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Reports on Explosions at Chilworth, see:

Carl. Paper 1878/9, c 22, 47, 16, 377 (10 Feb. 1879)

1884, c 3859, 17, 675 (15 Nov. 1883)

1901, c 552, 9, 815 (12 Feb., 1901)

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## THE GREAT EXPLOSION AND THE LATER HISTORY OF THE CHILWORTH GUNPOWDER MILLS

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In the manufacture of gunpowder on a large scale, as it was at Chilworth, it was almost to be expected that accidents and explosions were likely to happen from time to time. In the early days there were many minor explosions causing the loss of life, and some of these appear in the parish records of St. Martha's. The Home Office Explosives Branch was set up as the result of the Explosives Act of 1875, and thereafter all explosions were recorded. Possibly the worst explosion, certainly the worst on record, occurred on the morning of Tuesday, 12 February 1901. An account of this was reported in *The Surrey Advertiser and County Times*.<sup>1</sup> The report starts "The most terrible accident which it has been our painful duty to record as having occurred in Surrey, took place on Tuesday morning, when, by an explosion at the Chilworth Gunpowder works near St. Martha's, six men met with a sudden and fearful death."

The accident occurred at about twenty minutes to nine, just as the employees resumed work after the breakfast interval. Suddenly, and without a moment's warning, a terrific report was heard, spreading alarm and consternation among the workers and residents in the neighbourhood. Volumes of smoke were seen ascending, and thousands of pieces of timber, bricks, corrugated iron, and, more distressing still, portions of human bodies, hurled through the air in all directions, covering the ground for a considerable distance with a mass of wreckage. The manager of the works at this time was Captain Otto Bouvier. At the time of the explosion he was just coming out of his office; he hurried to the spot with a Mr. Stevens and several others. They discovered that a two-storey building known as the Black Corning House, had been blown to atoms. It was known that men had been working, but how many was not certain. Search parties were immediately organised, and it was soon found that the loss of life was even greater than at first feared. As will be seen later, four men were killed outright, and two were so shockingly injured that their recovery was hopeless from the start, and they died soon afterwards. The Black Corning House was a brick and tile building of two storeys, partly above and partly below ground level, the lower chamber being under the bank of a stream which ran through the works. It may be explained that the ingredients used in the manufacture of gunpowder were mixed in a single-storey building situated between thirty and forty yards from the scene of the accident. The ingredients were formed into cakes, and as this operation was of the minimum danger to workmen, the building was described as a non-dangerous one. From this house the powder cakes were taken to the Black Corning House, where they were crushed and granulated by means of the water-driven machines, using the

stream through the building as power. This process may seem to be one of great danger, but was not so, and it was rare that an explosion took place in this part of the manufacture.

In the Corning House were two corning machines which were used for granulating the powder. They were not working at the time of the explosion, but it seems were just about to start. The powder was taken from this building in barrels on a tram line to what was known as the Dust House, some fifty yards away. By the side of the Corning House, and between it and the Dust House was a very high and thick wall designed to offer protection to both in the event of an explosion.

It will never be known exactly how the explosion happened. There were at most six, and probably only three people who could have told and they are all dead. There are several theories, which may or may not be true. There were certain facts which seemed to be established. It appears that at the moment of the explosion there were three men inside the house and three outside. What the men inside were doing it is impossible to say, but the three outside were in charge of a small trolley on which were some barrels of powder which had to be granulated. So far as it was possible to judge from the reports on the surrounding circumstances the accident seems to have occurred outside the building. In support of this theory, it was mentioned that at the spot where the trolley stood before the explosion there was a very distinct depression in the ground and the tram lines were bent downwards, the trolley was shattered to pieces and the unfortunate men who were in charge of it were blown to atoms, whilst those inside the building were less terribly mutilated. Had the explosion occurred inside the building the men inside could never have lived — as two of them did for a moment after the explosion.

There was a photograph taken of the scene by a Mr. W. Bassett, of Stoke Road, Guildford on the afternoon of the explosion, and this showed total destruction of the Corning House. Of the upper part of the building there was scarcely one brick left standing. What was left of the timber was charred and burning. The heavy machinery was hurled from its position, and was buried in a mass of wreckage. The huge protection wall had withstood the shock, but it was twisted, and some of the top bricks were displaced, while the ivy which grew on its side was burnt black. The building was practically surrounded by trees, and the effect of the explosion on these was remarkable. Some had been torn up by the roots, many were snapped in half where they grew, branches had been torn off, and those which remained were blasted and blackened by the terrible burst of flame. Great lumps of timber were hurled for a distance of a hundred or two hundred yards. One piece which weighed several hundredweight was found firmly fixed, upright, in the bed of the stream 50 yards from the building, while another, blown further still, was found stuck into the hard frozen ground in an adjoining field. The trees themselves were full of pieces of wood, fragments of burning clothing and human remains.

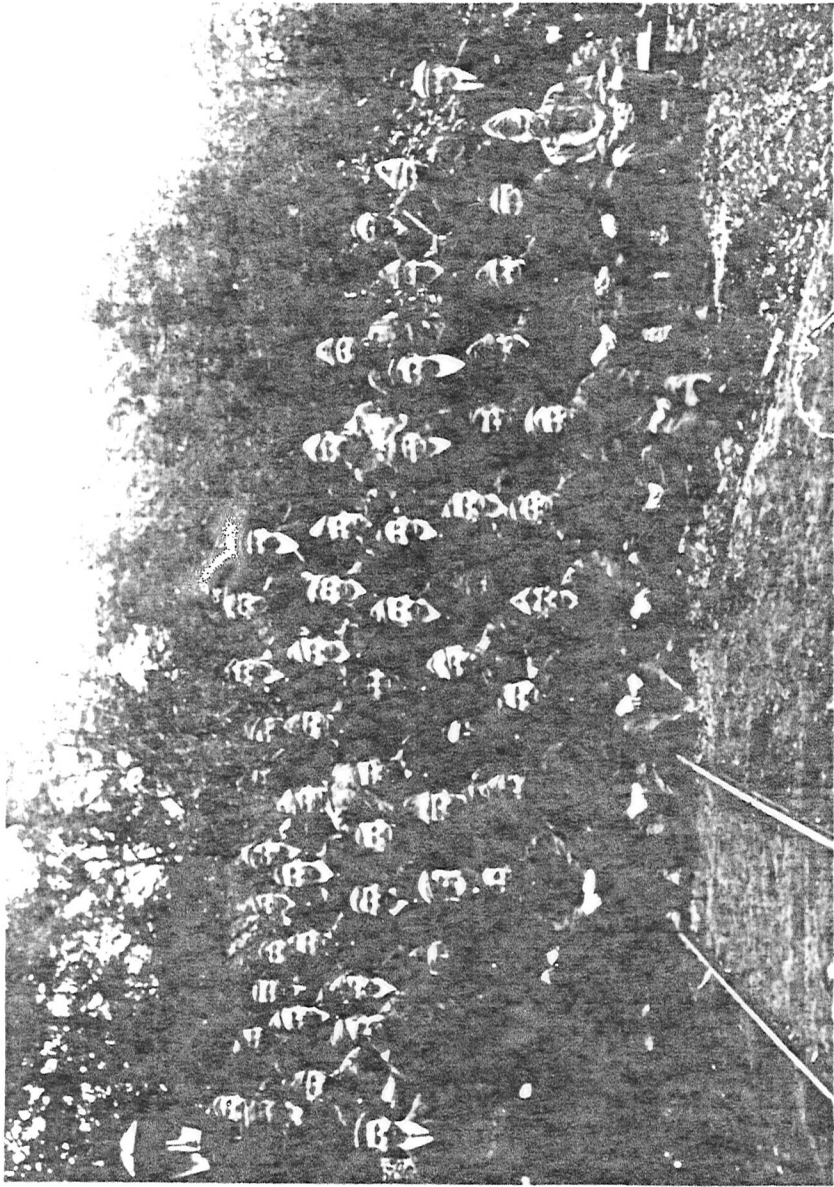
The saddest of all was the fate of the six men who lost their lives. These were the first thought of the manager and the other officials the moment the accident happened. Captain Bouvier, before doing anything else dispatched his carriage to Womersley to fetch Dr. Scott Watson, who was soon on the spot. His skill however was unavailing. Before he arrived the search parties had discovered the extent of the disaster. The three men who had been with the trolley were beyond recognition, and had been blown in different directions. One was hurled through the trees and was found 150 yards away in a meadow on the Chilworth Road side of the works; the trunk of another was found horribly mangled by the side of the protection wall, a third was blown through the trees onto the top of the mixing house and then onto the tram road, one leg being found in another direction, and one arm a quarter of a mile away. Sopp was discovered in the ruins but dying, Smithers was found 100 yards away in a meadow on the St. Martha's side of the works. He was alive, but terribly injured and the remains of the man Marshall were found in the same meadow. The names of the men who were killed are as follows:-

William Prior, aged 30, from Broadford, Shalford, married. (35) 20  
George Smithers, aged 45, from Christmas Hill, Shalford, married. 4  
William Sopp, aged 28, from High Path Road, Merrow, married. (25) 2  
Robert Flower Chandler, aged 19, from 1 Foxenden Road, Guildford. (25)  
Walter Abbot, aged 36, from Shamley Green, married. (45)  
William Marshall, aged 32, of New Road, Chilworth. (35) 1

Some of these men who lost their lives in the accident had worked at the factory for less than a year, Marshall and Abbot had worked for only 4 months, Chandler 6 months, and Prior 8 months, whereas Sopp had completed 11 years and Smithers all of 34 years.

There were of course some remarkable escapes, the most noteworthy of which was that of Mr. William James Bragg, the foreman at the time of the black powder department. Mr. Bragg had just left the ill-fated building when the explosion occurred, and was passing by a poplar tree which was standing adjacent to the roadway running through the works and only a few yards away from the Corning House. The force of the explosion carried him a short distance and threw him to the ground. He was struck on the head by some of the falling debris, and sustained a slight cut, but other than that wound, a few bruises and shock, he escaped. A carman named Hunt was with a horse and cart outside the Mixing House, which was about 30 yards from the Corning House; neither he nor his horse were injured although large pieces of debris fell in a shower all round them.

Some other buildings were damaged in the explosion but in some cases the damage was light. A small store-house on the opposite side of the roadway was considerably damaged. A little further along the roadway was the Mixing House, the contents of which were non-explosive and the windows of this house were all blown out. Some of the men who were working in the Mixing House stated that the floor seemed to be lifted up in the air by the explosion, and they were thrown



1. A group of workmen of the Chilworth Gunpowder Company in the early 1900's. Note the regulation denim clothing without pockets or turn-ups and the nail-less boots. The foremen are dressed in ordinary jackets, collars and ties. [Photograph by Terry Fincher]

off their feet. There was of course a small fire resulting from the explosion but this was soon brought under control by the workmen with manual pumps and buckets. At Chilworth Manor no fewer than 40 panes of glass were broken and glass was also thrown at Colonel Oarmanney's house. In the village itself little or no damage was done.

When the works manager, Captain Bouvier, was interviewed by a reporter from *The Surrey Advertiser and County Times*, he stated that he was just coming out of his office when he heard two reports in quick succession. The second report was much stronger than the first. The Captain hastened across to the works and immediately took over the supervision of the situation. The Captain was asked if he had put any questions to Mr. Smithers, who breathed his last at eleven o'clock. The Captain said that Smithers was conscious, but the only reply he could get from the man was, "My arm, my arm". His arm was apparently broken; he was conscious of the pain he was suffering and that was all. The Home Office was communicated with, and also Dr. Gabb, the doctor under the factory act.

There were several visitors to the scene of the explosion. Major Cooper-Key, one of His Majesty's Inspectors of Explosives visited the works during the afternoon and made a thorough examination of the incident. Another was Inspector Jennings of Surrey Constabulary, who lived in the Chilworth New Road, less than half a mile from the scene of the explosion. He stated that he heard a terrific explosion at about 23 minutes to 9. The windows of some of the houses in the road were shattered, but the explosion was not heard so much in the vicinity as farther away — for instance at Blackheath, owing probably to the noise being directed in an upwards direction by the thick protecting wall. As soon as Inspector Jennings heard the explosion he went to the scene on his bicycle. When he arrived he saw men rushing about to see what the situation was. He saw Mr. Bragg, the foreman, being led away from the scene. He was injured at the back of the head, not, he found, seriously. By this time the wounded man Smithers had been taken to the hospital in the works, and men — there were about 50 of them — were busy with the manuals playing on the ruins which were smouldering. Other men were going about with stretchers and canvas bags picking up pieces of the dead men. The remains of the clothing on these pieces of human remains were still burning. The works manager was supervising the removal of the bodies into a shop which was being used as a mortuary. The injured man Smithers was in the hospital being treated by the doctor. He was very much disfigured, but was conscious for an hour and a half after the explosion. Inspector Jennings further stated that Captain Bouvier at once made arrangements for the relatives of the deceased and injured to be informed of the sad news.

A message of sympathy was sent to the relatives of the deceased from the Duke of Northumberland, the ground landlord of Chilworth Mills. "I am desired by the Duke of Northumberland to convey to you His Grace's very deep and profoundest sympathy with you and your family in the heavy bereavement which has so suddenly fallen upon you by the lamentable and distressing explosion which occurred at the Chilworth Gunpowder works on Tuesday morning last.



May I also add to his Grace's sympathetic message my own condolence with you in your great sorrow. Yours very truly, Andrew Peedies".

Although there had been many explosions at the works, there were very few fatalities. During the 40 years prior to this accident there were only 3 which caused loss of life; in 1864, when 2 men were killed; in 1874, 2 men killed, and in 1879, again 2 men killed. An explosion occurred only the week before that, but nobody was killed.

The inquest upon the deceased men was opened at The Percy Arms, Chilworth, on Thursday afternoon, 14 February 1901, before Mr. G. F. Roumieu, J.P., the Coroner for Surrey. The jury was empanelled as follows:- Messrs, A. Shephard, E. Newnham, J. Chitty, F. C. Smith, W. Shurlock, G. Longhurst, T. Smallpiece, H. Frogley, J. Lloyd, H. F. Prentice, J. Palmer, L. Mercer, A. Atfield, J. Pearce, and W. Horne. Mr. Shephard was chosen as the foreman. The Coroner asked before the swearing in if any of these men had, in any way, any connection with the powder mills. The reply was negative and the jury was duly sworn in. Those present at the opening inquest were Mr. Marcus Westfield, Director of the Company; Captain Bouvier, the Manager; Mr. G. D. Stevens; Deputy Chief Constable Page of the Surrey Constabulary and Inspector Jennings, also of the Surrey Constabulary.

The Coroner at the outset said that before they proceeded to view the bodies, he understood that one of the company directors, Mr. Westfield, wished to address them upon the matter.

Mr. Marcus Westfield then said he was proprietor of the factory before the Chilworth Gunpowder Company was formed, which was now some 16 years ago. He was a large shareholder in the company and was still very deeply interested in the factory. The board was very much distressed indeed at the occurrence which had taken place. Taking, as they had done from the very first, the deepest interest in their workmen, they would be sure to take care of the poor people who were their representatives — those left behind. It was with very great distress that this accident had come upon them, because neither money, nor science, nor thought had been spared to make the workings of the factory safe. He might tell them that for at least 12 out of 15 years — owing to the fact of the invention which was the object of manufacture there, when the company was formed, the powder for use in the large guns of the navy, that invention being worked out and perfected there — the largest contracts ever issued by the Government, he supposed, were issued to the Chilworth Company. For 11 to 12 years, during which they had worked night and day turning out gunpowder — a new kind of the old class of gunpowder — with a staff of 600 men, not a single life was lost, and he supposed that during that period that more was manufactured than in all the rest of the factories in the kingdom put together. From the very first the board had been interested in the welfare of the workers. He might tell them incidentally, that a fund for sharing profits was formed when the company was originated. He could say with great truth that there had been great anxiety on the part of the board in London and on the part of the manager, to insist that the work there

should be accompanied with the greatest care and attention. He did not know whether he ought to say, but they felt that they had nothing to blame themselves for, as the jury would see. They had done the best they could, and any help they could give to the jury and the Coroner, as to the accident, the cause of which they did not know, they would be pleased to afford. The Coroner replied that he was sure the jury would be very satisfied indeed, with the remarks that Mr. Westfield had made. If sympathy were of any consolation to the bereaved under those very sad circumstances, they knew that they had the sympathy of the board. He was much obliged for the offer made by Mr. Westfield to give any assistance which he was sure they would get. It would be necessary for the Coroner to adjourn the inquest as soon as they had been to view the bodies and he had taken the formal evidence of identification, the reason being that the Inspector of Explosives would not be there that day. It was the Coroner's duty, in the event of the Inspector's absence to adjourn for at least 4 days. The Coroner said he proposed to adjourn the inquest for at least a week.

Proceeding, Mr. Roumieu said he would at this point go down to the works and view the bodies. He understood that three, if not four, were in a state of completeness to be identified absolutely, and that two were in such a shattered state that they could not be identified. In regard to the evidence of the identification of these two, he would take the fact that they were at work a short time prior to the occurrence in that place and they had not been seen since.

The Coroner and the jury then proceeded into the works to view the bodies which were lying in the hospital, and on returning to the court, the first, and only witness for the day was called.

William James Bragg, who in answer to the Coroner's inquiries, stated that he was foreman of the black powder department of the Chilworth Gunpowder Works. The Coroner then asked, "Do you know Walter Abbot?" Bragg replied "Yes Sir",

Q. "What was his occupation?"

A. "A tram pusher."

Q. "When did you last see him alive?"

A. "I should say a few seconds before the explosion, I was talking to him."

Q. "At about what time?"

A. "Twenty minutes to nine."

Q. "And have you identified the bodies since?"

A. "Yes Sir."

Mr. Roumieu; "Let me ask you one question before we go any further. I understand that there were three men inside the building and three outside." Mr. Bragg replied in the affirmative, and said that the three men working outside were Abbot, Prior and Marshall.

Continuing his evidence, the witness stated that he identified William Prior who was aged 30 years. He was a tram pusher and was in charge of the tram. He last saw him alive at the time he saw Abbot. The other tram pusher was Marshall, whose body he also identified, and who was 32 years of age.



Q. "All three men were working outside the house?"

A. "Yes."

Q. "What you call the Corning Mill?"

A. "Yes, outside number 12 Corning House."

Witness said that he also identified the body of Smithers, who was leading hand in the destroyed mill.

Q. "What would you call him, foreman?"

A. "Yes Sir" (Capt. Bouvier and Mr. Stevens; "Building Foreman".)

Q. "When did you last see him alive?"

A. "A few seconds before the accident occurred."

Q. "You saw him in the house?"

A. "Yes Sir."

The witness further stated that he identified the body of Chandler, who was aged 19 years, an assistant in the Corning House.

Q. "And you saw him alive in the building at the same time as you did George Smithers?"

A. "Yes Sir. I also identified William Sopp who was an assistant. He was also inside the Corning House with the other two, just before the explosion."

Q. "And would they be the only three inside the house at that time?"

A. "Yes Sir."

Q. "You are quite satisfied about that?"

A. "Yes." Answering further questions the witness said he had no doubt in his mind that the three bodies he had viewed were those of the men he had mentioned.

At this point the inquest was adjourned for one week, the jury being bound over in the sum of £10.

The inquest was resumed at The Percy Arms, Chilworth, on Friday 22 February 1901. Some little delay was caused by the Coroner being late having missed his train at Guildford. He managed to charter a conveyance at Guildford and arrived at 10.40 a.m. and the proceedings began.

The first witness called was once again the foreman Mr. Bragg. Mr. Bragg stated that he went to work as usual on Tuesday, February the 12th at 6 o'clock. An interval of half an hour was allowed for changing of clothes. At 6.30 a.m. he fell the men in, and saw that they had on the clothes in which they worked. He had 30 men under him and he examined all 30 to see that their clothing was in a suitable condition. He found nothing unusual. He was quite sure that he had examined the 6 deceased men. Mr. Bragg was then questioned by the Home Office Inspector.

Q. "Have you ever found anything wrong?"

A. "Only once or twice, but before the man went to work I made him go back and change. In the case of pockets I have made them cut the pockets out or have them sewn up. The workers are not allowed to have open pockets. At 8 o'clock the men had their breakfast in the messroom. Before returning to work I examined them again."

Mr. Bragg continued, stating that he went to the number 12 Corning House to give some instructions. Abbot, Sopp and Prior were the tram pushers. Marshall, Smithers and Chandler were working in the Corning House. He saw the first three named with the tram. They were engaged in bringing from the corning mill, three barrels of dust which had been through the mill; they were being loaded onto the tram. The mills were not at work. They had been working before the breakfast break. He saw one barrel brought out and put onto the tram, and as he turned to leave he saw Prior with another man — he was not quite certain who — carrying another one out. He had just got to the corner near the bridge, about 20 feet away from the tram, when he heard the explosion behind him, but not very loud, and he was knocked down. He must have been struck on the head at the same time. He lost his senses for a few seconds only. He looked round and saw nothing of the tram, which had disappeared, and the building seemed to be up in the air. He did not hear the second explosion. The explosion he heard was no louder than a small gun going off. He had been working at the factory for 15 years and he had never had an accident there of any description. Mr. Bragg continued that he had thought a great deal about the accident, and he did not think it could have happened in the building first. The Coroner asked "What makes you think that?" Mr. Bragg; "Well, there was nothing working." The men inside could not have had the time to do anything more than to pass the dust out to the others. The ground outside was very frozen and was hard. The men working outside would have had ordinary boots, and might have nails in them. The metals were of steel. Supposing a man slipped when running the powder from the mills, his nailed boot struck against the metal, but he did not however think that the explosion had happened that way. He saw the place after the explosion and it struck him forcibly that the tram had exploded first. It was fine ashes about, and there was no sign of any stones.

The Coroner:

Q. "From the appearance of the tramcar, you came to the conclusion that the explosion had taken place there, because you thought if it had taken place in the Corning House the tram car would have been blown away?"

A. "Yes Sir." Continuing, Mr. Bragg said that one of the barrels of powder would contain from 70 lbs. to 80 lbs. of powder. He should say that on this occasion the barrels were about full, and within an inch or two from the top.

Q. "When you turned your back to walk away, you did not hear anyone call out, or see anything unusual happen?"

A. "No Sir."

Deputy Chief Constable Page then said, "No one would be likely to get into the building who was not employed at the works. The tram pushers wore ordinary boots, with nails in them, this was the ordinary custom in the factory."

Captain Bouvier was then called to give his views as to the cause of the accident. It will be recalled that Captain Bouvier was the factory manager. He stated, "All the deceased men were thoroughly acquainted with the work. The manner in which the work was carried out was in accordance with the Government



Regulations, and their own regulations." He had come to the conclusion that the corning mill was not at work at the time of the explosion for the following reasons: that the time was 8.40 a.m. and the men did not leave from breakfast before 8.30 a.m. They then had to proceed to the building, and they always swept it first and then oiled the machinery, and then they had to hand the powder out. All that must take 10 minutes. The other reason was that, with powder in the mills, had the machinery been running, the machinery would have been injured very much more, but as it was it was nearly intact. The ground outside was always prepared with cinders, but there could be no guarantee there was not a stone there. He made a very careful search after the explosion but he could find no trace of a stone. He thought that the explosion must have happened through the man slipping first of all. The ground was hard frozen that morning, and probably if a man slipped, part of the contents of the barrel came out, and at that moment his foot struck a stone or something hard and a spark was created. This might happen if the man struck the rail. Supposing a barrel slipped down, he could not say that the explosion would have been caused simply by concussion. It might have been caused that way if the barrel struck something hard, and caused a spark, and the spark came into contact with some powder dust adhering to the barrel, that would be sufficient to cause the explosion. He continued saying that he had been at the works for sixteen years. Two years after he had started his employment there was an explosion in the incorporating mills, that was in 1887. That mill was the old pattern mill, but there was no loss of life. The old pattern mills have been done away with. There was nothing left undone to ensure the safety of the men and the works. They had always carried out the suggestions made by the Home Office and from time to time improvements were made. He then continued, he had just left the office when he heard two bangs in very short succession. It was then 8.40 a.m. At that time he was about 300 yards from where the explosion took place. The second explosion appeared to be stronger than the first. Both appeared to him to be at the two mills, he did not think of the Corning House. On getting to the scene of the explosion he noticed the tram lines, and the first report would be consistent with the first explosion having occurred at the tram car, and the second at the Corning House. If the Corning House had exploded first the tram car would be blown away. The Corning House had not started work. From what he knew about the Corning House and the tram car and the management of the whole business, he had come to the conclusion that the explosion must have occurred at the tram car, and the foreman was of the same opinion. He thought the explosion happened by a man having slipped, his boots striking a spark either on the rail or the ground, thus causing the ignition. The tram car having exploded, ignited the Corning House.

The Coroner:

Q. "Did it ever pass through your mind that the explosion might have happened the other way round?"

A. "No."

Q. "Would it be likely that a man would be smoking?"

A. "No, I think that is out of the question all together."

Q. "Would they be likely to have lucifer matches in their possession?"

A. "No, because they would have been searched."

Q. "Are you satisfied that the search made would have been done thoroughly, and not in a perfunctory manner?"

A. "Yes, they are searched, not only when they enter the factory but after each meal."

Q. "What would happen if matches were found?"

A. "The men having matches on them would be instantly dismissed."

Q. "Has this ever happened?"

A. "Yes, I had occasion to dismiss a man for this breach about two months ago, and the other men were made aware of this."

Q. "Do you think any atmospheric influence would have been likely to have caused this explosion?"

A. "Electricity has an influence in causing explosions, but I cannot say if the air was charged with electricity on that day."

Q. "Have you had any experience in this matter?"

A. "No, but I have made a study of this matter."

Captain Bouvier then produced a sketch showing the positions in which the bodies were found and described this in detail. Chandler's body was found 160 feet away, Marshall 270 feet away, Prior 216 feet, Abbot close up by the brick traverse, Sopp in the actual debris and Smithers was 84 feet away. He then went on to relate his actions and sending for the doctor.

Deputy Chief Constable Page then said, "There would not be a train of loose powder from the car where it stood stationary to the Corning House?" Captain Bouvier replied that he would not expect it in any case. He had never seen it. He should like to say, in regard to the men working outside, that their having nails in their boots was not contrary to the rules of the factories of this country.

Mr. Bragg, alluding to the question of smoking, had said that any act of carelessness amongst the young men of the factory was always reported by the other hands. The older hands knew the importance of carefulness for the safety of their fellow workers.

The Coroner:

Q. "That is the spirit which pervades the whole staff; if they saw anything wrong they would repress it and report it to you?"

A. "Yes, he knew that was a fact, and it was also in the rules."

Q. "Are you satisfied that the rules and regulations are strictly carried out?"

A. "Yes, as far as possible. They are all aware that they carried their own lives in their hands."

Doctor Scott Watson, from Womersley, then gave evidence. He said that he was called at about 9 a.m. to the mills, where he found the deceased, Smithers on a stretcher in the hospital. He was alive, sensible and was able to speak. The man was badly burned about the head and neck. His left eye was destroyed. He had a large lacerated wound on the top of his head, a smaller wound over the left



eyebrow, and both hands and arms were badly burned, especially the left. There was a large burn on the left side of his chest, a smaller wound on the left side of the abdomen and a lacerated wound on the back of the right wrist, laying bare the bone. Smithers lived until nearly 11 a.m., the cause of death being 'shock to the system'.

Major Cooper-Key, the Home Office Inspector then addressed the Court. He said he had very few words to say, because he thought the present case was much clearer than was usual in most explosions of that sort, when, as a rule, everything was swept away, and there was absolutely no evidence of any sort or kind. But here they had a certain amount of evidence. Then, as to where the explosion started, it was either at the tram car or at the Corning House, and he thought from what he had heard they would agree that the actual first point of ignition was at the tram car, which stood at its place at the end of the tram rails. There were two explosions — according to a certain number of witnesses — of which the latter was most violent. On the tram car there would be about 200 pounds of dust, and about 500 pounds in the Corning House. Lastly, and it was perhaps more conclusive than anything, the heavy brass or copper handle of the car was found about 200 yards away on the far side of the House, showing that it must have been thrown straight over the House, and showing that it could not have been done if the House had exploded first, or that the Corning House went a long time before the tram car, which was quite impossible, because they knew that the tram car exploded on the rails themselves. So they thought they might say that the tram car certainly went first. Then at the time of the explosion they had the men with their hob-nailed boots, the ground frozen, and steel rails, and the powder being carried, in barrels from the Corning House, which was always filled with dust, although he would like to say that this house was far more clear of dust than any other Corning House that he had ever seen. In fact, on the occasion of his last Inspection only a few months ago, he made a note to the effect that it was much cleaner than most corning houses. At the same time however, there must have been a certain amount of dust on the hoops of the barrels, and so on. So they had men carrying their casks to the tram, the ground frozen, the men slipped, the jar shook the dust off the barrel, and they knew what followed. He did not think there was any need to look further for the cause of the accident.

As far as other possible causes might be considered, they had got the question of lightning, but there was no lightning on that day. There was also the question of a spark from a neighbouring chimney, but the nearest chimney was 160 yards away and it was provided with a spark catcher, which was inspected, he understood, twice a week. There was always a chance of fire being carried in the men's clothing from the mess room. In this case there had been no fire in the mess room, which was heated entirely by steam. Then there was the chance of men smoking, but this chance, he thought, they might dismiss at once. If the men did intend to have a smoke, they certainly would not when they knew that the

foreman was about, and it was most unlikely that men working as they were, would smoke. No smoking was allowed in any part of the factory area. In most factories there was a room set apart in which men may smoke after their meals, but in those instances special precautions were taken against fire being transmitted into the factory. But at Chilworth there was no smoking at all in any part of the factory. The next possible cause would be the undiscovered pipe in a man's back pocket, but it was almost impossible to think that the accident happened in that way, as the men were not even supposed to have pockets in their clothes. Then they had the cause of a lucifer match either carried in a man's clothing or lying about loose on the ground. He thought that these two should be taken together, considering that the sole incentive of having a match would be to have a smoke. But there was no reason to believe that smoking had ever been indulged in, and he thought they might as well dismiss the case of a match. If a man had taken a match in by accident, it would have been found as they were searched. He thought that there was very little reason to doubt what was the real cause of the accident, and that was a spark struck from a hob-nailed boot either on the steel rail, or by a stone, or perhaps by an old piece of iron which might have been lying about; there being no reason to think that an old piece of iron might not possibly be lying on the ground. A spark, as he had suggested, communicated to the powder dust outside the cask the men were carrying; or the cask half slipping out of the men's hands, or quite slipping from their hands; or a man having fallen flat down on the frozen ground might have caused a spark. This he thought, was the cause of the accident. The next thing to consider was whether the accident could have been avoided. In his opinion it was an accident, pure and simple, but what should be considered was whether it could have been avoided by other arrangements. He confessed that he regarded as inadequate the arrangement whereby a space of five yards, of the ordinary surface of the ground, had to be crossed by men wearing hob-nailed boots and carrying powder barrels covered with dust. The reason for this, curiously enough, was a pure oversight on the part of the company; the sole reason being in the endeavour of the company to improve the law — to improve on the regulations laid down by the Home Office. According to the company's licence with regard to the tramway, the rules of such tramway within three yards of any part, etc., of the Corning House were that the tramway should be of wood, brass, or other suitable material, but in order to improve on this, the company said that they would not have a tramway to within five yards of the building. He thought that on the whole it would be preferable to have tram rails of wood or brass and have them right up to the platform of the building. And that the men in the building should have proper over-shoes, with no nails in their construction, and to have the loading of the trams from the platform. He had been speaking to the representatives of the Chilworth Company, who were not only prepared to do that, but also to provide the tram pushers with special shoes, without nails. He could not speak too highly of the smartness and efficiency of the arrangements in the factory. As far back as he could see from the reports at the Home Office, every single angle of the

factory was excellent. So that he thought that this slight oversight might be put down to extra zeal on the part of the company to have things extra safe. The accident certainly did show one thing; it showed that not only was the spirit of the law to be carried out as well as the letter, but the letter of the law must be carried out as well as the spirit. The company were willing and anxious to act up to the spirit of the law, but they had not observed the exact letter of the law, because the case of the tramway not being continued up to the house had never been contemplated by them.

The Coroner said what he had gathered from Major Cooper-Key's remarks was that the tram lines were in accordance with the Home Office rules and regulations, because, they made two rules and regulations. They either said if there was a metal tram line it should not go within three yards of the coming house, or if they had one it must be of wood. The Major replied "Yes", therefore, said the Coroner, the company were not contravening. The Major said: "They were not actually contravening, they were quite within our rules and regulations in having the tramway end where it did. The Home Office had never contemplated the case of steel tramways being stopped more than three yards short."

Mr. Lloyd, a juror, said he knew from experience that the men were most careful in not taking matches into the factory, because when he kept that house (The Percy Arms), they used to call in there on the way home for matches, not having any with them. He might also say that he felt the two explosions. He was in bed at the time and was drinking a cup of beef tea, the first shook it and the second overturned it.

Major Cooper-Key in reply to the Coroner said he could not speak too highly of the way in which the company had been found on his Inspections. Replying to further questions he said that the company had not had a fatal explosion since the year 1879. The last explosion was a mill only, and five or six of these went up over the United Kingdom every year.

The Coroner, in summing up, carefully reviewed all the points brought forward in the evidence, and expressed thanks to all for the assistance given to him and the jury. He thought it was clearly demonstrated where the accident happened, all three witnesses coming to the same conclusion that it was first outside the building. There was no doubt whatsoever that if the accident was caused by a spark having been ignited by the nails of one of these men's boots coming into contact with a stone, a bit of old metal, or the metals, even then they were not contravening any order laid down by the Home Office. It was perhaps an oversight that the men were allowed to work at this job with hob-nailed boots, but they heard that the same sort of thing was done at other mills, therefore they could not say that the accident happened by wilful neglect or disregard on the part of the men or the company. They heard that no doubt in the future an alteration would take place. The provision of special boots would be made for the men working inside, and also the men outside should have special boots so that the risk of a similar accident should be done away with entirely: It would be for the jury to say, first of all, having regard to the evidence, how the accident happened, and as to how the poor fellows met with their deaths.

The jury returned and the foreman said "We find that Walter Abbot met his death by an explosion of gunpowder which took place at the tram, which caused the Corning House to explode. We are of the opinion that no one was to blame for the accident, and we entirely agree with the evidence and theory put forward by experts, and are pleased to hear that the company are to make improvements." The jury returned the same verdict on the other five men killed. The Coroner said it was a fair verdict and that everybody would agree with them.

There were, as to be expected, many instances of false alarm. One in particular instance was on 3 April 1902. A rumour spread throughout Guildford and district that an explosion had occurred at the factory. Much anxiety was caused to the persons having family and friends working there. Local residents at Chilworth were contacted and it was found that no explosion had in fact taken place and a notice had to be placed outside the Surrey Advertiser Office to this effect.

Had the factory not been so well equipped and organised with regard to its duties and firefighting, there would have been many more disastrous accidents. The most notable of modern times happening in the late 19th century, between 1886 and 1897. Situated in close proximity to the factory was a paper mill owned by Messrs. Unwins. One weekend this paper mill caught fire and blazing paper floated across the part of the gunpowder factory nearby, some of the paper settling on the factory magazine. Usually stored in these magazines was about 60 tons of gunpowder. Fortunately the blazing paper was put out before any damage could be done. If it were not for the brave action of these men from the works the whole of the gunpowder mills, Chilworth and St. Martha's would most probably have been flattened causing a tremendous loss of life.

During the early 1900s the Chilworth Company continued to prosper. By this time it had established another factory at Fernilee, Derbyshire, and it had magazines scattered over the country. In 1909 a list of all gunpowder factories was compiled and this gave a very good indication of the state of the company. The company had capital of £100,000 and had its head office in London. The personnel employed at Chilworth numbered, 1 Head Chemist, 1 Assistant Chemist, 2 Chief and Assistant Engineers, 20 Manufacturing, Commercial and Administrative employees. 300 male workers and 6 females. The company had its agents in all principal Colonies of the Empire, also in all foreign parts. At this time there were a total of 143 buildings at Chilworth. There were boilers and steam engines which were aggregating about 1,500 horse power, also water power of about 100 horse power, there was electric lighting by arc lamps and incandescent lamps. The machinery installed consisted of over 200 separate machines, many of special design. There was about 5 miles of tramway of two-feet seven-and-a-half inch gauge. There were three ten-ton weighbridges. The company had a benevolent scheme to provide for those who were past work.

All this was very nice for the company, but what was it really like to work at this factory? I was fortunate enough to be able to interview one of the ex-workers, Mr. Edwards, who lived at Blackheath. He worked at the factory from 1901 until 1920 when he was made redundant. His first, and without any doubt



most vivid recollection was the explosion of 12 February 1901, he had been working at the factory for a very short time when this accident occurred. He was not involved in any way as he was not employed near the ill-fated Corning House that day. During the 1914-1918 war the factory was worked round the clock, but the normal working day was from 6 a.m. until 5 p.m. The wage for an ordinary workman was 18/- a week and during the war the factory employed over 600 people, men and women; the women incidentally also worked on the night shift. The workers usually walked to work, a lot living near to hand, but some had to travel from as far away as Godalming, Guildford, Bramley and Peaslake. The workers had to clock in at 6 a.m. and if any one was late, up to 10 minutes, they lost one hour's pay and if they were late for three mornings running, on the third they would be sent home again losing a whole day's pay. Many a man to whom this fate befell, rather than go home and face his wife, spent the day roaming about or in one of the Ale Houses and returned home at the normal time. The normal daytime working routine was as follows:—

6 a.m. **Lodge:** clock in and be searched. This was very strictly carried out. If a worker was found to have matches or any other prohibited article on his person he would be sent home.  
**Boot House:** change boots. The men changed into boots, provided by the company, with brass nails. If the man was employed in a building, such as a corning house he would have to change his boots again to a pair with wooden pegs and no nails. These were kept in a locker inside the Corning House and were never worn outside the building.  
**Mess Room:** change out of ordinary clothing into Powder Kit, again provided by the company. Dinner baskets were left in the mess room, each worker having his own locker for this purpose.

6.30 a.m. Commence work.  
 8 a.m. **Mess Room:** for breakfast.  
 8.30 a.m. Work resumed until dinner.  
 12 noon. **Mess Room:** for dinner.  
 12.30 p.m. Work resumed until —  
 4.30 p.m. **Mess Room:** Wash and change back into ordinary clothing.  
**Boot Room:** To change into outside boots.  
**Lodge:** For search.

5 p.m. Clock out.

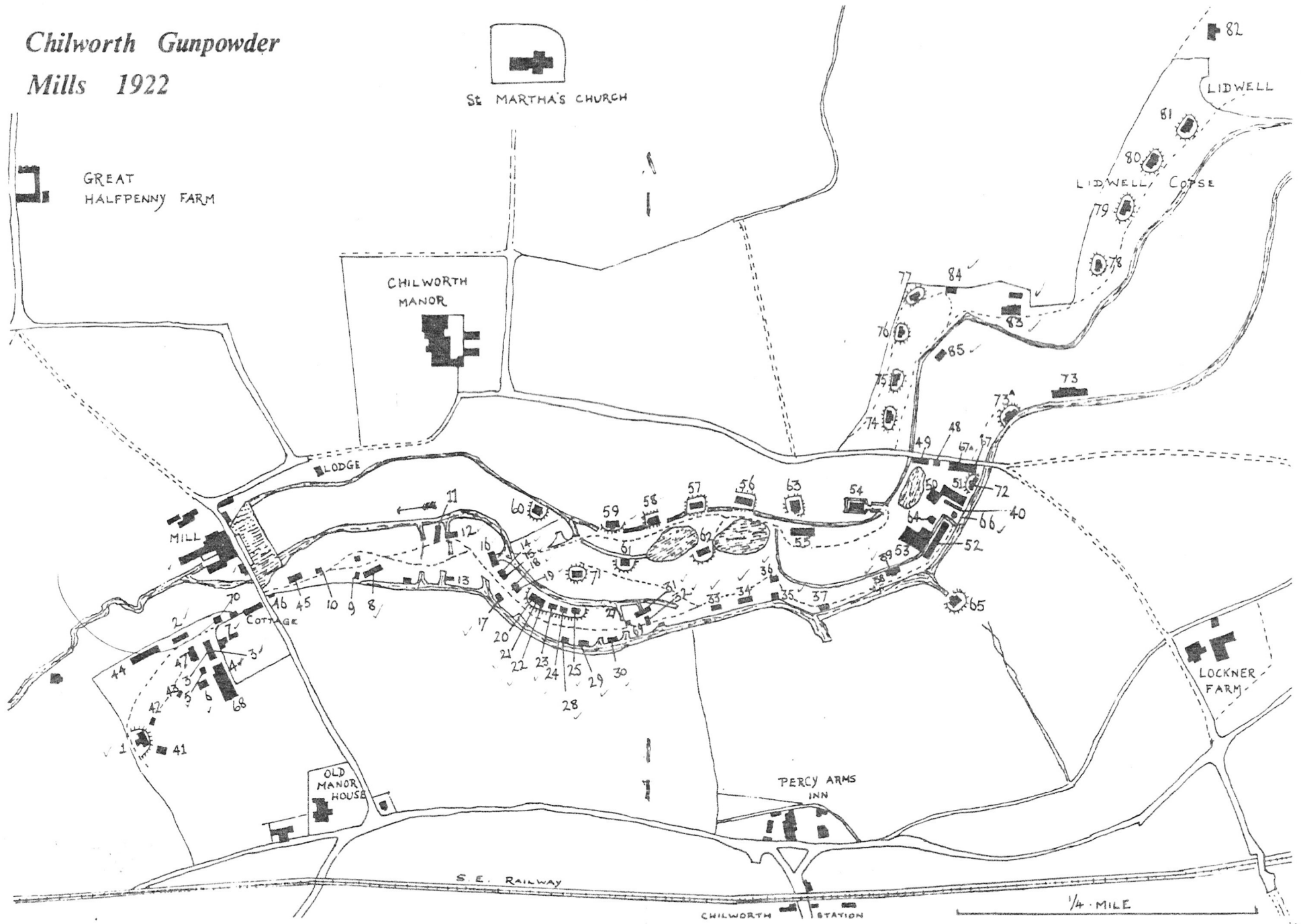
Overtime was a normal thing, the men working on until 7 p.m., although during the Great War many worked anything up to 18 hours. The rate of pay was basic, there being no overtime rates.

Unless the worker was a tradesman, (e.g. Carpenter, Engineer etc.) he could be, and often was, put to any task in the factory. In each working shift there were five Foreman (in charge of Carpenters, Engineers, Blacksmiths, Black Powder Department and Brown Powder Department), and a Forewoman whose job was basically to take charge of the women and to carry out the searches of them.

KEY TO PLAN OF 1922  
 (based on the sale particulars)

1	Factory Magazine	44	Workshop and Stores
2	Carpenters' and Coopers' Shops	45	Cask Store (removed from near Old Manor House and renewed)
3	Saltpetre Refinery, Engineers' and Carpenters' Shops, Meal Room and Wash House	46	Lodge to West End of Factory
4	Charcoal House	47	Factory Office and Laboratory
5	Store	48	Densimeter and Examining House
6	Charcoal Kiln	49	Store
7	Brimstone Refinery	50	Engine House
8	Dusting House	51	Mixing House
9	Wash House for do.	52	Incorporating Mills
10	Expense Magazine (Lower)	53	Engine Boiler and Wash Houses
11	Brick Traverse	54	Blending House
12	Press House &c. (Lower)	55	Press and Engine House
13	Packing House	56	Stove
14	Charcoal Store	57	Packing House
15	Mixing House	58, 59, 60, 61, 62 and 63	Expense Magazines
16	Incorporating Mills (Lower)	64	Charcoal Store
17	Charge House (Lower)	65	Blending House
18	Press and Engine House	66	Corrugated Iron Screen
19	Watch House	67	Store
20, 21, 22	Incorporating Mills (Steam)	67a	Laboratory &c.
23	Engine and Boiler House	68	Charcoal House
24, 25	Incorporating Mills (Steam)	69	Accumulator House
26	Site of Old Water Mills	70	Weigh-bridge
27	Site of Old Water Mills	71	Press House
28	Lavatory	72	Charge House
29	Charge House (Middle)	73	New Incorporating Mills
30	Charge House (Upper)	73a	Charge House
31	Press and Breaking-down Press and Mill Cake House	74	Packing House
32	Wash House for do.	75, 76, 77, 78, 79, 80, 81 and 82	Magazines
33	Glazing House (Middle)	83	Factory Cottages
34	Packing House (Upper)	84	Agricultural Implement Shed
35	Stove	85	Unoccupied Cottage
36	Do. Boiler House		
37	Expense Magazine (Upper)		
38	Site of Old Wash House		
39	Corning House		
40	Charcoal Mill		
41	Packing House		
42	Target House for Chronograph Range		
43	Chronograph Range		

# Chilworth Gunpowder Mills 1922





In 1913 discontentment started at the factory among the workers, who felt that they were being exploited. The wages were kept low, as a result of the employment of a large number of ex-soldiers, who were already in receipt of a pension. The outcome was the formation of a Workers' Union, which every employee joined except two, the weekly dues for this union being five pence. Mr. Edwards could not recall any benefit he gained from joining the union. Before the formation of the union the workers paid into a fund, the money from which paid the wages of any sick man. If a man did fall sick, this was checked and he was paid his full wage for a fixed period of time. This scheme was run on a voluntary basis by Mr. Trice, one of the foremen, who was to become better known as the pioneer bus man in the district. This scheme carried on after the union was formed.

Mr. Edwards could recall the bomb scare which took place in 1915. It appears that a Zeppelin dropped a string of 10 bombs between Guildford and St. Catherine's, the nearest one landing on the common at Shalford, west of the magazines. There was some speculation as to its target, some saying it was off course for London, others that it mistook St. Catherine's Church for St. Martha's. If the latter was in fact the case, then the target was most certainly the gunpowder factory. The raid resulted in very little damage, and the only loss of life was a swan. If the bomb had landed on one of the magazines the result would have been very different — at the time they were full to the roof.

During the Great War, in the year 1916, a set of special rules were issued to every employee. These rules took into account all the existing and suggested rules which came from the inquest in 1902.

#### Special Rules

- 1 No person is to enter or leave the premises except by the general entrance, or to loiter thereon after his or her employment is finished.
- 2 Every person is to submit to be searched by the Lodge Keeper or other authorised person, and is to allow any bag or basket he is carrying into or from the factory to be turned out and its contents inspected.
- 3 The Foreman on duty is himself to examine every man and boy before work is commenced, to see that they have no pockets. The Forewoman is to examine the women in a like manner, and report to the Foreman before any work is commenced, and also after each meal before recommencement of work.
- 4 All dinner baskets are to be kept in the meal rooms, and are under no pretence to be taken into any Danger Building.
- 5 No one is to enter any Danger Building without putting on the Magazine boots or shoes provided, which are to be kept within the Danger Buildings, and are never to be allowed to come into contact with grit. Ordinary shoes, when not in use, are to be deposited in the place provided for that purpose.
- 6 Waterpots and mops are to be kept on the platforms of all Danger Buildings, and such platforms and stages are always to be kept strictly clean. The Foreman or Forewoman is to see that the benches and floors of all Danger Buildings are frequently swept and kept clean.

- 7 A careful inspection of the whole of the machinery shall be made daily by the Chief Engineer or his Deputy, or in their absence by the leading man in each house, and a weekly written report of the condition of the machinery, signed by the Chief Engineer, will be sent to the Manager.
- 8 Every Foreman shall record the date and hour of every visit paid by him to the Danger Buildings in the 'Visiting Book' supplied him for that purpose.
- 9 If any machinery should get out of order, or if any workman has any suspicion that it will do so, such machinery is to be instantly stopped, and on no account to be set in motion till it has been made safe and perfect, and authority has been given by the Chief Engineer or Foreman to that effect. The workmen are to keep a vigilant look-out on the condition of the machinery.
- 10 Under no circumstances within a Danger Building or Magazine must a barrel or case be dragged, but it must always be lifted.
- 11 Before entering any Danger Building the workmen are to put on the working clothes without metal buttons, provided in the changing rooms for that purpose, and take them off again before leaving the factory when work is over. Pockets are not to be worn in any Danger Building, and in no case are trousers to be turned up at the bottom when outside the Danger Building.
- 12 No article of iron or steel is to be taken into Danger Buildings save only when repairs are in progress.
- 13 No implements or tools are to be used in the Danger Buildings except those supplied for the purpose, and afterwards they must be replaced carefully, and never thrown down.
- 14 Open barrels are not to be placed one in or on another.
- 15 The limits of quantity of explosive and ingredients affixed at or within the several buildings and parts of the factory, as the limits of quantity respectively allowed to be in such buildings or part, or in any machinery therein, at any one time, shall be duly observed by every workman engaged in or about, or in connection with such buildings, machine, or part. The explosive in packing rooms is to be carefully reduced to the smallest quantity, and never be allowed to accumulate faster than it can be packed.
- 16 Machinery while in motion shall be invariably stopped for oiling, in accordance with the notice posted to this effect.
- 17 Where oil other than mineral oil is used, no cotton waste is to be taken into Danger Buildings, but only the sponge cloths provided, which are to be exchanged for clean cloths by the Foreman as often as may be necessary. Sponge cloths in use are to be kept in the box provided, outside each Danger Building. All disused oiled cotton waste and oiled sponge cloths (whatever oil may have been used) shall be kept in the iron box provided for that purpose.
- 18 Whenever it may become necessary in the Danger Building to remove any explosive encrustations, whether from the machinery or elsewhere, which

cannot be easily brushed off, such removal is to be effected without the use of metal tools. The hard explosive is to be removed by means of hot water or acetone, supplied, supplemented if need be, when the whole of the encrustation has been thoroughly saturated, by a suitable wooden implement, gently applied.

- 19 On the approach of a thunderstorm, work in Danger Buildings is to be suspended, and the buildings are to be closed, and the men are to retire to the mess room.
- 20 No unauthorised person shall be admitted into the factory or to any buildings thereof, and no workman is to go into any part of the factory, except where he or she is employed, without the authority of the duty Foreman. No workperson is to leave the Packing Room without the permission of the Foreman or Forewoman in charge.
- 21 No Intoxicating Liquors are to be brought into the Factory on any pretence whatsoever.
- 22 No person shall be admitted into the Factory in a state of intoxication, or otherwise unfit for work. Any person found on the premises in a state of intoxication will be deemed to commit a breach of these Special Rules.
- 23 The electric light fittings must not be opened or the bulbs removed except by the Electricians. The Electrician on duty is to see that the lamps are maintained in a safe and satisfactory condition. Only Safety Matches are to be used in the factory, only by the Foremen, and kept in the boxes provided for that purpose.
- 24 All trams are to be kept clean, and the sweepings to be put into the tubs provided for the purpose.
- 25 The temperature in any Danger Building must not exceed the limits of temperature posted in that building.
- 26 The interiors of the Stoves are to be kept thoroughly cleaned with Acetone.
- 27 No defective case or barrel may be received into or issued from the factory magazine.
- 28 In the interval of receiving or delivering explosives, the magazine doors must be kept constantly closed, and the storekeeper in charge must not leave the magazine while the doors are open.

#### Extra Special Rules for Repairs

When any repairs are reported necessary in any Danger Building either by the Foreman, the Chief Engineer, or by any Workman employed therein, the following course shall be adopted. . .

- 1 The Chief Engineer shall in person report to the Manager what work he finds needful to be done. The Manager shall request the Foreman of the department connected to such work to examine into the specific repairs required, and to report to him or his deputy.
- 2 The Foreman so reporting shall on no account proceed with such repairs until he has obtained permission to do so in writing from either the Manager or his Deputy.

- 3 When this permission in writing has been obtained, the Foreman is himself to see the commencement of any such works, after the building, machinery therein, and ground outside the building have been thoroughly saturated with water and kept wet during the progress of repairs, which must always be undertaken with the greatest of care and circumspection, and no repairs may be commenced, and no tools used in the stoves or in any trays or utensils used therein, until after the whole of the woodwork has been thoroughly washed with acetone. The Foreman shall conduct the repairs in person so far as his other duties will allow.
- 4 During the progress of any repairs the Foreman of that portion of the factory must be himself in attendance as often as possible, and is responsible that no repairs are undertaken except under the above conditions. Any person committing a breach of the foregoing rules shall, on conviction be liable to a penalty not exceeding Forty Shillings. These rules were made by the Home Office, Whitehall and were dated 20 March 1916.

#### Notes on the Rules

In cases of gross negligence or carelessness the Proprietors will avail themselves of the powers given them by The Explosives Act of 1875, by which they can arrest by themselves or their servants any person so offending, and take them without warrant to be dealt with by the law; and the court before whom he is brought is authorised to inflict summary punishment, either by fine, or by imprisonment with hard labour for six months.

The Foremen are responsible that every man engaged in these Works has a copy of these rules, with which all are requested to make themselves familiar. Additional copies can be had by any Workman on application to a Foreman.

The men are to use every means to increase the security of themselves, their fellow Workmen, and all concerned, and to preserve the property of the Company. They are to be especially careful that all work connected with gunpowder is done deliberately and thoughtfully, and immediately to check, either in carelessness in themselves or others, any tendency towards trifling carelessness, and are to report to the foreman any breach of the General Rules or Special Rules which may come to their notice.

The rules of the company were strictly enforced and they remained in force until the company ceased their operation at Chilworth.

When reformed in 1885 as The Chilworth Gunpowder Company, the firm was effectively a branch of the Vereinigte Koln-Röttweiler Pulverfabriken, which were members of the Anglo-German Dynamite Trust.<sup>2</sup> Vickers had acquired a minority interest by 1914 and the business was greatly enlarged by the Ministry of Munitions in 1915-1917. When peace came once again to England, in 1918, the call for gunpowder fell off and all the explosives manufacturers amalgamated to form Nobel's Explosives Ltd., later to form part of I.C.I.<sup>3</sup> The demand for powder for use in industry was negligible; the gunpowder industry at Chilworth was doomed



to closure. A notice was given to all the employees, signed by the Managing Director at the time, Mr. T. G. Tulloch, dated 16 June 1920.

"It is with great regret that we have to inform you that the shareholders have decided to put the Chilworth Gunpowder Company into voluntary liquidation and to cease the manufacture of explosives at Chilworth. Ever since the Armistice, when work on Government orders ceased at short notice, the Directors have allowed the works to continue operation in hopes of a resumption of better times and that a large demand for blasting powders would return. It has now become apparent however that these hopes cannot be realised, and on examination of the losses which the Company has sustained in keeping the factory going since the Armistice, with the object of keeping workers employed, do not permit the continuance of any further manufacture of black powder. This coupled with the enormous taxation to which the Company is now subjected makes it impossible to continue. There is an additional reason also looming in the near future, i.e. foreign competition, not only in home but in overseas markets, from Belgians and Americans which make it impossible for the Chilworth Company to compete. The price at which Belgian powder can be produced, owing to lower wages there compared to wages in this country, will result in their being able to sell powder at a profit, at probably lower costs than it can actually be produced at Chilworth. The Americans on the other hand, owing to the very large orders they received from the British Government during the war which enabled them to extend their factories and to work on an enormous scale of output, and also owing to the less stringent regulations governing their conditions of manufacture, can sell against us at prices which it is hopeless to compete with on the small-scale output at Chilworth, already so heavily burdened with taxation and stringent regulations. There is nothing for it, therefore, but to cease manufacture of black powder at Chilworth, and this is all the more regrettable as most of the employees have given long and faithful services throughout the best part of their lives to the business of the Company. The Chilworth factory is the oldest powder factory probably in the world, and that it should now come to an end after such services to the State as it has rendered in the past, since the days of Queen Elizabeth, is extra reason for regret. The Directors however in accordance with their past traditions which have governed the friendly relationship between them and their employees are anxious to do all in their power to lessen the hardships which must undoubtedly fall, especially upon those employees who are too aged or who suffer from disabilities which might prevent them from securing situations elsewhere. With this object in view, it has been decided to endeavour to establish new Peace industries at Chilworth, and if this can be arranged it is hoped that employment may be found for a limited number of our employees, but it may be some months before these new kinds of work start. The Directors therefore, in order that the hardships inflicted by discharges may fall as lightly as possible upon the employees, wish that all who can find work elsewhere should endeavour to do so as soon as possible. In saying goodbye to all those who are fortunate enough to find such work outside, the directors desire to express their grateful thanks for the loyalty and

good feeling which has always been characteristic of the workers at Chilworth and if at any time the directors can assist by recommendations and interest towards obtaining employment for those about to be discharged, they will feel it their duty to do their utmost in this direction."

The factory remained in the possession of the Chilworth Gunpowder Company until the year 1922. In that year His Grace the Duke of Northumberland sold the outlying portions of The Albury Estate by auction. This sale included the site of the gunpowder factory, the buildings thereon and all the dwellings belonging to the factory. The following extract from the Sale Particulars will give a good indication of the extent of the factory and the number of buildings.

#### Lot 24

The valuable and well situated freehold commercial premises formerly part of the Chilworth Gunpowder Company, situated on the West Side of Halfpenny Lane about a quarter of a mile from the Chilworth Station, (S.E. and C.R.) with Goods Yard. It is immediately adjacent to a good hard road with a wide entrance for goods vehicles. The property enclosed an area of over 6 acres and included a capital Manager's residence, spacious and well built Office Premises, Large Workshops and Stores, Pair of Cottages and a small Entrance Lodge.

*Bungalow Lodge*, situated at the Northern entrance, built of timber with tiled roof, with a large room, with fireplace, and lined with matchboarding, and a storeroom at the end.

*The Extensive Office and Workshops*, a brick built block of six spacious offices, an excellent carpenter's shop, brick-built and tiled engineer's shop. Large brick-built Magazine, lined with matchboarding, iron roof.

Brick-built packing house, iron roof.

Brick-built Target house, iron roof.

Timber-built shed with felt roof.

Lofty brick-built Retort House, with iron span roof and cement floor about 32 feet 6 inches by 32 feet, with large iron lean-to adjoining with brick-built Charcoal House with iron roof.

Brick-built Charcoal House with iron roof.

Brick-built Boiler House with iron span roof and a brick-built chimney shaft, about 120 feet high.

Brick-built and timber-built store with iron roof.

Sulphur Store and Oil store.

#### Lot 25

The extensive freehold property formerly part of Chilworth Gunpowder Factory, about 33 acres. Situate about a quarter of a mile from Chilworth Station and Goods Yard, adjoining a hard road. Comprises a wide strip of woodland containing a number of scattered buildings formerly used for the manufacture of explosives. There are two watercourses flowing through this property and the upper stream being at a considerably higher level than the lower, there is excellent opportunity for the employment of water at several points.

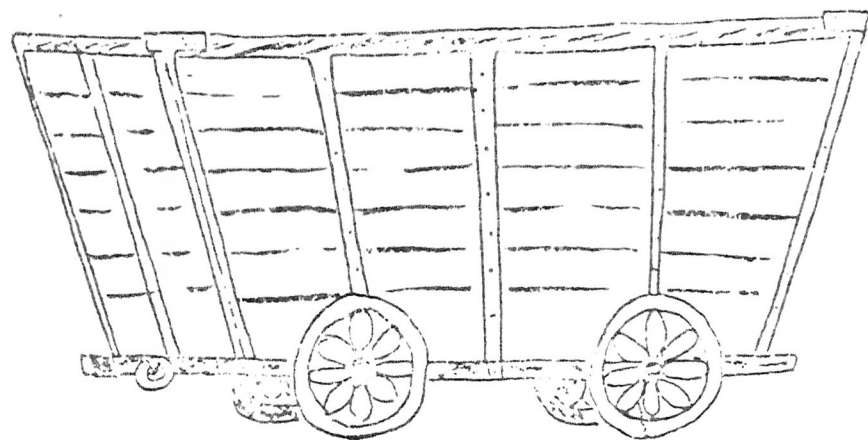
The buildings included in the sale are as follows:-

- Brick-built and Tiled Entrance Lodge.<sup>4</sup>
  - Timber-built and tile-heled building, used as a cask store and hospital.
  - Timber-built Dust House on brick foundations, with two floors and a basement.
  - Brick-built and matchlined Magazine with iron roof.
  - Timber-built Corning House, about 32 feet 6 inches by 24 feet, with two floors.
  - Timber-built Packing House with iron roof.
  - Brick-built Charge House with iron roof.
  - Timber-built Mixing House about 51 feet by 16 feet 6 inches, on a brick foundation with iron roof, on two floors.
  - Timber-built Grinding Mill on brick foundation with a felt roof.
  - Brick-built Charge House.
  - Brick- and Timber-built Mess Room about 23 feet by 10 feet 6 inches, wood floor.
  - Range of timber- and brick-built buildings 55 feet in length, used as Incorporating Mills.
  - Brick-built Engine House with Boiler room in basement, brick-built smoke shaft.
  - Two timber-built buildings on two floors.
  - Buildings in three compartments 49 feet long, brick-built.
  - Brick-built lavatory with cement floor.
  - Two brick- and timber-built Charge Houses.
  - Brick-built Accumulator House, 20 feet by 12 feet.
  - Large timber-built Press House, brick foundation, on two floors.
  - Timber-built Glazing House, with two floors.
  - Brick- and stone-built Packing House, 47 feet by 13 feet.
  - Old brick- and stone-built Boiler House.
  - Brick- and stone-built Stove House, 22 feet square.
  - Timber-built and felt-roofed Corning House on two floors, 36 feet long.
  - Timber-built and iron-heled Charcoal Mill on two floors.
  - Brick-built Magazine with iron roof.
  - Timber- and iron-built Store House.
  - Brick-built Engine House, iron roof.
  - Brick-built Mixing House, about 101 feet long, iron roof.
  - Brick-built tool shed.
  - Large brick-built building (Boiler House, Engine House and Mess Room) with iron span roof and octagonal brick-built chimney shaft about 120 feet high, with wrought iron bands and a lightning conductor.
  - Tramway, Weighbridge by Avery, with timber enclosure to weigh office.
- This lot includes the site of a Tramway connecting the premises with the railway, and the existing bridge carrying this tramway over the stream. There is a siding on the Railway Co. premises reached by this tramway held

from the Railway Co. under an agreement dated 31 December 1888, at an annual rent of £1.

To the casual walker on the site very little remains of the great mass of buildings listed above. The Plan with this paper, drawn from the Sale Particulars, shows the position and use of the buildings described.

- 1 *Surrey Advertiser and County Times*, Guildford (16 February, 1901).
- 2 J. E. Salmon (ed.) *The Surrey Countryside* (Guildford 1975) 162.
- 3 R. Trotter (ed.) *The History of Nobel's Explosives Co. Ltd.* (1938) 136-7.
- 4 Still standing and known as West Lodge.  
The Old Manor House, at the junction of Blacksmith Lane and Dorking Road, was the manager's house, where Captain Bouvier lived. He died on 9 August 1906, aged 59, and was buried at St. Martha's.



All the trams were made of wood and bound with either brass or steel; the former if used within the factory and the latter for carrying coal from the coal yard situated on the South side of Dorking Road to the furnaces. These trams held a ton of coal and were loaded and unloaded by hand. The railway ran from the coal yard, crossing Dorking Road at a slight angle to a place where The White House is now situated, along level with the line of the road to the weigh-bridge which was situated on the site now taken by Chilworth Stores. The rails ran down what now is a footpath between Chilworth School and the Stores, crossing a swing-bridge spanning the canal, to the furnace. The trams were man handled in both directions, two men pushing each tram. (After the weigh bridge it was downhill and the crew would ride on the rear of the tram.)