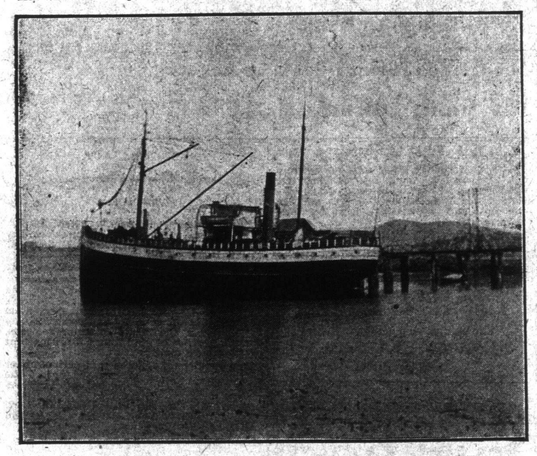
THE GIANT POWDER CO., CONSOLIDATED, CADBORO BAY.

GENERAL VIEW OF GIANT POWDER CO.'S WORKS AT TELEGRAPH BAY, VICTORIA, B. C.

Situated on Telegraph Bay, the other side of Ten-Mile Point, just to the north of Cadboro Bay and about five miles from Victoria, are the works of the Giant Powder Company Consolidated. The company, although owning California as its headquarters, is largely an English one, the bulk of the capital having been subscribed by former residents in the Old Country. And in this way it comes about that the local works, the only one of the concern operated under the aegis of the Union Jack, is looked upon with interest and pride by those chiefly interested in the welfare of the undertaking. The situation of the works is a particularly pretty one, the surroundings from an aesthetic point of view being almost idealic. In front are the deep blue waters of the historic Straits of Haro, across which the equally historic island of San Juan looms large, with all its features of rock and tree toned down into one harmonious color by distance, except where here and there the workers in the lime rocks have left great patches of white like dents in the beautiful deep cerulean of the surrounding landscape.

The land upon which the works of the powder company are located has more than present interest to the Victorian who takes an interest in the "early-day" affairs of the town, for at the height of the San Juan embroglio, which in the early sixties threatened to bring Great Britain and the United States into a clash, this point and Cadboro Bay were the nearest point from which the then British garrison of San Juan Island could draw their supplies from Victoria. It is stated that the present owners of the land secured several relics, or what



STEAMER LOADING AT GIANT POWDER CO.'S WHARF.

are supposed to be such, of those stirring times of old. A 32-pounder cannon ball and an old sabre are still produced as evidence of the former occupation of the land by those in search of other than peaceful pursuits, if the manufacture of dynamite may be classed as a peaceful pursuit.

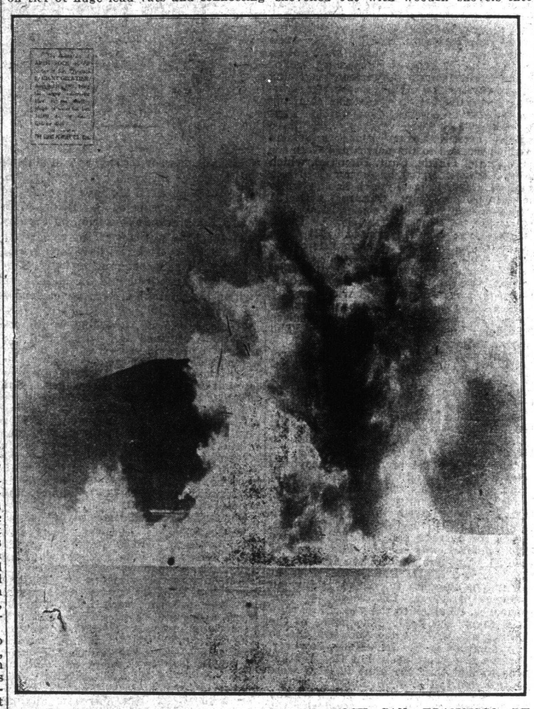
The drive to the works is a very enjoyable one, being over fine macadamized roads as free from roughness as the best pavement, and past field after field of the finest looking agricultural lands to be found anywhere. These latter, interspersed with groves of fine old oaks and the ever-present pine. On reaching the works one finds them scattered over a very large territory, some 35 acres in extent, and yet the superintendent seemed to think that that was not ground enough. The theory in building powder works is a construction of the cheapest and lightest kind possible, in order to offer the minimum of resistance to a chance explosion, and to scatter those buildings in which the various processes of manufacture are carried on in such a manner as to confine the dire results of any such untoward event to the one locality. Hence in following out these ideas it transpires that the various buildings at Ten-Mile Point do not present any too artistic an aspect, nor are they "next door" to one another.

By way of premise it may be said that the manufacture of dynamite and blasting powders is essentially the mixing of a liquid—nitro-glycerine—with a solid—nitrate of soda. The latter is the absorbent, which is, so to speak, soaked in the compound formed of sulphuric, nitric acid and the common glycerine; so that the raw materials used in these works are: Nitre, which is imported from Chili; sulphuric acid, which is purchased from the Victoria Chemical Works; and sweet glycerine, which is brought from the refineries in England in iron drums, similar to those in which oils are transported.

The nitre in its raw state is just so much damp, dirty-looking, coarse salt, and the first step in its transformation into a possible demon of devastation is to get rid of all moisture. For this purpose it is fed into a boiler, in which it is heated until it becomes liquid. This hot liquid is allowed to feed itself onto the surface of a revolving cone, which is kept cold by a constant supply of ice-water to its interior. As the nitre strikes this surface it crystalizes and is scraped off by automatic scrapers, leaving a product of perfectly dry nitre. This latter then passes through grinding mills, which reduces it to a beautiful powder as white as snow, and—to the eye at least—as near like ordinary flour as can be. This finishes the preparation of the nitre, and it is now ready to absorb its quota of the deadly liquid, nitro-glycerine. In its form as a white powder it is weighed out into appropriate quantities for a "mixing," and is transported by rail (mule power) to the mixing house. As to transportation, it may be said that all the departments of the works are connected by some miles of trams, along which the powder, etc., is moved by mule traction.

Having finished with the nitre for the present, the next point of interest is the "dynamite house." This ominous name befits its owner, as, what with the tier on tier of huge lead vats and connecting

POWER HOUSE AND NITRE DRYING BUILDING. TRAMWAY IN FOREGROUND.



A RECORD BLAST. DESTRUCTION OF ARCH ROCK, SAN FRANCISCO, BY 34,000 LBS. OF GIANT GELATINE, MANUFACTURED BY GIANT POWDER CO.

pipes, valves and what-not, and the play of the imagination as to the awful possibilities of "the charge" of some 1,400 pounds of nitro-glycerine therein contained, one is fain to believe that over the portal of this building at least could with truth be inscribed the legend: "All hope abandon those who enter here." This building, as will be seen by the accompanying photograph, is situated on the side of a hill and at a considerable distance from all other structures. As the superintendent remarked as he pointed up to the building, "There is one man up there, and he takes his life into his hands every time he goes into the building. But accidents there never happen, as it is all a matter of watching the thermometer and seeing that it does not get too high."

Outside this building the nitric and sulphuric acids are combined and pumped up into a vat at the top of the tier, into which is afterwards fed the sweet glycerine from the drums in which it is imported. This vat contains 5,000 pounds of nitro and 700 pounds of sweet glycerine, but the resulting output or "charge" is but 1,400 pounds of nitro-glycerine, much of the compound of the two acids passing off, and is returned to another part of the works, called the "de-nitrator," where the two acids are separated and used over and over again. Having been completely "mixed," the newly-born giant passes into a second huge vat—the separator where that portion of the acids which have not combined with the glycerine is drained off, as mentioned above. The separating is done by gravity, the nitro-glycerine, being a light liquid, rises to the top of the tank, while the nitric and sulphuric acids, in combination, sink and are sent on their way around the works in a long line of pipes.

From the separator the nitro-glycerine goes down one step more into a third receptacle, where it is "washed." This process is for the purpose of removing all excess of acids or other matter, and is done by means of two washings in cold salt water and one containing soda. While in the bath, both the explosive and water are kept "boiling" by means of jets of compressed air forced through the liquid from below. Here again gravity "does the rest" in separating the water from the now pure nitro-glycerine. This latter is run off in open lead drains to the weighing house, some distance removed, where the quantity is kept tally of by means of a tank on a weighing machine, so that the exact result of each charge is permanently recorded, to the fraction of an ounce. From this point the liquid continues on its way by means of a second lead drain to the mixing shed, where it is weighed out into suitable portions to mix with the corresponding quantities of powdered nitre, which have been sent up from the nitre-drying house first described.

The mixing is a very simple matter. First the measured quantity of powdered nitre is placed in a shallow wooden receptacle, very much in appearance like the boxes in which plasterers mix their mortar. On to the nitre is poured the due proportion of nitro-glycerine. This varies all the way from 7 per cent. to 95 per cent., according to the strength desired in the finished dynamite. The mixture is worked up by hand, long wooden hoes being used when the nitre has "absorbed" all the nitro-glycerine. It is then full-fledged dynamite, and is shovelled out with wooden shovels into handy wooden boxes and taken over to the packing house, where it is made up into "sticks."

Previous to being packed into cartridges or "sticks" the new dynamite bears a very strong resemblance to so much minced suet. The process of ramming the cartridge full of dynamite packs it so closely that it looks like a "stick." The little cylinders, each about 10 inches long, into which the explosive is packed are made of wove paper dipped in boiling paraffine. First the paper cylinder is rolled and pasted, and so expert are the men that each of the four hands are capable of making 6,000 rolls per day. The rolls next are given a dip into the hot parafine, and come out of excellent waxed paper. These prepared shells are passed on to the filling machines, of which there are three, which have each a capacity of 70 cases of dynamite per day. The process of filling the shells is very simple but most expeditious, and it is noticeable that, for obvious reasons, every part of the implements here and that used in mixing is made of wood. As to the filling machines, an idea of their appearance may be gained by recalling an old-fashioned washing machine enlarged about ten times. The empty shells are arranged in line in a wooden frame, about 20 at a time, and this frame having been set in place in the machine, the pulling of a lever releases a quantity of the dynamite from a shelf at the top of the machine, and at the same time brings forward the rammers which force the charges into the shells. The ends of the cartridges are then turned down, and the sticks are ready for packing in the small cases in which the explosive reaches the market. These cases are made up in the packing house, adjoining the filling room.

Having traced the different steps in the manufacture of dynamite up to the finished article, it will now be in order to go back and follow up in detail the treatment of the "spent" or surplus acid which drains off from the "dynamite" house. This, as was stated when describing the "death chamber" of the works, is returned by pipes to the de-nitrating plant, where first of all the nitre is burnt out of the recovered or spent acid. The acid as it runs down from the dynamite house is collected in a tank, from which it is allowed to run into a much smaller tank, for the purpose of again separating, by gravity, any nitro-glycerine which may have passed off with the spent acid from the dynamite house. A man is always at hand to watch this small tank, so as to keep it fairly clear of the deadly glycerine, so that none may pass on into the de-nitrator, where intense heat is engendered by the contact of water and sulphuric acid. Should any glycerine pass this point it means havoc and lets loose the most horrid dogs of war. This is exactly what happened two years ago, when the attendant, through oversight, failed to keep a strict watch on this little tank, with the result that a small overflow of nitro passed into what might be aptly called the gehenna of the de-nitrator. The nitro, of course, took fire, and the fire ran back into the lead feed-pipe, with the result, through being confined, of a fearful explosion which cost two men their lives, literally filling their heads with fragments of the lead pipe, they having been standing below the pipe and at some little distance to one side.

The de-nitrator is, from a spectacular point of view, the star feature of the works, for one of the first things that arrests the eye of a visitor is the glorious yellow smoke that comes from this part of the works. A brilliant chrome of the purest kind, shading off into rich deep browns fascinates the visitor and challenges the admiration of all who see it. This yellow smoke is really so much lost sulphur, which is "burnt" out of the nitric acid by the admixture of water. The device in use at Telegraph Bay is an invention of Mr. Green, the superintendent, and is a very simple and somewhat crude but exceedingly effective contrivance. In other works a plant costing several thousand dollars is required to carry out what Mr. Green by his ingenuity here does for less than $100.

From the de-nitrator the sulphuric acid, which is now "itself again," but very much "spent," is run through a series of vats, to which heat is applied, so that when it reaches the last of the series it has by evaporation recovered much of its lost strength.

The outlay in connection with the works of the Giant Powder Company is upwards of $50,000, and the plant turns out on an average over 120,000 pounds of dynamite each month. Constant improvements are being made, so as to keep the works thoroughly modern and up to date. The prospects are that a new branch of manufacture will be initiated in the production of black powder, and it only requires sufficient growth of Island mining developments to warrant the step, when the company will further enlarge their plant. The demand for some time has been such that the works have been kept fully occupied, and this state of trade reflects in a measure the steady growth of the mining industries, both here and on the Mainland.

The officers of the company are: C. C. Bemis, president; Homer S. King, vice-president (a former Victorian and old resident of this city); Julian Sonntag, general manager; A. A. Sparks, manager British Columbia branch; E. E. Green, superintendent British Columbia branch.

DE-NITRATING PLANT. SCENE OF EXPLOSION TWO YEARS AGO.

SUPT. GREEN'S RESIDENCE.

NITROGLYCERINE HOUSE, WHERE GLYCERINE IS MIXED WITH SULPHURIC AND NITRIC ACIDS. TWO ACIDS ARE CONTAINED IN TANK IN FOREGROUND, PUMPED THENCE TO TOP OF BUILDING.

The Atlin Investigation

Taking of Evidence Is at Last Finished Before the Committee.

Mr. Sawers Uses Very Unparliamentary Language to Mr. Belyea.

(From Friday's Daily.)

Yesterday the eighteenth day of the Graham enquiry, which was opened on the 16th of April, saw that wearisome enquiry brought to a conclusion. All the evidence is now in, and nothing remains but the meeting of the Select committee to compile and submit their report. Yesterday's proceedings, like those of several other days of the enquiry were unmarked by any fresh information regarding the matters under investigation, the feature being an outburst on the part of the prosecutor of the charges in which that gentleman heaped contumely upon Mr. Belyea, who was acting on the other side of the case.

Mr. J. A. Anderson, of the provincial treasury, was the first witness called. He produced several vouchers for the payment of accounts for provisions, etc., for the isolation hospital. The dates of these were all subsequent to April the 28th, from which Mr. Sawers wished the commission to draw the inference that there were no patients in the institution previous to that date, and thus discredit the gold commissioner's evidence, in which it had been stated that the first patient was there on the 26th of that month.

Over these matters Mr. Sawers and Mr. Belyea had several little cross passages, in the course of one of which Mr. Sawers created some amusement by denouncing the opposing counsel as "a bad bully."

Mr. B. H. Johns, chief clerk of the Lands and Works Department, then produced the official plans and reports of the Atlin townsite sale. Amongst them he could not find that either Mr. Graham or Mr. Bickle had acquired any lots there, but Mr. Vickers had one in his name, on which the one-third payment of $66.66 had been made. This was the lot on which the larger building in question had originally stood. W. J. White also had a lot there, which had been sold at private sale. The livery stable stood on this lot, which was afterwards acquired by Mr. Graham. The Vickers lot was sold at auction. Mr. Sawers also went into the purchase of some other lots by John Piper, Rosina Godtel, etc. The building had been moved from the Piper lot to be used for hospital purposes.

Whether Mr. Pierce was dismissed or had resigned from the service was the next point up. What connection this had with the charges was not cleared up, but a letter from the Provincial Secretary's office showed that his resignation had been requested to take effect on the 15th of October, 1900. Over this Mr. Sawers grew a trifle impatient, and turning to Mr. Belyea denounced him as a bullying, contemptible, bulldozing coward, and nothing but a —— big calf.

Called to order by Chairman Rogers, Mr. Sawers apologized to the commission, a formality which Mr. Belyea declared he would dispense with, saying that while he respected grey hairs in this instance, he did not respect the possessor who was safe under their protection.

Mr. Stable, M. P. P., was the next witness called, but that gentleman could not be found. The point which Mr. Sawers wished to have in, however, viz.: the difference in cost of a single and double floor, was, however, admitted by Mr. Belyea, and this piece of evidence was taken as given.

Mr. Sawers then gave further evidence. He knew the Roselli building, which had been occupied by the Rev. Mr. Stevenson. This lot was beautifully situated, and the building was better than the larger one in question, and the whole property had been offered to the witness in the summer of 1900 for $150. The English church was built for $1,100. This had cost him $25. Bickle had said that he would give two dollars for every one that he gave, and had kept his word and subscribed $50 to the church building fund. He also produced a photograph of the government tent, which Mr. Graham had lent to the livery stable firm of Bulmer & Parrott after the fire.

Mr. Sawers then attacked Mr. Lowry's evidence regarding the value of the larger building in question. This valuation had been based on a five year's rental. The cost of insurance had not, however, been deducted, and no account was taken in the calculation of the fact that these buildings could only be expected to be occupied during six months of the year. The witness also disputed Mr. Lowry's rates regarding the cost of lumber and labor.

This closed the evidence offered in support of the charges, and Mr. Belyea asked to have Mr. Bickle recalled to explain the ownership of the Piper lot. Bickle had been in the government service and so had bought the lot in the name of his wife's father's brother, from whom he had afterwards got a bill of sale.

Mr. Belyea then summed up the case for his client, and claiming that the enquiry should be confined to the definite charges made against Mr. Graham. These he then took up seriatim, and claimed that in the great mass of evidence adduced before the commission nothing was found to substantiate the charges of fraud made against that official, that Mr. Sawer's witnesses absolutely failed to prove them, and that from the testimony given by Messrs. Graham and Bickle nothing could be found to support the suspicions upon which it was charged that a conspiracy existed to cheat the government out of the large sum of money of $750.

This address was replied to by Mr. Sawers who pointed out that half a dozen witnesses had sworn that the building had not cost more than $200, while Mr. Stables had only put it at $385 in a very carefully detailed estimate. He also held that there was strong evidence that Mr. Graham owned the building in question, and that Bickle simply represented him, and that the two were acting together, and that their story was simply patched up afterwards to account for the $750.

This concluded the case and the Select committee adjourned its sitting to meet again today to discuss the case, and formulate their report on it.

LEAKING OUT.

Big United States Railways Behind the Shipping Combine.

New York, May 7.—The Evening Post says today that a despatch from London to the effect that some of the large United States railroads are to be the principal owners of the steamship combination, was confirmed today in trustworthy quarters.

The Post says: "Efforts are being made, however, to keep the matter as secret as possible, because of the opposition which has been stirred up abroad, and which might arise here in case the facts are known. It is admitted in well-informed quarters, that it is planned to make the ocean lines feeders to the largest railroad transportation companies of the United States, so that it will be possible to control rates from the principal interior points of this country to leading European centres. Several large railroad companies supposed to be Eastern trunk lines, are represented in the underwriting syndicate for $50,000,000, which has just been formed to guarantee the success of the steamship deal and these are supposed to be the Pennsylvania, N. Y. C., Erie, Reading and B. & O., although there is some doubt whether all will come in. In regard to the railroads, it should be said that their interest in the undertaking does not necessary imply that they have officially subscribed as yet to the syndicate, but subscriptions have been entered which are intended for them and those who have taken them are agents for the railroads."

SNOW IN EUROPE.

Portions of France and Spain Badly Storm-Swept.

Paris, May 8.—A violent storm swept over the northern and western sections of Paris this afternoon. It lasted for half an hour. The heavy snowfalls continue throughout northwestern and southwestern France. They are accompanied by frosts and the fruit crops are seriously threatened.

Madrid, May 8.—Violent snow-storms are reported from the northern part of Spain.

The Atlin Investigation

Continuation of Mr. Graham's Evidence Takes Up Most of Sitting.

Mr. Sawers Has to Be Kept From Wandering From the Point.

(From Thursday's Daily).

The Select committee of the Legislature, appointed to investigate the charges made against J. D. Graham, gold commissioner and government agent of Atlin, regarding the costs of the isolation hospital, erected there in 1901, continued its labors yesterday morning in the Maple committee room of the Parliament buildings. The cross-examination of Mr. Graham, which had been begun at the previous day's session, was continued, and in consequence of Mr. Sawers methods was prolonged to such an extent that it was almost time to adjourn by the time the witness left the box.

As a result of the morning's work, no fresh information upon the several charges being investigated, was elicited and most of the time was devoted to questions regarding general matters in Atlin, the commissioner's interests there and other topics relating to the price of lots, building, etc., in that townsite. On several occasions the commission exhibited marked signs of impatience with the conduct of the cross-examination, and the slow progress being made in the enquiry and repeatedly recalled Mr. Sawers to the subject matter of the charges, when as very frequently happened, he seemed to them to be roving too far afield. This was particularly the case in Mr. Sawers' efforts to discredit the evidence of Mr. Graham by attacking his credibility, the course followed being one of attempting to disclose misfeasance or malfeasance of office by the gold commissioner in little ways and matters pertaining to the conduct of the Atlin office. These matters, which concerned the permitting of government officials to occupy portions of the government property there, and several similar matters were all ruled out as beyond the scope of the committee.

The witness traced at some length his dealings with E. W. Bickle, in Atlin. The latter had come into his debt there through the erection of some buildings, and he had taken over a half interest in the Nickerson building to secure himself. About that same time Bickle had bought from him the larger building afterwards appropriated for the hospital. This was about May, 1900. It might have been in April.

Mr. Sawers occupied a good deal of time in trying to fix this date more closely, but the witness constantly replied that he could not remember the precise date. Mr. Sawers then turned to certain irregularities, which he claimed Mr. Graham had permitted, but on Mr. Belyea protesting, the commission ruled out these matters.

After the cross-examination was over, Mr. Sawers gave notice of several documents which he desired to have produced by the government, viz.: the hospital accounts and the record and reports of the sale of townsite lots. To these demands Mr. Belyea objected, on the grounds that if they were material to the case some of the witnesses should have been examined on them. The documents are to be brought in this morning, when Mr. Sawers will probably take the stand again himself.

The enquiry was adjourned at 12:30 o'clock.

LADIES' CHORAL SOCIETY.

Enjoyable Concert Given at Institute Hall Before Large Audience.

The Ladies' choral society entertained many music lovers at Institute hall last night, when they gave a concert under the direction of Mr. W. H. Barton, and with Miss Gertrude Loewen at the piano and Mrs. Frank Barnard at the organ. The programme was made of two selections from Tennyson's works, set to pretty music by Henry Lahee, and Wilfred Bendall, respectively, and the tuneful gem of Leslie Stuart's tuneful opera, Florodora—the sextette, "Tell Me, Pretty Maiden." The choruses were given by the Ladies' Choral society, consisting of the following ladies:

First sopranos—Mrs. Brodrick, Mrs. Dunsmuir, Miss Fraser, Mrs. Jones, Miss Jameson, Mrs. Mackenzie, Mrs. Moresby, Mrs. Pemberton, Miss Wilson.

Second sopranos—Mrs. Barham, Mrs. Barton, Miss Gaudin, Miss Loewen, Miss Lombard, Miss Pemberton, Miss Robb, Miss Shaw.

First altos—Miss Colquhoun, Miss Conquhonn, Mrs. Harvey, Mrs. Helmcken.

Second altos—Mrs. Ellison, Mrs. Jay, Mrs. Johnstone.

The first part, "The Sleeping Beauty," words by Lord Tennyson and music by Henry Lahee, had a number of solos and duets, the solos being taken by Mrs. W. H. Barton, Mrs. Mackenzie, Mrs. Moresby and Mrs. Pemberton, and the duets by Mrs. Pemberton and Miss Laura Loewen and by Mrs. Pemberton and Miss Lombard.

The sextette from Florodora, "Tell Me, Pretty Maiden," was the hit of the evening. The lingering music was sung and resung, and still the audience encored. Three times the six young ladies and young gentlemen sang the catchy melody of Leslie Stuart, acting the roles in the musical flirtation cleverly. Those who took part were: Mrs. Lampman, Miss Hunt, Miss Pemberton, Miss E. Sehl, Miss A. Goodwin, Miss Prior, Mr. Dupmoulin, Mr. Phillips, Mr. Worlock, Mr. Holmes, Mr. Gore, Mr. R. B. Powell.

The third part of the entertainment consisted of another musical arrangement of Tennyson's verse, "The Lady of Shalott," with solos by Mrs. Pemberton. The music was light, as in the first number, and the singers did full justice to the theme.

VOLCANIC ERUPTIONS.

St. Thomas, D. W. I., May 7.—Cable communication southward from St. Lucie, in the Windward Islands, ceased suddenly this afternoon. Fire and smoke from the eruption of St. Vincent are said to be visible from St. Lucie and distant detonations are audible at Dominca, Antigua and St. Kitts, and the Leeward Islands, at Guadaloupe, in the French West Indies and here.

It is reported that the volcano and craters on Dominica are showing signs of activity.