors were opened – say about 6.15 – Margaret Thomson and Mary Heaps went along with Strang to the magazine for powder and caps as usual. In a wheeled-van (one specially constructed for the purpose) there were placed 1500 caps; in the hands of Mary Heaps a teak box containing about four ounces of dry powder was held; while the foreman carried in the one hand a pound of dry powder wrapped in a calico cloth, and in the other some four pounds of wet powder similarly surrounded. The magazine door was shut, and the trio proceeded along the gangway, Margaret Thomson leading the way with the van, Mary Heaps following, and the foreman bringing up the rear. Nothing uncommon happened until the unfortunate girls had reached a point nearly 100 yards from the magazine. Then, through some cause (which probably will never be explained) an explosion took place, and the first thing the foreman observed was the lifeless body of the girl Heaps rolling off the gangway. At the same moment he became aware of the flash of the flame as it dissipated itself from the centre of explosion. The clothes worn by the girls were actually burned off them, and their bodies were a good deal disfigured and mutilated. The van was dashed to pieces, and the wheel thrown some distance off, and a portion of the gangway, about six feet in length, was demolished. Strang, on recovering from the momentary shock, at once proceeded to one of the work sheds. Where he deposited the powder he carried. On returning to the scene of the accident, he observed James Baird and Alexander Ogg, whose attention had been attracted by the sound of the explosion, coming towards him. They immediately procured cloths from the sheds and covered the bodies. The remains were afterwards removed to the gatehouse, but not before messengers had been despatched for Mr Scott, the manager, and Dr M'Clay, Redding, who were speedily on the spot.</p> <p>The theory of the manager, Mr Scott, is that the girl in charge of the wheeled van must have stumbled, causing concussion amongst the detonator caps, or that that concussion had been brought about by the van (through perhaps a momentary carelessness on the part of the unfortunate girl) leaving the wooden gangway and coming down upon the ground with a shock (Falkirk Herald 18 May 1878, 2).</p>

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13 May 1879	Sarah Jane Thomson or Boyd (18)	Sarah Jane Thomson or Boyd, eighteen years of age, residing in Laurieston, near Falkirk, met her death in a shocking manner yesterday, at Noble's Explosive Factory, Westquarter . The girl was employed at the works, and was in the act of carrying several hundred caps, partly charged with powder, from one part of the works to another, when the whole exploded. The unfortunate girl was found lying at the spot frightfully mutilated, while most of her clothing was blown off her body. (Scotsman 14 May 1879)
6 April 1883	Helen Godfry (18)	About a quarter past ten o'clock yesterday morning, a severe accident happened to a girl names Helen Godfry, 18 years of age, residing with her parents No. 10 Cow Wynd, Falkirk. The girl, it appears, was working at Nobel's Explosives Works, Westquarter, near Polmont, her occupation being the pressing of dynamite caps. It appears that while thus engaged one of the caps exploded in her hands, blowing off her left hand entirely, and shattering her breast severely. She also sustained serious injuries to her face. Dr Wickham, Redding, was sent for, and attended the girl, who was removed by the two o'clock train from Polmont Station to Edinburgh, and conveyed to the Royal Infirmary there, where she lies in a critical state.... (Falkirk Herald 7 April 1883).
15 Nov 1899	Mary Ann Bremner Helen Galbraith or Finlayson (20)	About half-past three o'clock yesterday afternoon the inhabitants of Redding and the vicinity of Nobel's Explosive Works there, were startled by the loud report of an explosion at the factory, which, on examination being made, was found to have taken place in the packing shed of the works, where the detonators are packed by girls. No one is allowed to remain in this room, which measures 20ft by 14, with the exception of two girls at a time, whose occupation is confined to that place. At the time of the explosion, the occupants of the room were Mary Ann Bremner, Laurieston, and Helen Galbraith, aged 20, residing at Reddingmuirhead. On hearing the report the assistant manager, James Kelly, immediately rushed into the packing-room, where he found the two girls both in a state of insensibility. One was lying on her back in the centre of the floor; the other in a sitting posture amongst a lot of boxes and the debris from the roof of the building, the wooden lining of which had been loosened by the force of the explosion. Dr Wickham, Redding, happened to be driving through the village at the time, and hearing the report, turned his horse and proceeded to the spot, where he took prompt measures to have the injured girls attended to without increasing their danger by any unnecessary delay on the scene of excitement. A message was at once despatched to Polmont Station, by which means another message by telegraph was sent off, and the express train from Stirling, due soon after, was stopped opposite the scene of the explosion, the railway there running about five yards distant from the factory gate. The injured women were placed on ambulance stretchers and conveyed by the express to Edinburgh where they were attended to in the Royal Infirmary. Dr Wickham was of opinion that their injuries would not prove fatal, though the recovery of at least one of them is doubtful. Comparatively little damage was done to the building where the explosion took place. Owing to the occupants of the room not being able to give any information the cause of the accident can only be conjectured. It seems that the girls are employed in packing detonators, which they receive at the rate of 100 at a time,

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		<p>inserted in brass plates. Occasionally some of the detonators are not easily extracted from the plates, and on the event of such stiffness being encountered, the girls' instructions are to leave them untouched, and they are removed by a man picked out for that special purpose. It is supposed by Mr Smith, the head-manager, that the explosion was caused by the girls having failed to obey these instructions, and attempted to remove a fixed detonator. Mr Smith says that the number of detonators which exploded in all was not large, though the force was great. A young woman, named Lily Knox, had a narrow escape. She had, contrary to the general rule, occasion to be in the room, and had just left it when the explosion occurred. The "feeder," or man who supplies the girls with the detonators, visits the packing shed every quarter of an hour, and therefore he also may be said to have had rather a narrow escape. Superintendent Macdonald and Inspector Gordon left Falkirk for the scene of the explosion on receiving information of it. (Falkirk Herald 16 November 1889, 4)</p> <p>Bremner died that evening and Galbraith the following day.</p>
11 April 1890	Jessie Baird (22)	<p>Yesterday afternoon, a serious explosion took place in the charging department at Nobel's Explosive Works, near Polmont Station, seriously injuring Jessie Baird, a native of Laurieston, aged 22. She was employed as a charger, and had been connected with the work for five or six years, and was believed to have a good knowledge of the work. The injuries she sustained were chiefly about the lower part of the body. She was attended by Dr Wickham, Redding, and Dr Leslie, Falkirk, who dressed her wounds, and ordered her removal to the Edinburgh Royal Infirmary. The 4pm express from Glasgow was, by arrangement, stopped at Redding and she was conveyed by it to Edinburgh. She is understood to be in a critical state. The glass of both the windows of the building in which the injured woman was working was shattered by the force of the explosion, but there was very little damage done otherwise, as the quantity of explosives near where the woman was at the time working was small. (Falkirk Herald 12 April 1890).</p>
1904	Terence Kallaher	<p>Jury also heard evidence as to the death of Terence Kallaher, bricklayer, Pleasance, Falkirk, who was employed as a bricklayer at Westquarter Chemical Works, Reddingmuir, occupied by Nobel's Explosives Company, Ltd. A carboy of nitric acid near which he was passing exploded, whereby his left hand was blown off and he was otherwise injured. He subsequently died in the Royal Infirmary, Edinburgh. (Falkirk Herald 27 July 1904).</p>
6 Sept 1907	James Kidd	<p>A man named James Kidd, explosives worker, Cockburn Buildings, Main Street, Redding, was admitted to Falkirk Infirmary on Friday, suffering from serious injuries which he had sustained in an explosion which occurred while he was at work in Nobel's Explosives Factory, Westquarter. Kidd was brushing the floor in shed No. 11 when the explosion occurred, and the shed was completely destroyed, and he sustained a compound fracture of the left thigh, and several wounds on the left side of the face, and the left hand. The explosion is supposed to have been caused by the friction of Kidd's feet. Enquiry at Falkirk Infirmary this morning elicited the information that Kidd's condition is still regarded as serious. (Falkirk Herald 11 September 1907).</p>

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10 June 1909		A large tank at Reddingmuirhead Factory, an isolated part of Nobel's Explosive Works, used for the storage of the refuse of fulminate of mercury, exploded on Thursday afternoon with alarming effect. The explosion was heard a considerable distance away, and so violent was it that the windows of several buildings in the neighbourhood were shattered. A large number of the inhabitants in the surrounding district were naturally put in a state of alarm through the fear that injury might have befallen a number of the workers, and that alarm was increased to the greatest consternation when a tramp, who had come from the direction of the explosion, spread the news amongst people hurrying thither that a large number of workers had been killed. It rarely happens, however, that workers are about the portion of the works in question, and from its situation any danger that may arise from an explosion is greatly minimised. At the time the incident happened no one was fortunately about (Falkirk Herald 12 June 1909, 6).
2 Oct 1911	James McLeod	About 8 o'clock on Monday morning a man named James M'Leod, residing at Brightons, Polmont Station, met with a serious burning accident Nobel's Westquarter Factory. At the time the accident occurred M'Leod was engaged mixing a compound, which was to be used in the making of fuse-heads, when the mixture suddenly exploded, burning him severely about the head, face, and hands. Dr Laurence was soon on the scene, and after dressing M'Leod's injuries he ordered his removal to the Falkirk Infirmary. (Falkirk Herald 7 October 1911).
17 Oct 1912	William Hitchcock Robert Oliver	An explosion of a serious character occurred yesterday at Nobel's Explosive Factory, Westquarter, near Polmont, as a result of which two men were severely injured. The men were engaged in firing waste or defective explosives, and for this purpose the explosives were taken by them to a hut near the factory, where one of the men put small quantities of the explosives into small linen bags. The other man took one of these bags at a time and placed it in a pit near the hut, afterwards firing it by means of electricity. William Hitchcock, an unmarried man, who is understood to come from Edinburgh, was engaged inside the hut, while his companion, Robert Oliver, married, Overtown, Redding, fired the explosives when they were put in the linen bags. So far as can be ascertained, the men carried out their duties in the ordinary way, but as Oliver was returning to the hut to fire a bag which he had placed in the pit, the material which still remained inside the hut went off, blowing the hut to pieces, while a tree in the vicinity was also blow up. Hitchcock, who was in the interior of the hut, sustained serious injuries, being burned and bruised all over the body, while Oliver's head was badly injured. The two men were removed by ambulance to Falkirk Infirmary, where on inquiry last night it was learned that Hitchcock's condition was serious, but that Oliver's injuries were not so grave. (Scotsman 18 October 1912). Hitchcock died.
19 November 1914		Considerable alarm was created by an explosion which occurred at Nobel's Explosive Works, Reddingmuirhead, on Thursday evening shortly after six o'clock. A quantity of fulminate of mercury, it is understood, exploded outside the works, and two sheds were damaged and a number of pipes leading from the building destroyed. The force of the explosion was felt in most of the houses in the district

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		surrounding the works and in some instances the buildings were shaken and crockery broken. No one, fortunately, sustained any injury as the result of the explosion, which cast into the sky a sheet of blueish flame visible from several miles away. The occurrence gave rise to a crop of wild rumours, one of which was to the effect that there had been a visit of a Zeppelin on a bomb-dropping expedition (Falkirk Herald 21 November 1914, 3).
28 July 1915		15 year old girl burned about the hands when a bogey bit a shed and the detonators it was carrying exploded. She was taken by ambulance to Falkirk Hospital.
19 Nov 1927	John Purdie (36)	<p>On 19 November John Hill Purdie, process worker, Hillhead, Redding, was at work in an isolated shed in the Westquarter Factory drying about 15 lbs of an explosive called styphnate when it exploded wrecking the shed and injuring Purdie so severely that he died in a few minutes. John Jack, foreman, Redding, said he was employed as foreman of the detonator department. On the morning in question he was going round visiting the different men, when, about 8.20, he heard a loud report and explosion. He felt the shock of it. He had previously been in the shed in which Purdie was working. After the explosion he went to the place and saw that the shed had been blown to pieces. Purdie was lying among the wreckage, but witness could not say what condition he was in, as the debris was on the top of him. Other men came forward and witness went to the shed where the girls were employed to tell them there was not any danger. Two minutes before the accident, witness saw Purdie, who was engaged in drying styphnate, which was a very high explosive used for charging detonators. Purdie was dealing with about 15 lbs of styphnate. It was not quite dry and would have taken other twenty minutes to dry. It was lying on a copper bath. Purdie had to handle it a little to see if it was dry. He was well acquainted with the work and was a very good worker. It was witness's practice to change the men from one shed to another, so as not to keep a man always in one shed. Purdie had a lot of experience in this shed. There had been a previous explosion of styphnate six months ago but it was not serious. To dry it it was heated by steam.</p> <p>This particular shed was licensed for 60 lbs of the explosive, and there was only 15 lbs in it when the accident happened. When he was in the shed a few minutes before, everything was in its normal condition. There was nothing there that could possibly have caused the explosion... Horace Barlow, department superintendent, said he was in the main office when he heard an explosion. He went to the spot and saw that the shed had been demolished. Purdie was lying among the debris very seriously injured. The shed was completely wrecked. Purdie was alive, but he died almost immediately. He was just living when they got him into the surgery, and Dr Robertson, who was summoned, found life extinct. Witness had no idea what caused the explosion. (Falkirk Herald 24 December 1927, 4).</p>
1 May 1930	John Cummings (23)	<p>About 2.40 p.m. on Thursday, John Cummings (23), mixer, 6 Grangeview Terrace, Redding was fatally injured by an explosion which occurred in the Westquarter Factory premises of Nobel's Explosives Co Ltd.</p> <p>Cummings was in the act of conveying a quantity of fulminate of mercury from the mixing shed to a magazine when the material</p>

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		<p>exploded from an unknown cause. Cummings received severe injuries to the abdomen, legs, chest and arms. After receiving medical attention he was immediately removed to the Falkirk and District Infirmary, where he succumbed an hour and a half following admission (Falkirk Herald 3 May 1930).</p> <p>William Sidney Malloy, clerk, 12 Livingstone Terrace, Redding, said that on the day of the accident Cummings was duly searched in the dressing-room and witness afterwards saw him dressed in the regulation clothing prior to commencing work.</p> <p>Henry Taylor, 5 New Houses, Laurieston, who is employed as detonator department foreman, said that Cummings was employed as a miner and worked alone in a magazine shed. The shed where the deceased worked was connected to the explosives magazine by a raised wooden gangway about two and a half feet from the ground and about four feet wide. Along the gangway ran a wooden bogey with bronze metal wheels on rails of brass. The explosive material was always in six little leather bags inside the large leather bag with a wooden cover. The deceased's duty was to divide certain proportions of fulminate of mercury and chlorate of potash for mixing purposes. A part of his duty was also to place the bags in a bogey to take them to the magazine. On the day of the accident witness saw the deceased weighing out fulminate of mercury, and about five minutes after he left him there was an explosion. When witness hurried to the scene he found the remains of the bogey lying and the gangway torn up. Cummings was lying about four or five feet to the north side of the bogey. He was very severely injured about the front of the body (Falkirk Herald 21 May 1930).</p>
20 April 1936	Brobson Hislop (45)	<p>Brobson Hislop, process worker, Rosehall, Old Polmont, on 20 April last was killed instantaneously while at work in Westquarter Factory, Redding, occupied by Nobel's Explosives Co, as the result of a detonator exploding...</p> <p>Christina MacPhee or Hislop, wife of the deceased, was the first witness. She said her husband had been employed at Nobel's Westquarter Factory for 13 or 14 years. He was 45 years of age. On the morning of 10 April he had left home to go to work in time to at Westquarter Factory, said the deceased caught a bus at three minutes past seven. He was then in good health and spirits. Later the same day she learned that he had met with a fatal accident.</p> <p>James McLean Keen, Major's Place, Falkirk, superintendent of the detonator charging department, and had had about 13 years' experience. The process carried out in the department was the filling of detonators. They were filled with a composition of fulminate of mercury and potassium chloride, which was extremely sensitive... said that the operator worked on the safety side of a wooden shield with a steel facing. In the event of the mixture not running smoothly, the operator used a brush bristle to dislodge the charge and let it fall through the hole in the plates into the brass tube. The brush bristle was recognised as the safest thing to use. It had been used daily for many years, and witness himself had used it. Deceased started work on the morning of 20 April at 7.30am and witness saw him about 10 o'clock. He was then working at his machine in the usual way. Witness was in the manager's room when he heard an unusual noise, and then there</p>

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		<p>was a telephone message to the manager to say that an accident had taken place. Witness went to the place where Hislop had been at work, and found him lying beside his machine apparently dead. ... that from the position of the controls and the way Hislop was lying he had no doubt in his mind as to what had happened, but there were no witnesses to the accident. Hislop worked in an isolated compartment alone. Hislop, in witness's opinion, must have done something thoughtlessly or by possible accident. He might have stumbled, but witness did not think so. The material was so sensitive that a movement of the plates by his hand, as he should not have done but might have done either accidentally or thoughtlessly, would be in itself sufficient to cause ignition, and that, of course, meant an explosion. Deceased was recognised as a thoroughly efficient man.</p> <p>Francis Donoghy, 115 James Street, Laurieston, said he was a process worker, and was employed in the building net to that in which Hislop was at work. He said that everything was going on as usual that morning, though the mixture was not running too well. He had often used the brush bristle in these circumstances. About 2.30pm he heard two reports, one muffled and the other more solid. He went out the back door of his own shed, and saw smoke coming from the shed in which Hislop had been working. He shouted, but did not get any answer.</p> <p>...when the operator was behind the steel screen the machine was in motion; when the operator came out from behind the steel screen the machine was always stationary.</p> <p>John Morrison McAleenan, process worker, 10 Callendar View, Falkirk, said it was his duty to keep the deceased and the previous witness supplied with the mixture used in the filling of the detonators, he had seen Hislop frequently that day, and had not noticed anything unusual about him: nor was he complaining of anything. He did not make any comment about the mixture, and did not say whether it was running freely or not. Witness said that he has just come out of Hislop's shed, and had stood for a minute or two when an explosion occurred. There were two reports in the shed where Hislop was working, and a volume of smoke came out from it. Witness ran back into the shed, and found Hislop lying on the ground. Witness thought Hislop was dead, and he went outside and reported the matter to officials (Falkirk Herald 24 June 1936. 4).</p>
1 April 1937	John Smith	<p>John Smith, process worker, Kerseview, Shieldhill Road, Reddingmuirhead.</p> <p>David Aitken, father-in-law of the late John Smith, told the Court that on 1 April his son-in-law was employed as a process worker within the Westquarter factory of Nobel's Explosive Co Ltd. His son-in-law had dinner with him that day, and returned to work shortly before one o'clock. About five minutes past three the witness heard the report of an explosion, and learned that Smith had been killed while at work.</p> <p>Gosta Lundholm, 21 Neilson Street, Falkirk, who acts as superintendent of the detonator-charging department at the factory, said that Smith was employed as a detonator-charge. He had been in the employment of his department for seven weeks, and was a good, steady worker. The material with which the detonators was charged consisted of fulminate of mercury and potassium chlorate. The charging of detonators required great care, but was not a skilled occupation. The</p>

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		<p>worker engaged in this department worked behind a metal shield for protection in case of accidents.</p> <p>Mr Lundholm described the process and the precautions which were taken in the interests of safety. He said the system in force at the factory had been used for over fifty years. He did not know of any similar explosion having taken place.</p> <p>Fifteen or twenty minutes before the accident, Mr Lundholm said he had visited Smith in the shed in which he was working. He seemed to be quite normal. Witness had then proceeded to the next shed, and while there he heard the loud report of an explosion and rushed out to see what had happened. He found that the shed he had just left was wrecked, and that Smith had been thrown clean out of the shed. The man had been killed instantaneously.</p> <p>Witness declared that he could not say what had caused the accident, unless it was that two plates containing charge detonators had been dropped violently together in some way. The plates, he explained, were made of phosphor bronze, a metal chosen to avoid the risk of sparks igniting the explosives.</p> <p>...witness stated that the premises were licenced in accordance with Home office regulations. The license imposed nine pounds as the limit of explosive material which could be kept in the shed. The Company were well within the limit, and at the time of the explosion there would only be from four to six pounds of explosive material in the shed.</p> <p>Robert Smith Paterson, 118 Grahamsdyke Street, Laurieston, said he was employed as a foreman in the detonator-charging department. Immediately prior to the accident, he had handed Smith his pay slip.</p> <p>David Robertson, 4 Burnside terrace, Redding, said he was employed at the factory carrying powder to the detonator-charging sheds. Just before the accident, he had taken a bag of powder to Smith, and Smith had said: "I think that will finish me." Robertson explained that Smith had only two plates of detonators to charge, and considered that he would have sufficient powder for the job.</p> <p>A little later Robertson returned to the shed, and was actually in the shed when the explosion took place. The explosion occurred at the back of the shed, he told the Court, and part of the roof and wall at the back were blown out. The roof above where he was slightly raised, and dust and debris showered down on top of him. He managed to scramble out by the door he had entered, and when the smoke cleared away he saw that the shed was wrecked and Smith had been blown out to his death.</p> <p>Robertson explained his own escape by saying that he was protected by a partition which divided the front part of the shed from the back (Falkirk Herald 29 May 1937, 4).</p>
15 July 1937	Charles Lochrie	<p>An explosion occurred at the Westquarter factory of Messrs Nobel's Explosive Co Ltd on Thursday afternoon, and as a result one man was so seriously injured that he had to be removed to Falkirk and District Royal Infirmary.</p> <p>The injured man was Charles Lochrie, residing at 119 Standburn Rows, by Avonbridge. Lochrie was working alone refining powder in a small isolated shed built of wood with a fabric roof. About 3.30 in the afternoon workmen in the vicinity of the hut heard the noise of a violent explosion, and when they went to the hut they found Lochrie lying outside in a dazed condition. He was suffering from severe</p>

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		<p>injuries.</p> <p>The indications were that the force of the explosion had blown Lochrie through the side of the shed. He had a severe gash on the left cheek, and another on the right wrist, and had lost a large amount of blood. Lochrie was taken to the ambulance room at the factory, where he received first-aid treatment. He was later removed to the Falkirk Infirmary, where he was detained for treatment. On inquiry at the Infirmary last night it was learned that there was little change in his condition (Falkirk Herald 17 July 1937, 7).</p>



Illus: The outward scatter of debris from an explosion inside the hut rests on the grass banks surrounding it. The gangway can be seen in the foreground.