

M-5-06-G

THE INGREDIENTS ARE NOT EXPLOSIVE UNTIL COMBINED.
CAN BE FORWARDED BY RAIL OR STEAMER.
SENT BY EXPRESS OR FAST FREIGHT IF DESIRABLE.
EQUALS NITRO-GLYCERINE IN STRENGTH.

THE RACK-A-ROCK COMPANY,

MANUFACTURERS OF BLASTING POWDER,

BLASTING BATTERIES,
FUSES AND CAPS.

SHERBROOKE, QUE., March, 11, 1907.

Messrs. The Rack-A-Rock Co.,
Montreal, Que.

Dear Sirs:-

Replying to Mr. Campbell's favor of the 8th, inst., asking for description of paraffining apparatus and mode of using same is received. The apparatus consists of two tin boxes, one of which fits inside the other, the inner one being sufficiently smaller than the other to permit of there being an inch space around the sides and bottom. There is a double cage made of crossed wires which sets inside the inner box. This cage holds twenty-five cartridges. The paraffine is placed in the inner box, hot water is poured in the space between the two boxes and this melts the paraffine. The cartridges are placed in the cage which is held by a chain on either side, the whole is then dipped in the melted paraffine and after a few seconds withdrawn. Of course when the water cools off all that is necessary is to lift out the inner box, throw out the water and go through the process again.

I enclose a rough sketch which will perhaps help to make my description clearer.

As regards your M-357 calling for sufficient paraffine for 1000# of Rack-A-Rock, the quantity would be 45#, and we will send this and the apparatus by express at once.

Yours truly,

THE RACK-A-ROCK CO.

H. B. Smith
Secretary.

E/SC.

1 Encl.

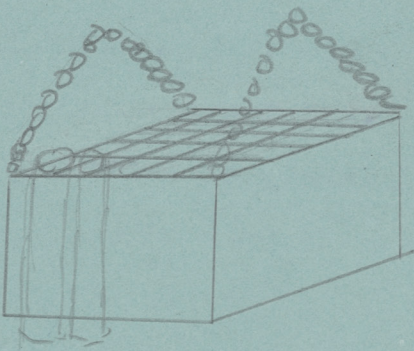
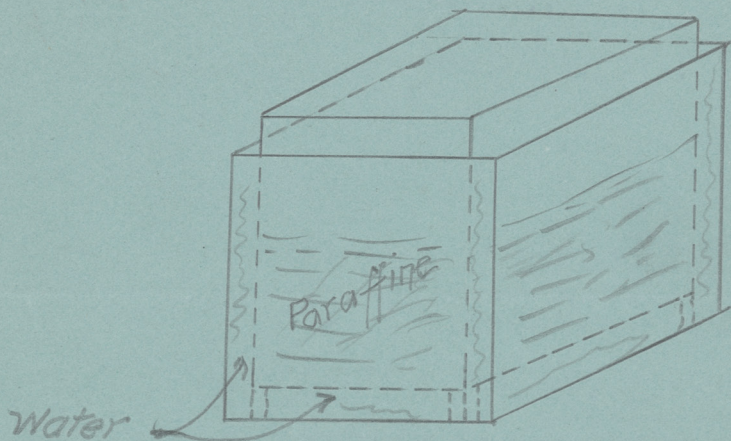
Paraffining Apparatus.



The Rock-A-Rock
CANADIAN RAND CO., LIMITED,
SHERBROOKE, QUE.

MEMORANDUM

To The Rock-A-Rock
Montreal-



The Cage in
which cartridges
are placed
before being
dipped.



Paraffining
Apparatus
11/march/07 M.R.

CANADIAN RAND CO., LIMITED

CANADIAN RAND CO. Limited
MONTREAL, QUE.
JUN 21 1909
RECEIVED

OFFICE OF
JUN 12 1909

CANADIAN RAND CO. Limited
MONTREAL, QUE.
JUN 12 1909
RECEIVED

FILE No. (BRANCH OFFICE) Toronto, Ont. June 10, 1909.

TO Canadian Rand Company, Limited, Montreal, Que.

SUBJECT

DEAR SIR: I am very desirous of getting posted intelligently on rack-a-rock and I wish you would ask the New York authorities, the Rendrock Powder Company the following questions and send their replies on to me.

How many pounds of rack-a-rock should be used to the cu. yd. of hard limestone? How many pounds of rack-a-rock should be used to the cu. yd of granite? How many pounds of rack-a-rock should be used to a cu. yd. of shale?

The above questions are referring especially to open pit quarries. Would the same quantity of powder be used in sewer trench work?

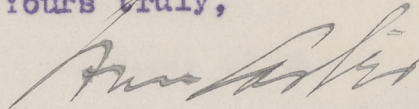
Why is it necessary to use a double strength detonator in rack-a-rock and only the single strength detonator in dynamite? The extra expense of double strength detonators sometimes loses us the business because it increases the relative cost of the explosive to dynamite. Enclosed find sketch illustrating the shale pit West of Toronto who wish to use a steam drill. How far back from the face and what depth of benches would you suggest that it be worked in? Bearing in mind the fact that long steels will stick, would not short holes be better? The disadvantage of short holes claimed by their Superintendent is that they waste too much powder and that the same quantity of powder at a deeper depth is just as effective as in a short hole. What type of bit and what kind of steel would you suggest using in drilling in shale or slate? The present ex-

Montreal, -2-

perience of our customer is that the shale works up into small pieces when they get down a short depth and clogs the drill.

We are very desirous of having this information before us at as early a date as possible. If New York issue any special instructions on rack-a-rock I should be very glad to have a copy.

Yours truly,

A handwritten signature in dark ink, appearing to be "A. S. S. S.", written in a cursive style.

C/D

CANADIAN RAND CO., LIMITED.

Copy to [unclear] to [unclear]
[unclear]



FILE No. H. Gen.

(BRANCH OFFICE) Cobalt, June 18, 1909.

TO Canadian Rand Co. Limited, Montreal, Que.

SUBJECT Rack-a-Rock and its Uses.

DEAR SIRS

Mr. Carter here asks the question, how many pounds of rackarock should be used to the cubic yard of hard limestone, granite and shale. As usual with rackarock inquires there is only the least important part of the information given. For instance, limestone and dolomite in the neighborhood of Hamilton and Dundas working through a long face with deep holes, uses something less than 1/2 lb. of explosives per cubic yard. The soft magnesian limestones at Stonewall and Stony Mountain that lay in flakes varying from 1" to 6" and are principally broke to be made into concrete aggregate, take even less again. The limsetones in the country through Ontario and the Ottawa Valley in railroad cuts with only 6 ft. face and breaking to two tight walls, have sometimes used as high as 4 lbs. per yard. On the Grand Trunk Pacific on some of their very heavy cutting, where they used the "coyote" methpd of blasting, that is with a tunnel running from 40 to 70 ft. deep, have broken ground with as low as 3/4 lbs. per yard, but when it comes to shale no living man can give an intelligent answer to this question. Any schoolboy should know that shale varies from hard easily fractured slate to tough clinging mud that desintegrates when blasted.

We are enclosing three sketches that will answer the best question whether the same quantity of powder is used in trench work or open quarries. The first principle of all explosive work is that all explosives break to the line of least resistance and common sense should teach anyone that an open pit or quarry where the explosives have only to lift the burden off its bed plane with practically no end thrust should require very much less than sewer trench work that has got to be

lifted from the bottom and from both sides and so narrow that it is almost impossible to take advantage of the natural lines of cleavage.

The next question relates to the use of double strength detonators. It has been proven by exhaustive tests carried on by the U. S. Navy that a pound of explosive fired with a single strength detonator on a piece of ordinary boiler plate makes no impression whatever. With a double strength exploder the metal was badly bent. With a triple strength the metal was torn in several pieces, but with a special detonator made for naval purposes to explode mines in harbors and destroy gates of fortresses, etc., the boiler plate was ground to dust, and the thinking part of the rock breaking community today are taking it up with the different detonator manufacturers most strenuously to give them a high initial force in their detonators, with the usual factor of safety in handling. The reason that the single strength detonator is used as much as it is, is that a good many powder men are used to black powder that can be fired with a fuse without a cap. The great difference between black powder and high explosives is that black powder does its work by combustion. Dynamite and all high explosives do their work by detonation and other things being equal, will double their execution by the use of a detonator of high initial force.

Referring to the sketch illustrating the shale pit would say that in the writer's opinion, from the very meagre information furnished, would suggest the use of a 43-1/4 drill, taking the first 50 ft. bench off in 25 ft. cuts using steel with a bit made up as per sketch with only 1/8" clearance in each 2 feet run. Should these people have any great quantity of material to move would strongly recommend when the 50 ft. bench is worked out close that if the natural lines of cleavage are horizontal, that a small shaft sunk say 90 feet from the 110 ft. face down to the grade line and a pocket drilled in the bottom we believe that they could break this material with less than 1/2 lbs of explosives

per cubic yard of rock. Should the main line of cleavage, however, be vertical a small coyote tunnel could be run in with a small size drill, say a #41, as the writer used on the Kitchen contract in New Brunswick, could drive in a small tunnel 100 ft. and this properly loaded would break practically the square of its length over the tunnel and at least one-third more behind where the powder was in the tunnel. We are also enclosing sketch showing drill bit, commonly called the Club bit, for use in all soft material. The great advantages of it are that it does not clog so easily and owing to its smooth surface back from the bit will work with considerable loose rock playing around the hole. This style of bit was made up by the writer for the Toronto Construction Co. in New Brunswick where, you remember, you sent Mr. Richards from Sherbrooke to operate a #44 drill in plaster rock. Of course no drill of this construction will work in hard cutting rock should it be that rare combination of hard cutting shale naturally broken up into small pieces and held in place by seams of mud. The only bit practicable to put in a round hole would be the Y or Z bit. In this case would very much recommend the tunnelling method of breaking up this material. One of these tunnels in N. B. 135 ft. long was loaded with a pound of black powder and 1/4 lb. of dynamite for every cubic yard overhead inside the slope stakes of an ordinary single track railroad cut. This was in hard drilling trap that was broke up into small fragments and would say that this broke for 100 ft. behind the powder load.

The writer has some very good books on explosives, unfortunately they are at Tyndall, but as we expect to get home again some day he will be only too pleased to give Mr. Carter titles and addresses where he can obtain such. Mr. Davis some time ago asked the writer some information on rackarock. Will you kindly have a copy of this sent to the Advertising Dept. We would, also wish to thank Mr. Bell for the pains he

C. R. Co.,

--4--

has taken with the writer's sketches which are also enclosed.

Yours truly,

Ben. Cooke.

c/cs

CANADIAN RAND COMPANY, LIMITED

MONTREAL, QUE.

Montreal, Dec. 28th, 1911.

Canadian Rand Company, Limited, (hereinafter called "Company") proposes to furnish
Mr. E. W. Gilman, Montreal, (hereinafter called the "Purchaser")

Machinery specified as follows :

DESCRIPTION
OF
MACHINERY

MENU.

WASHERS

✓ RACK-A-ROCK COCKTAIL. COBALT CUP À LABLINDPIG.

OYSTERS

— BLUE PRINT ON STEEL SHELL
WITH SLIDES AND SHIMS.

SOUPS

PURÉE OF GROUT. CONSOMMÉ À LA "ARIO," IN OIL CUPS.

FISH

B. C. SALMON À LA R. P. W. NOVA SCOTIA COD.
WITH BELL SAUCE. WITH COTTER PINS.
✓ FRIED SUCKERS À LA CUSTOMER. ✓ PURCHASING AGENT SHARKS ON TOAST.
FEED SCREW CELERY C-2 OLIVES.

GAME

SWALLOW PIE ✓ COMPRESSED HARE STEW.

ROAST

BUFFER SPRING CHICKEN LEG OF TRIPOD —
TYNDALL COUNTRY STYLE. WITH A-C CURRENT JELLY.
✓ PORCUPINE WITH CHESTNUTS. 1" 6-PLY SAUSAGES FREELAND L. H. STUFFING.

VEGETABLES

MASHED SPUDS. ✓ STEWED GASKETS. SULLIVAN ROASTED.
✓ FRIED CHIPPERS. EXPENSE SLIPS.

DESSERT

RP-2 FOUNDATION PUDDING. ✓ CHOKER UNLOADER TRIFLE.
WITH SPLASH LUBRICATION. HAIGHT HARD SASS.

FRUIT

✓ HEAD OFFICE LEMONS. ✓ DRIED PRUNES FROM THE BRANCHES.

NUTS

✓ FEED NUTS. CHUCK NUTS. ROTATING NUTS.
SALARY CHECK NUTS.

== == ==

AFTERCOOLER ICE CREAM. TORONTO SUNDAE.
DISPLACEMENT SYSTEM TEA. 20th CENTURY COFFEE.
MARLIN WOUND CIGARS. COTTON COVERED CIGARETTES.

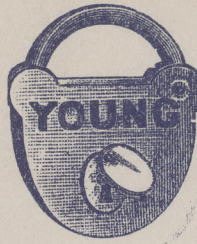
Dinner 1911

THE HERMAN YOUNG CO. REG'D

ESTABLISHED 1856

MAISON FONDÉE EN 1856

WHOLESALE HARDWARE
Contractors, Machinists,
Builder's and Painters' Supplies.



MARCHANDS QUINCAILLIERS en Gros
Fournitures pour Contracteurs,
Mecaniciens, Entrepreneurs, Peintres, etc.

QUEBEC
CANADA

Jan 31 1913

RECEIVED
FEB 1 1913
HERMAN YOUNG CO.
GENERAL SALES MGR.

This is the district - E.W.S. was put to sell in

The Rock. a. Rock company.

Marked

Attention. Mr. Campbell

Dear Sirs

In reply to your favor of the 10th Inst. we beg to advise that the ^{territory} ~~territory~~ we would wish to sell would be the same as formerly, namely comprised in the Province of Quebec, east of Quebec City and also say the territory within thirty miles radius of Quebec City.

In return for an exclusive agency in this territory we would guarantee the sale of at least six ^{one} tons per year, and further we would agree to sell at prices not higher than the following as listed below. Please confirm and oblige also.

50 lbs. Plain	22	} Subject to extra charge for extracting paraffin.
500 " "	20	
1000 " "	18	} Subject to extra charge for extracting and paraffining paraffin.
2000 " "	17	
<i>Subject to 2% 30 Days.</i>		

Yours truly
THE HERMAN YOUNG CO. REG'D
PER: *Harvey Jones*

American Society
Mechanical Engineers

GERMANY in 1913-

In June 1913 a group from the American Society of Mechanical Engineers went to Germany, to meet with the Verein Deutscher Ingenieure and to tour industrial Germany. I was one of the group and had with me a friend from Sherbrooke, Albert Skinner a jeweler. He lived across the street from me and still does. We crossed on a Hamburg-American vessel sailing from New York to Hamburg. The Hamburg-American Line had also made arrangements for our trip by rail in Germany, our hotel accomodation, our taxis, our luggage etc.

There were 209 in the ASME group and about 150 others on the ocean voyage.

The vessel was the Victoria-Louise. It had been a liner, the Deutschland, but it rolled so badly that some of the boilers were taken out, anti-rolling tanks were installed and also a swimming pool. The speed was reduced, and we crossed from New York to Hamburg in ten days. That was about the time it took when I later crossed the Pacific, and I think it is short enough to really enjoy an ocean voyage in good company.

In Germany we had our own train. We traveled only by day and it was like home for the five in our small party to every day get back to the same compartment.

The ASME party had 780 pieces of luggage, which were perfectly handled. Each of us had at least a trunk and a suit case. When we returned to the hotel after a dinner and a dance, in the early morning hours, we packed our evening clothes in our trunk and put the trunk outside our door. When we arrived in the next city and been sent by taxi to our hotel and assigned our rooms, there was our trunk in the room. The man who looked after those 780 pieces and did not lose or misplace one, was a big tall blond young German, named Karl Lody. He spoke colloquial American.

It seemed too bad that a little later he was shot in the Tower of London. 2

In Germany we had 26 banquets in 19 days, and at each we had from 3 to 7 kinds of wine. My friend and I had parked our total abstinence principles for the duration of the trip and the subsequent reunion in New York at the December meeting.

On the trip across to Hamburg there was abundant entertainment provided by the ASME. I still have a letter which I wrote on board ship to Andrew Sangster the works manager of our plant in Sherbrooke, which I quote verbatim.

Dear Mr. Sangster:-

We had a reception and dance, and just between the two they swore in Frank Gilbreth as Chief of Police. He is a big fat joker, and they gave him a brass star and a baton. Then they swore in 7 deputies. Last night they had a mock trial, at which he was accused of receiving graft collected by the deputies, of allowing some passengers to run on the promenade deck at a speed exceeding 5 miles an hour, and in a costume insufficient. Also of having been in the cafe after twelve o'clock midnight, and of having walked the deck in a zigzag line, and therefore in a very highly inefficient manner. They called John R. Freeman as an expert witness for the prosecution. They swore all the witnesses on a copy of Kent to tell anything but the truth. They also had a big volume about 12" x 18" x 6" thick which they said was a full size copy of Kent. Mr. Freeman swore he measured the deck with a slide rule, and figured it out by Kent and by Merriman and got such divergent results that he asked an intelligent man he met and he told him it was 1150 feet around the deck.

A witness for the defence swore he knew Mr. Gilbreth when he went to school and afterwards when he was a bricklayer and that he did everything plumb and square, but that he was so fresh they used to call him "Huyler's" because he was "fresh every hour".

Mr. Kent, testified for the defence. He said he was the "reputed" author of Kent's pocket book. They asked him if there was any money in Kent's pocket book. He testified that Mr. Gilbreth walked in a perfectly straight line but that the vessel moved under him, giving the appearance of a zigzag path. They called Senator Saunders to testify on the question of graft. They asked him if he knew Woodrow Wilson, but he said "Oh No, He's the other kind".

The Prosecution produced Mr. Gilbreth himself as evidence that he was not square (he's about the shape of a barrel).

You may imagine that it was with great interest that I recently read "Cheaper by the Dozen" the life of Frank Gilbreth.

The German engineers had made most complete and delightful arrangements for every hour we were in their country. A delegation boarded our ship at Cherbourg. They brought printed programs of the whole trip. These programs even told what clothes to wear, whether business suit, Prince Albert or tails.

On board ship we were also given some publicity for the first city. Hamburg. That included a button for one's lapel which gave one the freedom of the city. It constituted a pass on all street cars and to the Zoo. I recall that at the Hagenbeck zoo there was a concrete model of a Diplodocus and I walked upright under the ancient beast.

I was reminded of those days when I read The Rotarian of January 1950. There was an article about Rotarian Brauer, the present mayor of Hamburg, I quote "For generations there had been little pleasure steamers plying the lake at Hamburg's center. During his first days as mayor he diverted coal to the pleasure steamers. It was a gesture the people needed." Back in 1913 I had thought how much nicer those steamers were than noisy motor boats, They were undoubtedly the same steamers.

At Hamburg we had our first banquet. I still wish that in North America we would handle a banquet as they did in Germany. The food courses alternated, first physical, then mental, a fish course was followed by a speech or a song and so on for three or four hours. One did not have a surfeit of either physical or mental food.

Also, the food was served from platters and one took as little or as much as one wanted. When the fish course was being served, the black-coated waiters marched in single file, each bearing on his shoulder a huge Rhine salmon, cooked head and all. One took what one wanted of fish and sauce. Then the first one's seven wine glasses was filled. Helping one's self even included ice cream, where one took a generous help from a big loaf.

After the dinner and a short intermission there was usually a dance, till the small hours. After about three such evenings one would have to skip the dance, to get caught up on sleep.

The banqueting halls were usually very interesting places. In Hamburg the banquet was in the basement of the city hall, decorated with many gifts, such as model ships, which had been presented to the Free City of Hamburg. In Berlin the hall was over the Zoo and above the noise of mastication one could hear the lions roar. Another hall had great cartoons to typify the kinds of airships, stiff, half-stiff and un-stiff.

In Munich we had a more informal dinner in the big Hoffbravhaus. There we had beer instead of wine. Of course we were not asked if we would have beer, but the waiter said "Light or dark" (in German of course).

At Munich the souvenir gift was a stein, specially made and dated for the occasion. But to return to Hamburg. We went in a small steamer for luncheon at the ship yards of Blohm and Voss. That was a simple luncheon with only three kinds of wine. The big liner, the "Vaterland" was on the stocks. They had tried to launch it, but could'nt at first. The Germans said that was because the Fatherland could not go backwards.

After her third trip to America the first World War had begun and the vessel was interned in Hoboken till 1917. There she was taken over by the U.S. renamed the Leviathan and carried over 100,000 American troops to the war with Germany. Some time after the war she was rebuilt, again as a luxury liner. But she lost money and in January 1938 she went to Glasgow to be broken up. The New York Times says that she was once the biggest, proudest and most luxurious ship that crossed the seas. She cost 10 million dollars to build, 8 million to rebuild, and was sold for scrap at less than three quarters of a million.

One of our most enjoyable days was our visit to Heidelberg. We went by train from Mannheim. We explored the old partly ruined castle and saw the huge wine cask and the tools used in making it.

In exploring the castle, one man got separated from his wife. The wife was quite worried and called in the most agonizing voice "George"-"George" I said to her "Don't worry Mrs. Brown, you are a handsome woman and could easily get another husband". She apparently took my remarks quite seriously for on the train going back to Mannheim, while George was having a nap, she told me of a friend of hers in the U.S. who had divorced her husband and had had considerable difficulty in getting a second one.

Dinner that night at a restaurant on the hill in the park above Heidelberg. The King of Saxony was one of the guests. Afterwards we all walked down the hill, perhaps a mile and a half, our German hosts leading in rollicking songs. Meanwhile we could view the fireworks at the castle, to simulate the siege when the castle was stormed.

We visited a number of German engineering works, at least eight in Germany, and I later went to one in Belgium and one in England. After each such visit I made a report to Mr. Sangster in Sherbrooke. In Sherbrooke Mr. Sangster had copies typewritten and any sketches drawn on the copies. These typed reports ran from two to eight pages. Here are a few notes of these reports.

The Borsig Works in Berlin made locomotives, and also air compressors and refrigerating machinery. The works were surrounded by lawns, tennis courts and rose gardens, with bronze statuary.

We were there two hours in the works and I was three hours writing my report. They had a good four year course for apprentices, the rates of apprentice pay running $1\frac{1}{4}$, $2\frac{1}{2}$, $3\frac{1}{4}$ and 4 cents an hour, for an 8 hour day.

Near Dusseldorf we visited the works of Thyssen and Company. That visit began with a talk by Mr. Thyssen, the founder. He told us they employed 50,000 workmen in Germany and about 20,000 more in allied companies in France and Belgium. They had iron and coal mines, ships, electric and water supply plants, steel works, engine shops etc.

At Dusseldorf we also visited the works of Haniel and Luag who made iron and steel castings to 60 tons and steel forgings to 60 tons. They employed about 2000 men.

At Kalk, near Cologne we visited the works of the Humboldt Engineering Company. Here we had first lectures in English and in German on the capital structure, annual costs, social charges etc. Then we were hustled through the works.

At Frankfurt we went through the works of Pokorney and Wittekind makers of air compressors and pneumatic tools, all right in my line.

On the train I had a talk with the former manager of the Chicago Pneumatic Tool Company. That included such details as the way they bored out cast iron water pipe to make air hoists and the time it took. I made a three page report of this talk to Mr. Sangster.

After the German trip was over, my friend and I visited the exhibition at Ghent in Belgium.

While in Ghent we went to the works of Carel Freres and met Mr. Baker the American superintendent. They made large Diesel Engines. The work was very high class, both in the foundries and the machine shop. You will be interested to know the wages they paid in Belgium in 1913 for such work.

Laborers 7 cents an hour, Mechanics 10 cents an hour, increasing to 14 cents an hour.

Just before we left Germany we had tea at the fine home of Dr. Diesel. Shortly after that he was missing off the steamer on his way to England. He had undoubtedly committed suicide on account of financial difficulties.

At Leipzig we had an opportunity of an hour's ride in a Zeppelin at a cost of \$23.00. One of our engineers, having been up late many nights, fell asleep, till another engineer woke him up and told him it was an expensive sleep. The view of Leipzig from a low altitude, showing the green park all around where the old fortifications had been, made a delightful picture. I recall that the road to the airfield was lined with cherry trees, the cherries just getting ripe.

Of course there were a few troubles with the language.

Among the engineers was a Professor Best with his wife and small son. They wanted to get away and have a quiet meal by themselves in a restaurant. All went well till dessert, when they wanted strawberries. But Dr. Best could not recall the word "Erdbeeren" so he took out a letter and on the back of the envelope sketched a strawberry and put in many seeds. The waiter's face lit up, he said "Ja,Ja,Bitte schon" and brought them some Bologna Sausage.

My impressions of our trip in Germany were summed up in my letter to Mr. Sangster.

Munich July 9, 1913

Dear Mr. Sangster:-

It has been a wonderful trip through Germany, and very instructive on the aesthetic and humanitarian sides, as well as the technical. The trip has certainly forged a strong bond of friendship for Germany and the Germans.

Curley & Turner.

Montreal, Oct. 2/14.

Mr. B.H. Lyons, c/o Toronto Office.

My dear Lyons:-
xxxxxxx

Although order T-5029 has not yet reached my desk from the credit department, I am taking the opportunity of writing you personally with regard to your letter of September 30th.

Next time you get up against a proposition like this, let Petrie or anyone else that wants it have the business.

I recall very distinctly a conversation with you here in my office in Montreal, in which I told you that the one thing we did not want was business with any tag ends to it. The status of this company is such that it should not be necessary for our representatives to have to offer any particular inducement to persuade a customer to give us a preference in the placing of an order. There is no one in the business who turns out such high grade product as ours and what we have to sell is worth every dollar that we ask for it and, at our prices, is better value for the money than can be had from any other source. Any salesman who properly appreciates this fact would never ask this company to put through such a proposition as you suggest in your letter of September 30th.

There is no way in which a drill can be repaired at our factory at a cost of much less than \$75.00, at least, I do not recall any repair job having been put through at anything below this figure. If you send a drill to Sherbrooke to be repaired and put in good order, the fact that it has been necessary to send it there to be overhauled, generally results in their supplying either a new cylinder or a new piston and this item alone runs into a lot of money. On the other hand, if we put new piston rings and a new fronthead bushing on this drill, paint it and ship

C-2-1149
Jan. 5

MON...
JAN 5 1915
RECEIVED

COPY OF W. A. GILL'S REPORT REGARDING MANITOBA GYPSUM
COMPANY MATTER BROUGHT UP BY MR. WILLIAM CARTER.

CANADIAN INGERSOLL-RANDOLPH CO. LTD.
JAN 4 1915
SHERBROOKE, Que.

Method of using

CANADIAN INGERSOLL-RANDOLPH
LIMITED
JAN 5 1915
General Sales Dept.

Dec. 31, 1914.

When shooting deep holes containing long cores of Rack-a-Rock, it is a good plan to use two exploders for firing the charge. One exploder should be placed about half way from bottom of charge and the other at top. Sometimes instead of using two exploders, both of which must of course be connected in series with leading wires to battery - fuse caps are put into two or three cartridges and these placed at different places in core of charge, but I consider the use of two exploders placed as above, better practice.

There should be no trouble with long cores of Rack-a-Rock - if properly saturated - in good hard rock and dry holes, but in seamy or wet holes the bottom of core may not explode although this may be overcome by placing exploders as suggested above.

Rack-a-Rock may be saturated in a large quantity, but is a method abandoned years ago as not giving the best results, although it has not been tried since the writer introduced our present method of putting up the solid ingredient. Mr. Carter might try out the following and I would be pleased to hear from him regarding results - weigh out as much oil as is necessary for the number of cartridges he wishes to saturate, and place cartridge in same and leave them until all the oil has been taken up by the cartridges, he might soften any cartridge which are hard, by twisting in hands by this method, one cartridge may take up more oil than others but if the solid ingredient was perfectly dry when packed, and has not become wet or damp after being packed, there should not be much difference in amount of oil taken up by each cartridge.

The use of paraffin in water is advisable particularly in deep holes, as the water displaces the oil in cartridge, unless it be well protected, when the water in hole is not deep and the shot is to be fired very soon after being loaded the paraffin can be omitted.

Considering the thickness of muslin used in the cloth sacks, I do not think the slitting of the end, so as to bring powder in direct contact would give any better results so far as the shot is concerned. One might think by doing this the fire

1915

CANADA'S PART IN MAKING OF SHELLS

Some Remarkable Figures Laid
Before the C.M.A. by
General Bertram

HIGH TRIBUTE TO HUGHES

Shell Committee's Chairman

The
Situation

Toronto, June 10—An address on the manufacture of munitions of war in Canada was delivered this afternoon before the Canadian Manufacturers' Association by General Bertram, chairman of the shell committee. He deprecated newspaper criticisms that the Canadian Government was not alive to the necessities of the situation. Already 650,000 shells had been shipped from Canada. He paid a high tribute to the minister of militia for his work in organizing the manufacturers of Canada to supplement the totally inadequate output of the Quebec shell factory, which could only manufacture 75 shells per day. At first General Hughes' suggestion to utilize the idle factories of Canada had been received with reluctance, but results had justified his view. The suggestion of the minister that to the utmost limit the component parts of the shells should be manufactured in Canada had been kept in view by the committee. He was satisfied that at the conclusion of the war new industries would have to be created in Canada. The refining of copper in the Dominion, he could assure his hearers, would, within a few months, be made possible.

Canadian steel for Canadian shells was an essential and the country was indebted to Colonel Cantley for the installation of a plant for producing the first steel manufactured for shell purposes in Canada. All the component parts of shells were thus supplied free of charge to manufacturers who would undertake the work of finishing and assembling. So far, orders for nine million shells of various calibres had been placed, in addition to 100,000 cartridge cases, 5,000,000 fuses, 2,000,000 primers and 1,000,000 friction tubes. One hundred and thirty firms in the Dominion were now busy in the work of machining and assembling. In the manufacture of component parts 247 factories were engaged, in 78 cities and towns. The shell-making industry was giving employment to nearly 70,000 artisans and the weekly wage bill amounted to around \$1,000,000. In a short time between forty and fifty thousand shells per day would be produced.

WORKMEN'S COMPENSATION.

The most important business of the Canadian Manufacturers' Association this morning was a conference of the

Sam
Hughes

concerned.

To C.H. Cahau N.Y Aug 12, 15 ✓ Written by E.S.W

We were the first firm in Canada to take up the manufacture of British shrapnel and the writer was personally responsible for the suggestion of forming a Shell Committee to

handle the business. For a long time we were by far the leaders in point of production. Lately, however, the Shell Committee have asked us to keep down our production to 1800 shrapnel shells per day and to 1000 high explosive shells per day. We have been unable

Written by E.S. Winslow

S.W.S.
Jan. 7th, 1915

ment, C I T Y.

Manufacturers Conference New orders

Conference started in Montreal yesterday at ten o'clock and there were probably sixty or more manufacturers present. We are writing for the roll call list.

Colonel Benson, Master of General of Ordnance, representing Minister of Militia, and Colonel Harston was present representing the Inspection Department, Colonel Lafferty was down representing the Arsenal, and Mr. Griffith and Mr. Spencer and one other inspector were present from the Canadian Inspection Company.

The meeting was opened by the chairman of the Shell Committee who began by advising us regarding past and future shell business.

The first order consists of 200,000 shells 15 and 18 pounders. The second order consists of 600,000 shells of 15 & 18 pounders. The third order consists of 150,000 shells per month beginning the first of February and continuing on for six months. Our share of this last order will be placed with us at the price of \$3.80. Several of the manufacturers received larger orders at the price paid for the 60,000 order viz. \$3.75 and are now wishing they had not been so favored. We are probably, fortunate, therefore, in having received only 30,000 at the low price and the fact of the change in price may be the explanation why our order was no larger. The order for the 600,000 shells for \$3.75 has been distributed in so far as possible among the manufacturers who benefited by the high original price. The new people coming in will get the price of \$3.80 and we have good assurance that this last price will be maintained.

The orders are to be distributed next week and the

six.....

Ordnance Advisor gave both the Committee and the manufacturers confidence in going ahead ^{which} when they would not otherwise have had. The Committee quickly got to work and very shortly it was arranged that, as our share we should undertake an order for 10,000 shells which was later increased to 15,000 shells. We got our first few components, 25 or 50 at a time from the Dominion Arsenal. We issued our first order on the shop to manufacture shells on October 28th, 1914, we made our first shipment on December 23rd, 1914 and completed our first 100,000 shells June 22nd, 1915. Over 500,000 shells had been delivered on March 1916, over 1,000,000 by November 10th, 1916 and over 1,900,000 by October, 1917 when no more orders for shrapnel were available.

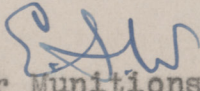
In addition to shrapnel we manufactured nearly 200,000 3-inch shells, a small quantity of 18-Pr H.E. Shells and are now starting on 6-inch Howitzer shells and 75 m/m shells for the American Government.

In all business relations the British War Office has been highly praised by both Canadian and American manufacturers for fair dealing. In comparison with British makers, Canadians have been at some disadvantage due to distance from Inspection Headquarters and in connection with H.E. Shells loaded in England these have got to be given special care to avoid rust to compare favourably with shells from British makers.

We hope that the above data may be useful in connection with the work you are doing.

Yours very truly,

ESW/EPS.


Manager Munitions Department.

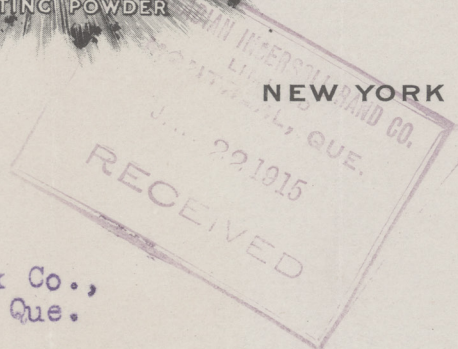
RENDROCK POWDER COMPANY



WORKS:
KEYPORT, N. J.

106 WALL STREET

NEW YORK Jan. 15, 1915.



Mr. E. W. Gilman,
c/o Rack-a-Rock Co.,
Sherbrooke, Que.



My dear Mr. Gilman:

Referring to our letter as to saturating large quantities of cartridges and speaking with Mr. Gill a few days ago, he stated that he thought the best policy would be to saturate a large quantity of cartridges in the evening for the next days work and we think one man could easily do this and it, therefore, would not delay any work during the day in preparing the cartridges for the holes. In the opinion of Mr. Gill, he thinks this method would improve the strength of the cartridge.

I herewith enclose a clipping taken from one of our papers here. What do you know about this? No doubt you are aware that we prepare cartridges for shooting wells and during the last year we have shot quite a number thereof in nearby districts and we enclose herewith photograph of one shot made in Jersey for water. Do you think it worth while looking up this section of the oil wells in your district? If you desire any further information thereon we would gladly give you all the details necessary.

Yours truly,

Henry Lang
per H.

HL/M.

C. H. Kent and E. F. Russ.

So as to supply the demand for nitro glycerine for shooting oil wells in the Calgary district of Canada negotiations are under way to establish an explosives plant in that territory

W. R. Affeld has been elect



RENDROCK POWDER COMPANY

MANUFACTURERS OF



BLASTING POWDER

WORKS

KEYPORT, N. J.

106 WALL STREET

NEW YORK.

Feb. 3rd 1915

Rack = A = Rock Co.

Montreal Que.

Dear Sir

In reply to your favor of Jan. the 29th have to say that "A" Rack a Rocks is equally as strong as 60% dynamite. And in general rock work, will give as satisfactory results as any 50% or 60% dynamite on the market

Yours Truly

RENDROCK POWDER COMPANY

W. A. Gill

RECEIVED
CANDLER & SOIL-RAND CO.
LIMITED
General Sales Mgr.
FEB 5 1915
Strength of Rack a Rocks

"R A C K - A - R O C K"

*Co
Shutrock*

The only safe High Explosive.

An entirely new Invention.

Avoid Trouble and Danger

Use the only High Explosive that does not freeze

IT CONTAINS NO NITRO GLYCERINE.

Or Glycerine under any form or condition.

It is a new blasting Powder formed by the union of two ingredients, one a solid and the other a fluid, both being absolutely Inexplosive until combined by the Consumer.

The smoke made by the explosion of Rack-a-Rock is NOT injurious to health. Does not cause headache like nitro glycerine or dynamite.

The Explosive formed by Uniting these Ingredients.

Does not freeze in the coldest weather;
is equally effective in wet or dry holes;
Packs closer than dynamite in holes.

And is of two grades, A and B 1
A is more powerful than No.1 Dynamite.
B 1 equals No.2 Dynamite.

CAN BE SENT BY EXPRESS OR FREIGHT LIKE ORDINARY
MERCHANDISE.

SHELL COMMITTEE

Brig.-Gen. A. Bentram
Chairman.

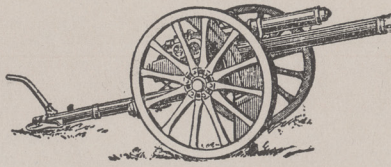
HON.-COL. D. CARNEGIE, M-INST. C.E. Brig.-Gen. T. Benson
ORDNANCE ADVISOR Master General of Ordnance

Hon. Col. T. Cantley

Hon. Lt.-Col. G. W. Watts

Mr. C. Carnegie

Mr. J. W. Borden



STEPHEN BUILDING
PHONE QUEEN 3034-5-6

Lt.-Col. C. Greville Harston

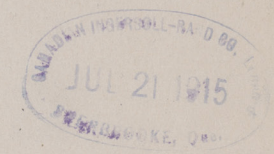
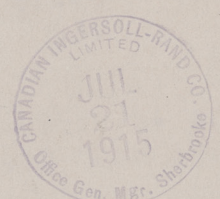
C. I. of Arms and Ammunition

Lt.-Col. F. D. Lafferty, R.C.A.

Sup. Dominion Arsenal

OTTAWA, ONT. July 15th, 1915. 191

Mr. J. W. Borden



Gentlemen:-

With reference to the contracts for ammunition we have had the pleasure of placing with your Company, we need hardly suggest that it is not only advisable but of the utmost importance that the work should have priority over all classes of custom work you may have now in hand or any you may likely have during the duration of the war. The hearty co-operation we have had already from all the manufacturers in this respect, encourages us to believe that no effort will be spared to keep up to the promises you have made for the delivery of the work you have in hand for the Committee.

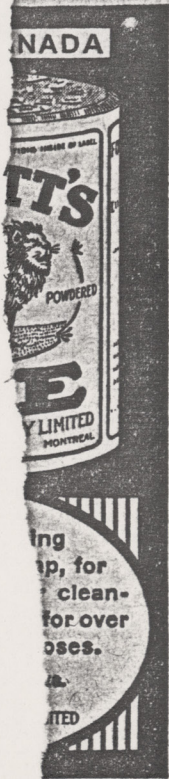
Yours very truly,

SHELL COMMITTEE

Alex Bentram

CHAIRMAN

2576
15000
7



NO AUTHORITY OVER SHELL COMMITTEE

Dominion Government Does Not Control Body Appointed in Canada by Imperial Authorities.

Mr. D. H. Thomas, the British munitions expert, has gone to New York, where he will meet Sir Frederick Donaldson and Mr. J. Hitchins, the British ordnance experts, who are coming to Canada in connection with the proposed manufacture of big guns and of larger shells in Canada and also in connection with the reorganization of the work of the shell committee.

It is learned here in authoritative circles that the Canadian Government has no control whatever over the shell committee which was appointed by the Imperial Government to arrange for the manufacture of shells in Canada.

This was done at the suggestion of Sir Sam Hughes on his first trip to England, and he was asked to recommend the men to go on the committee. Any reorganization of the committee or its work, therefore, is a matter entirely for the Imperial Government to deal with or for the representatives whom they send to Canada.

SERBIANS WITHDRAW TROOPS FROM ALBANIA TO CHECK GERMANS

By Canadian Press.

Sofia, Oct. 12.—Serbian troops that had been occupying the Albanian towns of Shiak and Krya have been withdrawn and are being rushed to the northward.

Seven divisions of the Serbian army which had been concentrated along the Bulgarian frontier also have been moved to the north to meet the German offensive.

SECRETS TO MINISTER

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...Belgian
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OUR present ra-
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dozen different gr-
of the best Canadia

Elastic Rib

MEN'S Elastic Rib
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have double l
pearl buttons. Draw-
ankle and waists. All
garment. Special for t

Men's Early Fall/Merino UNDER-WE

Regular 75c a
Mercury Br
Finished U
shrinkable
pearl
rein
A

QUOTATIONS SUBJECT TO CHANGE WITHOUT NOTICE
ALL AGREEMENTS CONTINGENT UPON STRIKES, ACCIDENTS AND OTHER CONDITIONS BEYOND OUR CONTROL
ALL CONTRACTS SUBJECT TO APPROVAL BY AN OFFICER OF THE COMPANY

WORKS
SHERBROOKE, QUE

CABLE ADDRESS
"RANDRILL"

INGERSOLL-RAND, LIEBERS
A.B.C. (4TH EDITION)

Canadian Ingersoll-Rand Co.

LIMITED

AIR COMPRESSORS, AIR AND STEAM ROCK DRILLS, HAMMER DRILLS
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AIR HOISTS AND AIR LIFT PUMPING SYSTEMS.

OFFICES

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COBALT, ONT.
SOUTH PORCUPINE, ONT. P.O. BOX 88
WINNIPEG, MAN., 817 UNION BANK BLDG
LETHBRIDGE, ALTA., P. O. BOX 2096
NELSON, B.C., P.O. BOX 1167
VANCOUVER, B.C., 708 DOMINION BLDG

CAMERON PUMPS

COMMERCIAL UNION BUILDING, 232 ST. JAMES ST.

FILE No Shell General

MONTREAL, CAN.

Octr. 18th.1915

Mr. E.S. Winslow,
Chateau Laurier,
Ottawa. Ont.

Dear Mr. Winslow,

For your personal information I enclose herewith estimated costs as to 9.2, 8" and 6" British shells. These are the costs estimated by Mr. Fuller for the Fairbanks Co..

Please understand I am not in sympathy with these costs, nor are they representative at all of what we feel our efforts will be, and I simply pass them along to you to show you what Mr. Fuller is thinking of.

The chances are that Mr. Brooks and Mr. Drinkwater will be with you to-morrow. Mr. Drinkwater has seen these costs in my office.

Yours truly,

EWG/H

E. J. Gilman
General Manager.

GILMAN

P.S. I understand that Mr. Fuller has advised Mr. Brooks to quote

Mr. Thomas as follows: 6" Shells \$22.00
8" " 40.00
9.2 " 55.00

These prices include shells complete with band.

Mr

9.2 Brit. Shell British Price

Weight of forging 383 lb.

" " "

finished shell 244

267 forgings per day

\$ 34.31

8" Brit Shell

Weight of forging 256 lbs

" finished 173

forgings per day, 334

\$ 25.40

6" Brit Shell

Weight of forging 143 lbs

finished 87

500 per day.

\$ 13.72

Yours truly,

Oct. 1915

General Manager.

P.S. I understand that Mr. Fuller has advised Mr. Brooks to quote

Mr. Thomas as follows: 6" Shells \$22.00
8" " 40.00
9.2" " 55.00

These prices include shells complete with band.

Mr. Gilman was Vice-
President of Canadian
Ingersoll Rand Co. and
Edward S. Winston's boss.

Shell work.

Re E.W. Jr
Munitions

3



26th Oct 1915

Dear Mr Gilman

I said to you some time ago that I was attempting to buy some Company stock with a view to getting some return commensurate with the work I am doing. I am sorry to say that the man I was dealing with now refuses to sell.

Before you go away for your holiday, I feel that you should let me know the Company's intentions towards me for the coming year. I feel that you might speak of this with Mr. Dablday tomorrow.

It is worth pointing out that of all the dozen countries manufacturing shells today, in not one of them except Canada have the orders been placed by a Committee, principally composed of members personally interested in making shells. When I was successful in having this Committee formed they were able to get business for us at a price of \$8⁴⁴ as against our own proposed figure of \$6⁹⁵. This resulted, not only in our getting a good price and practically no responsibility but it enabled us to get started ~~we~~ far ahead of American and



2.

English shops and encouraged us to make an altogether unforeseen increase in our capacity with no risks attached.

At the present time the Shell Committee are considering proposals from us aggregating \$6,878,000⁰⁰ and, added to this we will presumably do a business of between \$2,000,000⁰⁰ and \$3,000,000⁰⁰ in 18 Pds shells during the coming year.

This tremendous increase in our prospects shows no sign of slackening. It is entirely probable, if the war lasts as long as the big gun contracts (proposed), seem to indicate, that this time next year we may be undertaking many times more work than we are figuring on at present. It seems to me, with Canadian resources developed as they will be, that this time next year it will be the policy to place very few new contracts for shells in the United States.

It is on the cards that various schemes of Government control of profits will be proposed.



So far, I feel that by ³ seeing ahead, I have been successful in getting ideas favourable to us and to good production adopted by you, by the Minister of Militia, by the Shell Committee and by Mr Thomas. I feel that as time goes on and on business grows that my influence is becoming stronger. I feel that by continuing my work for the coming year I can be of best service to the country and to the Company. If I did not I should leave at once.

I have been very grateful for the privilege of working so closely with Mr Gilman and for his personal kindness to me but in these most unusual and uncertain times I feel that the Company should set my mind at rest by undertaking while I remain to pay me what my services have been and are likely to be worth to them and in the event of my feeling bound to follow my brother, by telling me one way or the other what they would be prepared to do for me while I am away.

Yours very truly
C. H. Simons

CANADIAN INGERSOLL-RAND COMPANY LIMITED.

SHERBROOKE, QUE.

COPY TO.....

Ottawa, Nov. 2nd, 1915.

The Shell Committee,
Ottawa, Ont.

Dear Sirs,--

We have your favor of Nov 1st advising us that you are prepared to place with us an order for machining and assembling 200,000 (4,000 per week) 8" Shells at a price of Eighteen Dollars, eighty-five cents (\$18.85) each provided that the requisite forgings can be obtained by the Shell Committee.

We beg to notify you that we are prepared to accept this order, provided of course that the further conditions referred to can be satisfactorily arranged.

We wish to thank you for your letter and we hope that the further arrangements will be made with the least possible loss of time.

Yours very truly,

CANADIAN INGERSOLL RAND COMPANY LIMITED.

Chief Inspector.

Shell

sdm
COPY

THE SHELL COMMITTEE.

OTTAWA.

November 1st, 1915.

The Canadian Ingersoll Rand Company
Sherbrooke, Que.

Gentlemen:-

The Shell Committee are prepared to place with you an order for machining and assembling 200,000 (4000 per week) 3" Shells at a price of eighteen dollars eighty five cents (\$18.85) each provided that the requisite forgings can be obtained by the Shell Committee.

We hope to have a decision from the forging makers within a day or two.

Please notify the Shell Committee at once if you are prepared to accept this order.

The further conditions will be discussed with you before being embodied in the formal contract.

Yours very truly,

SHELL COMMITTEE.

A. Bertram.

Chairman.

Montreal Nov 3-1915

Mr. E. S. Huslow

Sherbrooke

appointed to
manager of munitions
1915

Dear Sir:- Effector this
date Nov 1st I have pleasure
in according you the
position of "Manager Munitions
Department". This position will
carry with it a compensation
(\$3400) thirty four hundred
dollars this year. Such
amount will come to you in
two different manners.

an amount of \$200 per
month will come to you from
the weekly payroll in the home
\$ 83³³ will come to you
through a separate source
once each month.

I owe you the "job" to
your very best efforts +
Energy & I will be glad
to help you all I can

Yours truly

Car. James R. Rusk

E. W. Gilman

Gen. M. J.

E. W. GILMAN

WORKS
SHERBROOKE, QUE.

CABLE ADDRESS

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WINNIPEG, MAN., 817 UNION BANK BLDG
NELSON, B.C., P. O. BOX 1167
VANCOUVER, B.C. 847 BEATTY ST

CAMERON PUMPS

FILE No.

Copy
SHERBROOKE, QUE.

26th December 1915

George Doubleday, Esq., President
Ingersoll-Rand Co.
New York.

My dear Mr Doubleday:-

At Mr Gilman's special request, Mrs Winslow and I opened a large envelope from him on Christmas morning, as one of the many packages which we opened in front of the Christmas tree.

I cannot tell you how great was our surprise to find your very kind letter and check for \$1,000⁰⁰, Mr Gilman's letter and check for ^{a like} ~~the same~~ amount and two very generous checks from Mr A. K. Jencks and Mr J. M. Jencks.

Even without the checks I would feel most gratified in reading from your letters that my own work has been useful. I can truthfully say that my whole heart has been in this work ^{from} since the start but I can go ahead now with a greater confidence and I hope the results will be more than equal ^{to} your expectations.

Thanking you for ^{your very kind.} ~~such a splendid~~ present and wishing you in turn, a Happy and Prosperous New Year.

Yours very truly

Edward S. Winslow.

Log of 187dr. Shrapnel Shell work

1914

Col Douglas
return to
F. W. W. W.
Shrapnel

- | Day | Date | Event |
|--------|----------|---|
| Tues. | Aug 4/14 | War declared between Great Britain and Germany. |
| Thurs. | Aug 27 | Telephone from Mr Sangster to Mr Winslow asking if we could not try to get an order for making shells. |
| Friday | Aug 28 | Winslow called on Col Benson, Master General of Ordnance. Suggestion had just been received from British War Office that Canadian might handle an order for 100,000 - 187dr Shrapnel. |
| Sat. | Aug 29 | Made report to General Manager in Montreal |
| Sun | Aug 30 | Winslow went with letter of introduction from Master General of Ordnance to Supt of Dominion Arsenal at Quebec |
| Mon | Aug 31 | Inspected Arsenal and brought away full set of 187dr drawings and detailed costs of each operation |
| Tues. | Sept-1 | Conference in Sherbrooke estimated price to put in, provided materials could be obtained at Arsenal prices.
Mr Sangster, Mr. Haight and Mr Winslow then took 2 o'clock train for Ottawa. |
| Wed. | Sept 2. | At Winslow suggestion manufacturers had been called to Ottawa to meet Minister of Militia at 10 AM. |

At this date business was at a stand still and manufacturers were ready to take work at almost any price. We dreaded the possibility of slashing prices. This would have made the work unattractive and no decent production would have been attained.

As we knew something about the business while the other did not, Winslow's idea was to have the General Manager made Chairman of a Manufacturers Association which would decide on a uniform price to quote. The General Manager refused to come to Ottawa and sent Mr Campbell to represent him.

The manufacturers were kept waiting hour after hour until four in the afternoon when they were received by the Minister of Militia. After a five minute interview we were all sent up to hold a meeting with the Master General of Ordnance in charge. The meeting was very disorderly. No one knew what to talk about and after over an hour of fruitless discussions everyone was about ready to go home.

At this stage it did not look as though a Manufacturers Association could be formed without creating a bad impression

as to our intentions in attempting to create an artificial price. Something had to be done and to put the thing in a proper light, I proposed to Col Benson, Master General of Ordnance that a committee be formed to consist of a Chairman to represent the manufacturers, two other representative manufacturers, the Master General himself and two other military men to give their assistance and to see that nothing was done which would be detrimental to the interests of the Department.

Col. Benson agreed to this principle and himself nominated Col Alex Bertram as chairman. The meeting then broke up.

During the course of the meeting it was suggested that a suitable price would be Arsenal costs + 15% for inexperienced + 10% profit = \$6.95 for the shell without fuse, cartridge case or explosive but with all other components including socket & plug.

The Dept. wanted 10,000 shells per week. The Arsenal were making about 350 per week. Our capacity was claimed to be nearly four times this or about 1200 per week which was considered a rather large claim. We doubted if any other concern represented would handle more than 500 per week.

Sept 10/14

The past week was spent in studying the operations at the Dominion Arsenal and in working out our cycle of operations and designing tools.

Mr Haight, Chief Engineer wrote that he and Col Bertram felt that by speeding up work and working two shifts that the Dominion Arsenal could supply all the forgings!

Sept 14/14 Received 500 Forgings - Sept 18 Recd. 10 discs.

Sept 21 - been advised by phone that the price had been decided on at \$8.44.

Sept 22 Received 25 discs

" 25 driving bands.

Sept 25 " 22 sockets + plugs.

" 25 Tubes

" 26 Tin cups.

" 254 Bullets

Oct 8/14 First visit from Mr Carnegie - Ordnance Adviser.

We advised Mr Carnegie we expected to get 600 per week during first two weeks of November and 1200 per week from then onward.

Oct 9th Mr Gilman asked that the work be inspected numerically as well as for quality.

Reckoning price on first 1,500 shells - \$5¹²

Oct 13 - First 12 proof shells received in Quebec but found too soft.

Oct 22 - First Car of Forgings shipped to us from Nova Scotia Steel Company

Oct 29th Winstan carried out to Sherbrooke first set of standard gauges.

~~Oct 13th~~ Nov 3rd Took 3 filled and 3 unfilled samples to Quebec
Dimensions found O.K. " Tensile Test O.K.

Nov 7th Firing proof O.K.

Nov 7th Letter received in Montreal from Superintendent advising that he could not yet promise 400 shells per day by working 2 shifts as this would probably mean more equipment

Nov 9th Mr R. Blackwood, Chief Examiner and Mr Tucker, Asst. Examiner started work.

Nov 13th

Major Ogilvie advised us that Mr A.R. Chipman, Montreal had been appointed Assistant Examiner in charge of all Montreal District.

Dec 18th First weekly acceptance form sent in with all shells made up to date and accepted namely 915 pieces.

Jan 22 nd /15	weekly acceptances	- - - - -	2517	"
Feb 19 th /15	"	"	3239	"
Mar 19/15	"	"	3842	"
Apr. 23/15	"	"	4726	"

LOG OF 18 Pdr. SHRAPNEL SHELL WORK

<u>Day</u>	<u>Date</u>	
Tues.	Aug. 4/14	War declared between Great Britain and Germany.
Thurs.	Aug. 27	Telephone from Mr. Sangster to Mr. Winslow asking if we could not try to get an order for making shells.
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Sun.	Aug. 30	Winslow went with letter of introduction from Master General of Ordnance to Supt. of Dominion Arsenal at Quebec.
Mon.	Aug. 31	Inspected Arsenal and brought away full set of 18 pr. drawings and detailed costs of each operation
Tues.	Sept. 1	Conference in Sherbrooke estimated price to put in, provided materials could be obtained at Arsenal prices. Mr. Sangster, Mr. Haight and Mr. Winslow then took 3 o'clock train for Ottawa.
Wed.	Sept. 2	At Winslow's suggestion manufacturers had been called to Ottawa to meet Minister of Militia at 10 A.M.

At this date business was at a standstill and manufacturers were ready to take work at almost any price. We dreaded the possibility of slashing prices. This would have made the work unattractive and no decent production would have been attained.

As we knew something about the business while the others did not, Winslow's idea was to have the General Manager made Chairman of a Manufacturers Association which would decide on a uniform price to quote. The General Manager refused to come to Ottawa and sent Mr. Campbell to represent him.

The manufacturers were kept waiting hour after hour until four in the afternoon when they were received by the Minister of Militia. After a five minutes interview we were all sent up to hold a meeting with the Master General of Ordnance in charge. The meeting was very disorderly. No one knew what to talk about and after over an hour of fruitless discussions everyone was about ready to go home.

At this stage it did not look as though a Manufacturers Association could be formed without creating a bad impression as to our

intentions in attempting to create an artificial price. Something had to be done and to put the thing in a proper light, I proposed to Col. Benson, Master General of Ordnance that a committee be formed to consist of a Chairman to represent the Manufacturers, two other representative Manufacturers, the Master General himself and two other Military men to give their assistance and to see that nothing was done which would be detrimental to the interests of the Department.

Col. Benson agreed to this principle and Winslow nominated Col. Alex. Bertram as Chairman. The meeting then broke up.

During the course of the meeting it was suggested that a suitable price would be Arsenal costs 15% for inexperience 10% profit \$6.95 for the shell without fuse, cartridge case or explosive but with all other components including socket and plug.

The Dert. wanted 10,000 shells per week. The Arsenal were making about 350 per week. Our capacity was claimed to be nearly four times this or about 1200 per week which was considered a rather large claim. We doubted if any other concern represented would handle more than 500 per week.

Sept. 10/14

The past week was spent in studying the operations at the Dominion Arsenal and in working out our cycle of operations and designing tools.

Mr. Haight, Chief Engineer wrote that he and Col. Bertram felt that by speeding up work and working two shifts that the Dominion Arsenal could supply all the forgings.

Sept. 14/14

Received 500 forgings. Sept. 18. Received 10 discs.

Sept. 21. Been advised by phone that the price had been decided on at \$8.44.

Sept. 22. Received 25 discs
" " 25 Driving bands
Sept. 25 " 22 sockets & plugs
" 25 Tubes
" 26 Tin cups
" 254 Bullets

Oct. 8/14. First visit from Mr. Carnegie, Ordnance Adviser.

We advised Mr. Carnegie we expected to get 600 per week during first two weeks of November and 1200 per week from then onward.

Oct. 9/14 Mr. Gilman asked that the work be inspected numerically as well as for quality.

Machining price on first 15000 shells - \$5.15

- Oct. 13 First 12 proof shells received in Quebec but found too soft.
- Oct. 22 First car of forgings shipped to us from Nova Scotia Steel Company.
- Oct. 29. Winslow carried out to Sherbrooke first set of standard gauges.
- Nov. 3 Took 3 filled and 3 unfilled samples to Quebec. Dimensions found O. K. Tensile test O. K.
- Nov. 7 Firing proof O. K.
- Nov. 7. Letter received in Montreal from Superintendent advising that he could not yet promise 400 Shells per day by working 2 shifts as this would probably mean more equipment.
- Nov. 9 Mr. R. Blackwood, Chief Examiner and Mr. Tucker, Asst. Examiner started work.
- Nov. 13. Major Ogilvie advised us that Mr. A. R. Chipman, Montreal had been appointed Assistant Examiner in charge of all Montreal District.
- Dec. 18. First weekly acceptance form sent in with all shells made up to date and accepted namely 915 pieces.
- | | | | |
|------------|-------------------------|---------|-------------|
| Jan. 22/15 | Weekly acceptances..... | 2517... | " |
| Feb. 19/15 | " | " | 3239 " |
| Mar. 19/15 | " | " | 3842 " |
| Apr. 23/15 | " | " | 4726 " |

1st World War

*I believe this to be
the truthful & authentic
beginning of shell making
Canada L.S. WS*

AN ADDRESS MADE

by

Mr. E. S. Winslow.

Copy

Mr. Chairman and Gentlemen:-

I am not competent to say anything on the real subject of this evening but I have been asked to tell you some things that have never been told before on the subject of Canadian Shell Making.

Sherbrooke has reason to be proud that, not only has she sent many splendid men to the front, whose fine patriotism we cannot praise too highly, but Sherbrooke has also reason to be thankful that she has been able to apply her industries and her men to such good effect in the production of British Shells.

It was on August 27th, just twenty-three days after the declaration of war between Great Britain and Germany, that Mr. Sangster telephoned me in Montreal that he would like to make shells. The following day when I called on Col. Benson, Master General of Ordnance in Ottawa, he fished out from under some papers a requisition from the War Office for 100,000 - 18 Pdr. Shrapnel Shells.

I am sure Col. Benson must have been puzzled as to what he could reply to such a requisition, considering that the only place that could handle such work in Canada was the Dominion Arsenal whose production was about three hundred and fifty shells per week. So that it would have required just about five and a half years at that rate to complete the order.

I told Col. Benson that this requisition was just what we were looking for and that we and the other Canadian Shops could perform the work. It was arranged that I should visit the Arsenal at Quebec. This was on Friday and telegrams were sent broadcast for Manufacturers to meet the Minister of Militia, the following Wednesday, Sept. 22nd at ten o'clock.

At that time business was at an absolute stand still and we could only look forward to terrible depression. The manufacturers were all asked to quote on making shells. Perhaps I was wrong but I anticipated cut-throat competition. I proposed to my firm that we should try to organize a Manufacturers' Association and try to agree on a uniform price. As we had by this time been to the Arsenal and seen their costs, blue prints and specifications, I felt that the scheme could carry.

To my surprise, at the meeting, which was presided over by the Master General of Ordnance, nearly everyone seemed to think they had come on "a fool's errand". We had been kept waiting several hours and were nearly all in a bad humour. Instead of rushing to secure orders everyone seemed timid and all the talk was about getting

a big and a still bigger price. So much was this the case that I could not dream of proposing my scheme of a Manufacturer Committee which would have been taken by Col. Benson as a direct attempt to create an unfair price.

With this situation there seemed only one alternative. I went over to Col. Benson and, to put things in a proper light, proposed that a Committee be formed to consist of a Chairman and two others to represent the Manufacturers and Master General of Ordnance himself and two other military men to give their assistance and to see that the interests of the War Office were properly looked after.

Col. Benson agreed to this proposal and I nominated Col. Bertram as Chairman seconded by Mr. Goldie, of the Goldie McCulloch Company of Galt. Col. Benson and Col. Bertram then left the meeting for a few minutes and returned to report that the great Sam had also approved and that Alex. Bertram was Chairman of the Shell Committee. *This was when they put Hughes in his shirt sleeves*

The first members of the Committee were,

- Col. Bertram . - - Chairman representing the Machining Manufacturers.
- Col. Cantley, of the N.S.S. Co. - - Representing the Forging Manufacturers.
- Mr. Watts of the C.G.E. Co. & - - Representing the Component part Manufacturers.
- Col. Benson. - - " " " " " "
- Col. Harston. - - Chief Inspector of Arms & Ammunitions.
- Maj. Lafferty. - - Superintendent of Dominion Arsenal.

A great deal has happened since then. The Shell Committee was authorized by the War Office to act as the principal Contractor for Canada at no profit to themselves and all Canadian Manufacturers had to take the position of Sub-Contractors to the Shell Committee. At that time none of us would take an order at any price until we were assured that if we equipped and any new orders could be obtained that we, the first fifteen to make the venture, would be allowed to continue. One or two firms with more nerve than the rest offered lower prices to get the whole contract, but the Committee with fairness to all and conforming to the plan of laying foundations for larger work distributed the order to practically all those who would accept them.

In this way Canada became unique in having fully organized her Manufacturers for the manufacture of Shells. There was no other Shell Committee anywhere. Ordinary manufacturing plants in Canada produced shells months before similar concerns in Great Britain and the United States had got started. The cost of encouraging the tremendous development that has taken place in the course of a single year has been considerable but the result (to those of us who remember

the small beginning) has been absolutely amazing. I believe that, to-day, the efficiency of our Shell Making plants would compare favourably with similar work almost anywhere.

Our plants in Sherbrooke are working twenty-four hours a day and I am sure their efficiency will increase as long as Great Britain needs the Shells.

CANADIAN INGERSOLL-RAND COMPANY, LIMITED

Iona Gypsum Company. HEAD OFFICE, - MONTREAL, QUE. Winnipeg, Man.

Canadian Ingersoll-Rand Company Limited.
S Y D N E Y , N.S.

COPY TO.....

Rack-A-Rock.

RECEIVED
APR 5 1915
MONTREAL, QUE.
CANADIAN INGERSOLL-RAND CO.
General Sales Dept.
APR 5 1915

*Interested
Subject Rack-A-Rock*

Answering Mr. Cotter's letter of February 26th/15.

The writer has, on many occasions experimented with the use of rackarock as an explosive material for use in mining and quarrying gypsum. In the mines at Caledonia - Ontario: Cayuga - Ontario and at York, Ontario: when the writer was attached to the Toronto Office they used rackarock exclusively. They mined their gypsum very similiar to the method of mining coal: they did not under-cut the gypsum but merely drilled holes in the face and blasted it out. Incidentally, I have often thought that if they would use an "H-37" Undercutter, they could get very much better results and cheaper mining. There was one objection to using rackarock in these mines but they did not seem to mind it: that was the fumes. Rackarock of course is a slow-burning powder and gives off a heavy fume.

My efforts here last year were directed to getting probably one of the largest producers of gypsum on the continent - The Manitoba Gypsum Company with Head Office at Winnipeg and quarry at Gypsumville, Man, - to use rackarock. There proposition is pure and simple: a quarry working a body of gypsum some 25-feet in thickness, stripping off the over-burden and blasting the gypsum, and loading it with a steam shovel.

I fired several large shots at this quarry and was very successful in every shot made, with the exception that some of the powder in the bottom of the holes did not explode. The average width

Have no hesitancy in going after Rack-a-Rock business for use on Gypsum - etc.

Sydney Office.....

of face being worked is about 30-feet: the average number of holes put down are six - usually about 10-feet back from the face and spaced equally from the inside of the face, running lengthwise to the outside face, giving an average spacing of about 4-feet.

Their method of drilling however, is not satisfactory: they use ship augers and drill by hand: they pay .06¢ per foot to the drillers for the drilling.

My main trouble, was the fact that at the bottom of the holes, there would be about 18-inches to 2-feet of water that I could not get rid of. I loaded these holes on the same basis as when loading with dynamite: about .42 to .50-pounds of powder to the cubic yard of estimated break. The break estimated was 5-feet back of the holes, giving a break of 10-feet in front of the holes and 5-feet back.

As I said, my shots were perfectly satisfactory, with the exception that when they were dug out, there was found to be quite a little material that had not exploded. I personally believe that rackarock is an excellent explosive for shooting gypsum: I think it can be used to an advantage, it shows a cheaper explosive and a better explosive.

There is one other difficulty in a plant where large quantities of rackarock are used, and that is the time required to saturate the cartridges. I have had this question up with Montreal and with Mr. Gill of the Rendrock Powder Company - the manufacturers in the United States of rackarock. I have always felt in deep hole shooting, especially 25-foot holes or even 12 or 15-foot holes, that two double-strength detonators should be used,

Sydney Office.....

and if they can be secured - use triple-strength detonators: they are very little more expensive than single strength detonators. COPY TO

I enclose to you a copy of my report to the General Sales Manager last December together with a copy of Mr. Hill's reply through the Sales Manager to the writer.

If the Iona Gypsum Company are to be big users of rackrock, I think you should get Montreal to send Billy Richards down and make a good demonstration.

Do not be afraid if you fall down on your first shot. It is my personal opinion and experience, that if you will load your deep holes with a detonator in the second cartridge from the bottom, and if the holes are wet, paraffining the bottom cartridge and put a detonator about two thirds way up from the bottom and fire the two detonators in series, you will get a perfect homogeneous explosion with all the powder burned and show good results.

The method of paraffining referred to, is simply a basket made of wire with divisions for twenty-four cartridges of rackrock, with a chain handle on it and two tins - one fitting in the inside of another, putting water between the outside tin and the inside tin, and putting your paraffine wax in the inside tin and heating it on a fire. After the paraffine has melted, there should be sufficient in the inside tin, that when the basket containing the cartridges are dipped, each cartridge should receive a full coating. This will prevent the water from driving the oil out of the cartridges.

CANADIAN INGERSOLL-RAND COMPANY, LIMITED

HEAD OFFICE, MONTREAL, QUE.

Sydney Office.....

COPY TO.....

I may say Mr. Cotter, that I feel perfectly confident that to-day I could take hold of a gypsum quarry, giving demonstrations with rackarock, and show a considerable saving over the use of dynamite with its high freight rates. The "Safety First" movement warrants every quarry superintendent giving careful consideration and careful study to our explosive.

Re. the rating of value between rackarock and dynamite: if the Superintendent of the Iona Gypsum Company wants to stock rackarock equal to 40% dynamite, let him do so. Montreal might say that it is equal to 60% dynamite, but from personal experience, I find that under the best average conditions rackarock equals between 40% and 60% dynamite. If used within an hour after saturating its strength will be equal to about 40% dynamite. If very well saturated and allowed to absorb all liquid, and not used for ten hours after saturating, it will be equal in strength to 60% dynamite.

Rackarock can be tamped a great deal firmer than dynamite. Care of course must be taken not to tamp the cartridge containing the detonator. This cartridge should be pushed well home, and when the hole is fully loaded, tamping powder - consisting of either a dry sand or a loam, should be tamped on top very firmly so as to choke off all the air space. As you realize the success of all blasting, more especially with rackarock, is good tamping and close confinement of the gases.

There is one feature in connection with rackarock: that you can get a more uniform explosion in gypsum than you do with dynamite.

CANADIAN INGERSOLL-RAND COMPANY LIMITED

—5—

HEAD OFFICE - MONTREAL QUE.

Sydney Office.....

COPY TO

You should have no hesitancy in going very keenly after this business. If there is any further information that we can furnish you, do not fail to call on us.

Yours very truly,

Wm. Carter
Manager Winnipeg Branch.
W.

WC/GTW
C-2-Montreal.
Enclosures - 2.