

Mr. Wm. G. Mather -27-

we must decide whether we will discontinue supplying the customers we have now lined up for Glacial Acid or else install some new refining apparatus so as to increase our production of this grade.

The other large consumers of Glacial Acetic Acid are the various celluloid and comb manufacturers located in and around New York and Boston. There are also one or two chemical manufacturers in St. Louis who use considerable quantities of this product.

Taking into consideration all of the consumers of Glacial Acetic Acid in the United States outside of the Eastman Kodak Co., I estimate that altogether they do not use more than from 100000 to 150000 pounds per month under normal business conditions, and at present owing to the fact that business conditions are very much disturbed among the eastern celluloid manufacturers they are not using more than about half their normal requirements of Glacial Acid.

The Celluloid Co., Newark, N.J. use Glacial Acetic Acid for much the same purposes as the Eastman Kodak Co. and advise that their requirements are increasing. They have refused to give me any definite estimate as to their present consumption. As near as I can get at it, I believe they are now using about 25,000 to 30,000 pounds per month, but I think their requirements may be double this quantity during the next year or two.

#### ACETIC ANHYDRIDE.

The additional and unexpected delay in completing our plant for manufacturing this product has resulted in a very serious loss of profits on business that I estimate we could have had for this product.

The Eastman Kodak Co., who are the largest consumers, advised me that they are using from 100,000 to 250,000 pounds per month, but are contracted up to Dec. 31st, 1911.

The Celluloid Co. have just commenced the use of this product in a large way, and I estimate, from the information they have given me, that they will probably use 50000 pounds or more per month during 1911.

They held off as long as possible in order to give us an opportu-

Mr. Wm. G. Mather -28-

ity to secure this business, but were finally forced to close contracts covering their entire requirements over all of 1911 in order to protect themselves.

These are the only two consumers of this product I have found in the United States.

The manager of the Eastman Kodak Co. has given me to understand that we would have to make them a price of about 18¢ per pound on this product for carload lots F.O.B. Rochester in order to secure their business.

The Celluloid Co. have advised me that we would have to make them a price of about 20¢ per pound in order to secure their business. The open market quotations are about 24¢ per pound, but I presume the two concerns above mentioned have been able to secure much lower prices by making their contracts direct with the German producers.

Mr. Maynard, of The Celluloid Co., advised me the last time I saw him in New York that he understood that Mr. Eastman, of the Eastman Kodak Co., was in Germany during the latter part of 1910, making a vigorous effort to tie up all of the German manufacturers of this product so he could control their entire production, but I have been unable to verify this report.

Both The Celluloid Co. and the Eastman Kodak Co. have given me to understand that they have investigated the manufacture of this product with a view of making their own supplies, and that they could make the product at a cost of about 12¢ per pound.

I have heard the rumor that both the General Chemical Co., of New York, and the Hooker Electrolytic Chemical Co., of Niagara Falls, were preparing to manufacture Acetic Anhydride but have been unable to verify this report.

It is reported that the Warner Chemical Co., whose plant is located in New Jersey, formerly made and are now making Acetic Anhydride in a small way.

Mr. Maynard of The Celluloid Co., told me recently that this concern were also increasing their facilities so that they would be large manufacturers of Acetic Anhydride.

Mr. Wm. G. Mather -29-

From present indications it looks as though we would not have our plant in running order before the middle of this year, and as the two principal buyers of this product are tied up by contract until the end of 1911, it looks as though we shall be unable to market our production before 1912.

SULPHURIC ACID.

Owing to the additional delay in getting our plant started for making this product our competitors have closed new contracts with most of the large consumers in Michigan and Wisconsin. Therefore, it looks as though we might have considerable difficulty in marketing our surplus Sulphuric Acid during the balance of this year.

Inasmuch as this is heavy commodity and sold at comparatively low prices, the cost for freight is an important item. Therefore, I have carefully investigated Michigan and Wisconsin and find that the principal consumers in this territory are the tanners and paper mills.

I believe that we would have no difficulty in finding a market for from 500 to 700 tons per month or more of Sulphuric Acid in Michigan and Wisconsin providing we could secure all of the business from the consumers in that territory. Our competitors, however, have been very active and are making some very low prices.

I have been informed that 66 deg. Sulphuric Acid in bulk in tank cars was being sold delivered at points in this territory like Milwaukee, Wis. and Fremont, Mich. at \$10.00 per ton.

If we should secure the business at this price our product would net us less than \$7.00 per ton at Marquette after deducting the cost for freight, interest on the investment and depreciation or rental for the tank cars.

The trade on this product in Michigan and Wisconsin seems to be largely controlled by the Grasselli Chemical Co., although the Mineral Point Zinc Co., who make their shipments from Depue, Ill., are an important and apparently independent factor in competing for the tank carload buyers, but do not seem to make any effort to secure business from the consumers who

Mr. Wm. G. Mather -30-

take their supplies in carboys.

I have been informed, and by investigating I believe that the information is correct, that the General Chemical Co. and the Grasselli Chemical Co. have an understanding whereby they work in harmony and divide the business between themselves. This applies particularly to the buyers who take Sulphuric Acid in carboys.

The present market price for 66 deg. Sulphuric Acid, packaged in carboys delivered at the customer's place of business in Chicago or Milwaukee in drayload lots ranges from 80¢ to \$1 per cwt., but as all of the principal buyers of this commodity also use considerable quantities of Muriatic and Nitric Acid, I estimate that we may have some difficulty in securing our share of the business until such time as we are also in a position to supply our customers with the Nitric Acid and Muriatic Acid as well Sulphuric.

I believe that we can make arrangements for distributing depots at Milwaukee and Chicago and other consuming points so we can ship our Acid to these points in carloads, either bulk in tank cars or packaged in carboys, and then have deliveries made to the consumers in drayload lots, the same as the business is now being handled by our competitors.

I believe it advisable, and earnestly recommend, that we seriously consider putting in additional equipment so that we can manufacture some Nitric and Muriatic Acid. This will also give us some additional by-products made in connection with the manufacture of these Acid for which there seems to be a good market, such as Glaubers Salts (sodium sulphate).

We would also then be in a position to supply the mixed acid which is used by the powder manufacturers.

I have interviewed the DuPont Powder Co. and they advise that they are not in a position to give us much, if any, business on Sulphuric Acid, as they have their own plants for making this product located at Duluth, Minn. and near Houghton, Mich. Their principal requirement is for a high strength contact process Acid.

Mr. Wm. G. Mather -31-

CREOSOTE OIL.

Dr. Hudson advises that we have been unable to make C.P. Beechwood Creosote for the reason that our Creosote Oil contains only a very small percentage of Guaiacol.

I have recommended that he make some investigations to determine whether we cannot buy some Guaiacol for the purpose of bringing up the Guaiacol content of our C.P. Beechwood Creosote to the regular U.S.P. specifications. He is now looking into this matter and will report when he has completed his investigations.

I believe that we could develop a market for large quantities of our Refined Creosote Oil for making shingle stains providing we can perfect our product so that it will not turn darker in color when the various coloring pigments are mixed with it.

Dr. Hudson is now working on this subject. The Acme White Lead & Color Works, Detroit, Mich., who have tried out several different samples of our Creosote Oil, advise that as yet our product is not suitable for their requirements.

TAR.	(Paving)	Quantity sold.	Net price received.
		1910 1857.2 gallons	\$ .052 per gallon.

We have done a large amount of work in endeavoring to find a profitable outlet for our Tar, but so far have not been successful other than making this product suitable for paving purposes for use in Marquette and nearby territory in the Northern Peninsula.

I am having some experiments made at the present time with our Hard Tar for use in making core compounds for the malleable castings foundries but the results are unfavorable. Our Hard, Dry Pitch does not seem to have any binding qualities.

This class of trade use very large quantities of rosin for this purpose.

CHLOROFORM, U.S.P.	Quantity Sold.	Net price rec'd.
	1910 1200 pounds.	\$ .2425 per lb.

Mr. Wm. G. Mather -32-

This is a very important product. From the information received, I estimate that there are from 2,000,000 to 5,000,000 pounds used per year in the United States. It is practically all used for medicinal purposes as an anesthetic, and in addition to meeting the specifications of the United States Pharmacopoeia, I am informed that it must be absolutely free from all traces of Acetone, as even very small traces of this basic product are liable to cause serious irritation of the kidneys which in many cases results in death.

I have recommended to Mr. Farrell that he have some recognized medical college or medical and chemical authority make a comparative test of our product with Squibb's, Mallinkrodt's, Roesler & Hasslacher's and the Albany Chemical Co's. products, which are the standard brands for which there seems to be the greatest demand.

Squibb's Chloroform has the lead and is looked upon as being the standard. In fact, Messrs. E. R. Squibb & Co. have, by their advertising, created so extensive a demand for their product that they are able to obtain from 10 to 15¢ per pound more for their product than any other brand is sold for.

This seems quite remarkable, as I have been given to understand that practically all of the Chloroform used in the United States, including Squibb's, is made in the one plant at Niagara Falls, owned jointly by the Roesler & Hasslacher Chemical Co. and the Albany Chemical Co.

The Dow Chemical Co., at Midland, Mich., had been making some small quantities of Chloroform, but are at present out of the market on account of a recent disastrous explosion which I am informed completely destroyed their apparatus.

I understand that the Niagara Falls plant make their Chloroform from Acetone by the action of Chlorine gas which is obtained very cheaply at that point on account of the low cost for electricity.

It seems to me that we should be able to take a strong position on this product, as we are the only manufacturers of Acetone in the United States who also make their own Acetate of Lime, and in case we can later

Mr. Wm. C. Mather -33-

arrange for a cheap source of supply of electricity we shall be able to make our Chlorine Gas as economically at Marquette as it can be made at Niagara Falls.

I have only recently commenced the sale of Chloroform and have now lined up by contract for 1911 only one customer, Messrs. Eli Lilly & Company, Indianapolis, Ind. This concern only uses about 500 pounds per month, but their requirements are increasing.

All of the pharmaceutical manufacturers use more or less Chloroform; many of them, as well as the wholesale druggists and physicians supply houses, buy the product either in bulk or put up in bottles under their own label.

Some of the principal wholesale druggists, however, refuse to take this responsibility and sell Chloroform only under the manufacturer's or chemical house's label.

I believe that we shall have no difficulty in securing our share of the business on this product when we have had the above mentioned comparative tests made so we are able to satisfy all intending purchasers as to the quality of our product and have placed ourselves in a position so that we are able to compete in price with the R.&H. and Albany Chemical companies.

#### NEW CHEMICAL PRODUCTS.

We have made some investigations regarding the possibility of our being able to take up the manufacture of some or all of the following chemicals. Our Production Department are also making some investigations relative to the cost of manufacturing these products and we will later unite in a recommendation should it seem advisable for us to manufacture them.

Sodium Acetate. There are very large quantities of this product used by the textile printing trade. The consumers are mostly located in the New England states.

I estimate that we would probably find a market for one or two carloads per month, perhaps considerably more.

The present market price is about 4¢ per pound for the regular crystalized grade, carload lots, delivered at Boston or nearby points, but

Mr. Wm. G. Mather -34-

my investigations lead me to believe that we can obtain a considerably higher price by making a product containing a low percentage of water crystallization.

There are large quantities of a special grade of English Sodium Acetate used in the above mentioned territory, and it is claimed that it does better work than the regular American product. The consumers seem willing to pay the higher price for this grade, which is from 1 to 2¢ per pound over the ruling market price for the American product.

I have placed in Mr. Hudson's hands a 5 lb. sample of this English Sodium Acetate; he is making some experiments to determine whether we can produce a product equal or better in quality.

There are also considerable quantities of Pure Sodium Acetate used by the Pharmaceutical and chemical manufacturers, but this is practically all less than carload business. The prices range from 3 to 5¢ per pound higher than for the technical grade.

POTASSIUM ACETATE. There are limited quantities of this product used in a medicinal way by the pharmaceutical manufacturers, chemical houses and wholesale druggists.

The present market price for L.C.L. shipments, quantities of 100 pounds or more at a time, ranges from 15 to 20¢ per pound.

ACETANILID. There are very large quantities of this product used by the chemical houses, pharmaceutical manufacturers, wholesale druggists and patent medicine manufacturers. The present market price is about 20¢ per pound.

I estimate, from the information I have received, that there is from 2,000,000 to 5,000,000 pounds of this product used in the United States per year, and, as a large amount of Acetic Acid is used in its manufacture, I believe that we should be able to manufacture it advantageously.

The present American manufacturers, so far as I know, all have to buy their Acetic Acid as well as the other materials used in making Acetanilid.



Mr. Wm. G. Mather -35-

ACETPHENETIDIN (PHENACETIN). This product is similar in its medicinal action to Acetanilid but is going in demand as some of the medical authorities consider it safer to use in that it does not have so depressing an action on the heart.

The present market price of this product is about 80 to 85¢ per pound. The same classes of trade above mentioned for Acetanilid use this product.

I estimate there are probably from 1,000,000 to 2,000,000 pounds used per year in the United States.

I believe we are in a good position to also manufacture this product as Acetic Acid is one of its constituent elements.

SODIUM SULPHATE (GLAUBERS SALTS). There are very large quantities of this product used for medicinal purposes and largely by the stock food manufacturers but also to some extent by the chemical houses and wholesale druggists.

It may prove profitable to work up some of our surplus Sulphuric Acid in making this product. The market price at present is 75¢ to 95¢ per cwt. I understand that the trade on this product is largely controlled by the Grasselli and General Chemical Companies.

PARIS GREEN. There are large quantities of Acetic Acid, principally the low grade products, used in making this commodity, which is used very extensively in the United States both as a coloring pigment by the paint grinders and as an insecticide for potato bugs, etc.

Dr. Hudson has advised that he believes it would not be profitable or advisable for us to engage in the manufacture of Paris Green as it requires considerable quantities of Arsenic and Scrap Copper and that it is dangerous to the workmen because it is poisonous. So far as I have been able to learn, none of the present Paris Green manufacturers are also manufacturers of Acetic Acid.

The present market price on Paris Green in bulk is from 8 to 12¢ per pound according to the quantity purchased and points of delivery.

Mr. Wm. G. Mather -36-

COPPER SULPHATE (Blue Vitriol). I understand that this product is made from metallic copper and Sulphuric Acid. There are very large quantities used in the United States both for disinfectant and spraying purposes. It is sold largely through the wholesale drug trade.

The present market price is from  $3\frac{3}{4}\phi$  to  $4\frac{1}{2}\phi$  per pound.

MURIATIC AND NITRIC ACIDS. I understand that it does not require a very large investment in addition to what we have already made in our Sulphuric Acid plant, to place ourselves in a position to make these two acids. It seems to me as though it might be advisable for us to do so.

A large percentage of all the Sulphuric Acid buyers who take their supplies in carboys, also many of the bulk tank carload buyers, require considerable quantities of Sulphuric and Nitric Acid in their work.

I have already found, in my investigations seeking a market for our Sulphuric Acid, that the buyers who use all three of these Acids will hesitate to give us their business on Sulphuric Acid unless we are also in a position to take care of their requirements for Muriatic and Nitric Acids.

The Muriatic and Nitric Acid market is very largely controlled by the General and Grasselli Chemical Companies, and there are very large quantities used by the wholesale druggists, various chemical manufacturers, powder manufacturers and other lines of trade.

The present market price on Muriatic Acid for the different strengths commonly sold is as follows:

18 degree	\$1.15 to 1.75 per cwt.
20 "	1.30 " 1.75 do.
22 "	1.45 " 1.75 do.

The present market price on Nitric Acid for the various strengths commonly sold is as follows:

36 degree	$3\text{-}7/8\phi$ to $4\text{-}1/4\phi$ per pound.
38 "	$4\text{-}1/4$ " $4\text{-}5/8$ do.
40 "	$4\text{-}1/2$ " $4\text{-}7/8$ do.
42 "	$4\text{-}7/8$ " $5\text{-}1/4$ do.

Mr. Wm. G. Mather -37-

The foregoing prices on Muriatic and Nitric Acid are taken from the current issue of the Paint Oil & Drug Reporter dated Feb. 20th. I have found by experience that the quotations given in this publication are usually the prices at which the goods are sold by the jobber to the retailer or small consumer, consequently assume that the manufacturers' prices on these commodities are from 15 to 25% less than the above figures.

I understand that when we are making Muriatic, Nitric and Sulphuric Acid it will enable us to work up some of these products with other materials so that we would then be in a position to manufacture several additional chemical products.

#### DENATURED ALCOHOL.

I have been very much interested in the progress being made abroad, especially in Sweden, in making Denatured Alcohol from sulphite pulp plant waste liquor. I noticed in a recent article the statement that one plant in Sweden had made and sold this year over 600,000 gallons and that with the increased facilities that were now being installed practically all of the Denatured Alcohol used in Sweden would be made from this source within another year or two. I also noticed another article which stated that the Germans were taking up the same process and if the government tax now imposed on the manufacturers of this product could be revised or repealed that the waste sulphite pulp plant liquor produced in Germany would be sufficient to make a large percentage of <sup>the</sup> Denatured Alcohol now used there.

Dr. Hudson has advised me from time to time of the result of the experiments he has been making with the samples of the waste liquor from the Munising Paper Co's. plant. We have calculated roughly that with an investment of about \$10,000 or \$15,000 suitable apparatus could be installed with which we might make 150,000 gallons per year of Denatured Alcohol from the Munising waste liquor.

With the present lower market price on corn the independent Denatured Alcohol manufacturers are taking more interest in starting up their plants, and I rather look for lower market prices being made on

Mr. Wm. G. Mather -38-

Denatured Alcohol.

The completely Denatured Alcohol, 188 proof, is now being sold in the Chicago and New York markets at 38¢ per gallon for carloads delivered with a 4¢ per gallon allowance for cooperage where the shipments are taken in bulk in tank carloads.

I believe it would be greatly to our advantage if my department had some Denatured Alcohol to sell along with our Wood Alcohol, as we have many customers who buy both products.

The Specially Denatured Alcohol sells from two to four cents per gallon higher than the completely denatured product.

With a source of supply for Denatured Alcohol we would be in a position to make advantageously the following products:

Sulphuric Ether. This product is made from Ethyl Alcohol and Sulphuric Acid and is used largely for anesthetic purposes the same as Chloroform, and there is about as much or more used, probably 2,000,000 to 5,000,000 pounds or more per year in the United States. The present market price for the U.S.P. washed product ranges from 15 to 25¢ per pound.

Acetaldehyde. This product is made from Ethyl Alcohol and Acetic Acid. I understand that The Searchlight Gas Co., located at Warren, O., who are becoming very large competitors of The Prest-O-Lite Co., use this product in place of Acetone for charging their gas tanks, but have been unable to determine whether they are actually making the product themselves, as they claim, or whether they are importing it. The lowest quotations I have been able to secure from the importers are 25 to 30¢ per pound, but I believe the product can be made and sold very profitably under 20¢ per pound.

#### REVISION OF FREIGHT RATES AND TRAFFIC WORK.

This department has for about a year and a half been doing the work on our chemical shipments which really belongs to a traffic department.

Mr. Wm. C. Mather -39-

In fact practically all of the large consumers with whom we do business, and many of our competitors, have a regularly organized traffic department which keeps a considerable force busy.

I do not believe that the expense of handling this work should all be borne by the Chemical Sales Department as the benefits, especially those derived from a revision of existing freight rates accrue almost entirely to the Production Department.

We will submit you within the near future a statement showing the expense this department has assumed in handling this work and the savings which have been made, which amounts in round figures, to about \$5000.00 without taking into consideration a reparation claim which we have ready to present to the railroads on account of our Acetone shipments to Indianapolis.

I believe there is no doubt but what the Interstate Commerce Commission would order the railroads to refund to us the difference between the rates we have had to pay (29¢, 26¢, 24½¢ and the new rate of 22¢ which has now been authorized and published) as our principal competitor on this product located at Albany, N.Y. has had the benefit of a 22¢ rate all this time, notwithstanding the fact that the haul is about 156 miles less from Marquette to Indianapolis than from Albany to Indianapolis.

This reparation claim will amount to about \$1000.00 taking into consideration only the shipments that have been made within the last two years and the shipments we have now scheduled to go forward which will be made before the 22¢ rate becomes effective.

The Interstate Commerce Commission have established a rule that no reparation claims can be collected for shipments made farther back than two years from the date of delivery of a shipment.

We have another reparation claim, amounting to about \$300 or \$400 covering the difference between a 22¢ rate and a revised 18¢ rate on a number of tank carload shipments of Wood Alcohol from Gladstone to Chicago, to be

Mr. Wm. C. Mather -40-

presented which we believe will also be allowed by the Interstate Commerce Commission.

I have given this whole subject careful consideration and believe that the expense of all work of this character, especially that in securing a revision of existing freight rates and collecting claims for overcharges and reparation, should be borne by our Production Department or absorbed in the general expense of handling the company's business, as the profits accruing from this work go almost entirely to the Production Department; the Chemical Sales Department do not participate in these profits except to the slight extent that our selling commission is increased a little on account of deriving a little higher net price for our goods at the plant.

Before we took up this work Mr. Farrell had relied quite largely on our railroad office at Marquette to furnish us information relative to the rates applying on various shipments, necessary routing to use in order to obtain the minimum rate and also for revisions in the existing rate where he had reason to believe the rates in force were too high.

While Mr. H. A. St. John, G. F. A., M. & S. E. Ry. has always shown a willingness to co-operate with me in endeavoring to secure a proper revision of our rates, nevertheless it must be remembered that he is naturally working for the interests of the railroad department, and we could not expect him to voluntarily take the initiative in securing lower freight rates on our chemical products as it, of course, means a decreased revenue for his road.

We have found by experience that many times the rates quoted by the M. & S. E. Ry. and other railroads have been higher than we have been able to figure out and in many cases the M. & S. E. Ry. have been unable to furnish us rates to various points promptly as they did not have the necessary tariffs on file in their office.

Mr. Wm. G. Mather -41-

The question of freight rates is very complicated, in fact, up to the present time, has been regulated very largely by the rates different roads were obliged to put in on account of competition, and in many cases we find a way whereby we can secure lower rates than the through rates published from Marquette to the points where we have to deliver our products, as, for instance, in the case of St. Louis, Mo. The through rates are:

CARLOADS.	LESS CARLOADS.
Acetic Acid - - - 41¢	Acetic Acid - - - 61¢
Wood Alcohol - - - 26¢	Wood Alcohol - - - 61¢
Formaldehyde - - - 41¢	Formaldehyde - - - 75¢.

There is no provision for the carload rates on the different commodities being granted on mixed carload shipments, the cheapest basis being, for instance on a carload (30,000 lbs) consisting of 10,000 pounds of each of these three products, paying the carload rate on the minimum carload weight for the lowest rated article and the L.C.L. rates on the other two commodities, namely, Wood Alcohol 30,000 lbs. at 26¢ (\$78.00) Acetic Acid 10,000 lbs. at 61¢ (\$61.00) and Formaldehyde 10,000 lbs. at 75¢ (\$75.00), total charges for the carload being \$214.00.

We have, by taking advantage of our special commodity rate covering all of the above mentioned products to Chicago and reconsigning our shipments at that point, been able to take advantage of the following rates:

CARLOADS.	MIXED CARLOADS.
Acetic Acid) - - - 25¢ in tank cars	Acetic Acid) - - - ___ tank cars
) - - - 29¢ drums or car-	) - - - 35.6¢ drums or
) - - - 35.6¢ barrels	) - - - 35.6¢ carboys
Wood Alcohol 26¢	Wood Alcohol - - - 35.6¢
Formaldehyde - - - 35.6¢	Formaldehyde - - - 35.6¢.

On this basis, 30,000 lbs. of all three products at 35.6¢, (\$106.80) the saving is \$107.20 per car. From present indications I estimate the Mallinckrodt Chemical Works will use on an average of two carloads or more per month of our products, making a saving of approximately \$2000 to \$2500 for 1911.

Mr. Wm. C. Mather -42-

We have found that in practically every case where we go into a new territory that our rates are proportionately higher from Marquette than from our competitors' shipping points, and I believe this to be due largely to the following reasons:

The Northern Michigan railroads being few in number have worked closely together in maintaining higher charges per mile than the roads do in Southern Michigan or those taking shipments originating in the Chicago or eastern territories where most of our competitors are located.

It also seems that the M.&S.E. Ry. demand too large a proportion or division of the earnings for what is virtually a switching movement in hauling cars from the Pioneer Iron Co's. plant to the D.S.S.&A.R.R. at Marquette; for instance, on our eastern shipments I understand that the Northern Michigan roads get 10¢ per cwt. for hauling our carload shipments from the Pioneer Iron Co's. plant (New Furnace, Mich.) to Mackinaw City and that the M.&S.E.Ry. get about 40% of this amount for virtually a switching movement from New Furnace, Mich. to the D.S.S.&A. at Marquette.

This amount in dollars is about \$16 on a carload of Acetic Acid and \$12 on a carload of Wood Alcohol or Acetone, while the usual switching charges made by railroads at points like Chicago, Cleveland and other similar railroad centers where cars are delivered from one road to another, are from \$2 to \$5 per car.

The roads below Mackinaw City seem to feel that the Upper Peninsula roads obtain too large a proportion of the through rate, and in some cases have refused to join in putting through a lower rate on account of the fact that they believed they were bearing too large a share of the burden.

The following comparison will show the disadvantage we are under at present in making our shipments of Acetic Acid from Marquette:

Our carload rate on this commodity to New York is 40¢ per cwt., to Boston and nearby New England points 48¢ per cwt.

Our competitor, the General Chemical Co., who make their shipments of this product from New York, have a carload rate of 30¢ to Milwaukee, Wis.



Mr. Wm. G. Mather -43-

and Chicago, Ill.

Therefore, you will see that our competitors can get their goods into the heart of our consuming territory at from 10 to 13¢ per cwt. less for freight than we can put our product into the heart of their consuming territory.

The rates applying on Sulphuric Acid give another good example of the disadvantage we are under on account of existing freight rates, and, from present indications, it is going to be necessary to do a large amount of work before we can get these rates revised.

Our present carload rate on Sulphuric Acid to Fond du Lac, Wis. is 15¢ per cwt. Our competitors at Kansas City have the same rate, 15¢ Kansas City to Fond du Lac.

Our rate to Milwaukee is 15¢ and to Chicago 18¢, while our competitors who make their shipments from Grasselli, Ind. and Depue, Ill. have a rate into Milwaukee of 6¢ and only the regular switching charge of \$2 to \$5 per car for getting their product into Chicago.

According to Mr. St. John's advices, our present rates to the consuming points in Southern Michigan are (with which we show below some of our competitors' rates applying to the same points) as follows:

FROM	Marquette, Mich.	Detroit, Mich.	Chicago, Depue & Grasselli.
TO	C.L.	C.L.	C.L.
Alpena	30½¢	13½¢	17½¢
Fremont	19	8	12½
Boyer City	17	16	17½
Petoskey	17	16	17½
Manistee	17	12½	15½
Grand Rapids	19	10	11
Grand Haven	19	11½	11
Holland	19	11½	11
Kalamazoo	22	10	10.

Mr. Wm. G. Mather -44-

The proportionate rate on Wood Alcohol carload shipments made from Gladstone to eastern points via Mackinaw City is 8¢ per cwt., 2¢ per cwt. less than the rate charged by the Upper Peninsula roads for hauling our products from Marquette, Mich. to Mackinaw City even though the mileage is practically the same, and in each case two roads participate in the haul, the difference being that in the case of shipments originating at New Furnace, Mich. the M.&S.E.Ry. and the D.S.S.&A. are involved, while on the Gladstone shipments the Soc Line and D.S.S.&A., both being controlled by the same interests, are involved.

I have gone into this matter to some extent with Mr. St. John, but so far without being able to obtain his consent to any revision of this 10¢ rate New Furnace to Mackinaw City.

The above examples are only fair illustrations of the work involved in handling traffic matters, and I believe that some arrangement should be made, either to recompense my department for their actual expense, which includes considerable clerical work as well as travelling expense, or else a traffic department should be established who would handle all matters of this kind and keep the Chemical Sales Department advised as to the correct rates applying on all of our commodities to the various points to which we may make quotations and shipments, as well as taking full charge of all the detailed work necessary to secure proper revisions of existing rates, changes in classifications where our products are classified too high, reparation claims and claims for overcharges where the rates used by our Production Department as shown on their shipping manifests are higher than the minimum rate we are able to obtain, also working up the necessary data to use in making comparisons to show the various railroad committees of the Interstate Commerce Commission, as the case may be, that our rates should be revised in order to place us on an equal basis with our competitors.

Mr. Wm. G. Mather -45-

Returned empty containers - drums, barrels and carboys:

We are at a great disadvantage as compared with our competitors on account of the expense in getting back the empty packages for our products which have to be returned to our plant.

In practically all cases the rate charged is, under existing tariffs, higher on the returned empty containers than is charged on these containers when filled with our products when shipped from our plants, and I have already found some cases where shippers of other commodities who use similar size and style containers have very much lower rates applying for their returned empties than we have for ours.

The railroads, however, seem unwilling to revise our present rates on returned empty containers and it may be necessary for us to put this question up to the Interstate Commerce Commission.

It means, however, a considerable amount of work and expense in investigating the tariffs applying for our competitors' shipments as well as our own and those of shippers of other commodities in order to obtain the necessary data to present these matters intelligently. So far we have confined our efforts largely to negotiations with Mr. H. A. St. John, G. F. A.

I believe it would pay the company to have this matter investigated carefully, and we will be perfectly willing to do the work providing we can arrive at some fair basis so that the actual cost of doing this work will not be charged to the Chemical Sales Department.

I will make some further commentions on this subject in connection with the general statement we are preparing, and will later submit you a statement covering the work which I believe should be properly charged either to the Production Department or to general expense.

I will also submit you later, when the figures are completed by our Auditing Department, a comparative statement showing the earnings, expenses and volume of business handled by this department during the last three years.

Very truly yours,

  
Sales Manager, Chemical Department.

FLC:HK

CHEMICAL SALES DEPARTMENT REPORT  
COVERING  
CHEMICAL PRODUCTS WE ARE NOW MANUFACTURING, PREPARING TO MAKE  
AND INVESTIGATING.

I N D E X.

Detailed information regarding each one of  
the following products is given on pages indicated.

Acetate of Lime	26.
Aceto Arsenite of Copper, See Paris Green.	
Acetone, U.S.P.	1,2,3,4.
Acetone, Refined Methyl	14,15
Acetone Oil, Refined Light	4,5
Acetone Oil, Refined Heavy	5
Acid, Acetic	16,17,18,19,20, 21
Alcohol, Denatured or Ethyl from Waste Paper Mill Liquor	31, 32
Alcohol, 95% Refined	6,7,8, 9
Alcohol, 97% Refined	9
Alcohol, Special Denaturing	15,16
Alcohol, Special Supplied The Celluloid Co. under name of Special Solvent No.12	9,10,11, 12
Anhydride, Acetic	26,27,28
Blue Vitriol	30
Calcium Chloride	30
Chloroform	30
Creosote Oils	28,29
Formaldehyde	21,22,23
Hexamethylenamine, U.S.P.	23,24,25,26
Paris Green (Aceto Arsenite of Copper)	31
Spirits, Diamond,	12,13
Spirits, Perfume,	12,13
Spirits, Soap,	13,14
Sodium Acetate,	30
Vitriol, Blue See Blue Vitriol	
Tar, Paving	29

Mr. Wm. G. Mather,

Office, July 2, 1910.

President.

Dear Sir:

We have been able to secure orders <sup>So</sup> for far this year sufficient to take care of our entire production of all of our chemical products except Acetic Acid, and estimate that we shall be able to find a market for all we produce during the balance of this year.

The detailed statements attached show the quantities of Wood Alcohol, Methyl Acetone A.A. and Pure Acetone we have contracted to deliver, estimated amounts necessary to take care of our present customers who are not under contract, estimated production and the quantity of each product we will have available for sale during the balance of this year.

In making this report I have endeavored to give you in as condensed shape as possible the principal points of interest regarding the situation on each one of the chemical products.

ACETONE, U.S.P. We are sold well up to our maximum production of this product through the balance of this year, having left for sale 73,467 pounds if we continue to produce the same amount each month during the balance of the year we are now producing.

Our contract customers are all taking their maximum quantity, and some of them have been compelled to go outside and contract for considerable additional quantities from other manufacturers, as we could not take care of their increased requirements. For instance:

The Prest-O-Lite Co. have contracted for two carloads per month May to December from the Albany Chemical Co., paying  $13\frac{1}{2}$ ¢ per pound f.o.b. Indianapolis, but feel that they have been held up on the price owing to the fact that the other manufacturers undoubtedly knew that we were not

Mr. Wm. G. Mather --2--

in a position to take care of their increased business.

This concern have asked me to advise them as early as possible this year whether we will be in a position to deliver five carloads (about 125,000 pounds) each month during 1911 with an additional carload during some of the months should they need same.

This is the most desirable customer we have on Acetone. They are not particular as to the delicate tests for color and other impurities, their principal requirement being that the product shall be as free as possible from water.

The Diamond Rubber Co., Akron, O. have had to buy outside four carloads (about 100,000 pounds) so far this year, and will probably have to purchase three or four carloads more over and above the maximum quantity called for on our contract with them; they take the regular U.S.P. grade.

The consumption of this product among the American buyers is steadily increasing, and it will be necessary for us to increase our capacity if we wish to take care of the entire requirements of our present customers next year.

The question of increasing our capacity was discussed with Mr. Farrell and Dr. Hudson at our last Chicago meeting June 16th, who advise it would be a good plan to install six additional retorts and keep our old pot plant for reserve to operate during the time each one of the retorts have to be closed down for cleaning and repairs, also to make additional quantities of Acetone over and above our contract requirements when the market conditions are favorable so that

Mr. Wm. G. Mather --3--

we can obtain a good price for some extra Acetone.

Mr. Farrell is preparing an estimate on the cost of installing six additional retorts and the necessary refining apparatus, which will be sent down to you.

This would give us, if the plants are operated to their maximum capacity for 300 days per year, a total yearly production from the retort plant of about 2,400,000 pounds and, in addition, about 500,000 pounds from our old pot plant.

I estimate that we would have no difficulty in selling all of this Acetone and believe we shall be able to get a price that will net us about  $12\frac{3}{4}$ ¢ per pound at Marquette. Our present contract prices net us about  $12\frac{1}{4}$ ¢ per pound at Marquette.

We have sold some of our Acetone, (about 100,000 pounds altogether) this year at higher prices. The last carload sale netted us 13.9¢ per pound at Marquette.

The higher prices that are now being asked and obtained for Acetone are due largely to the fact that all of the American manufacturers are sold well up to their maximum capacity.

COMPARATIVE STATEMENT SHOWING THE ESTIMATED AMOUNT OF ACETONE, U.S.P., THAT WILL BE USED BY THE FOLLOWING CONCERNS DURING 1911, WITH THE ESTIMATE I MADE YOU UNDER DATE OF AUG. 10th, 1909, for 1910:

<u>Name.</u>	Estimate for 1910.	Estimate for 1911.
The Prest-O-Lite Co.	600,000 lbs.	1,600,000 lbs.
Parke, Davis & Co.	25,000 "	25,000 "
Diamond Rubber Co.	600,000 "	900,000 "
Goodyear Tire & Rubber Co.	150,000 "	150,000 "
Mallinckrodt Chemical Works	100,000 "	100,000 "
Eastman Kodak Co.	750,000 "	1,000,000 "
The Celluloid Co.	600,000 "	1,500,000 "
Welsbach Light Co.	150,000 "	150,000 "
Merck & Co.	100,000 "	100,000 "
FORWARD	<u>3,075,000</u>	<u>5,525,000</u>



Mr. Wm. G. Mather --4--

<u>Name.</u>	Estimate for 1910.	Estimate for 1911.
BROUGHT FORWARD	3,075,000 lbs.	5,525,000 lbs.
Commercial Acetylene Co.	150,000 "	300,000 "
Hood Rubber Co.	1,200,000 "	2,000,000 "
Dupont De Nemours Powder Co.	300,000 "	300,000 "
Powers, Weightman & Roseng'n Co.	50,000 "	50,000 "
Rubber Regenerating Co.	<u>100,000 "</u>	<u>600,000 "</u>
TOTAL .....	4,875,000 "	8,775,000 "

In addition to the foregoing, the Firestone Rubber Co. and the Goodrich Rubber Co., Akron, O. are building reclaiming plants and advise they cannot tell us definitely whether they will use any Acetone during next year but may use considerable quantities.

The export demand for this product continues about the same as last year. We have had several inquiries for quotations on the S.P.G. Grade, which Mr. Farrell advises costs us about 10% more to manufacture than the U.S.P. grade. I have found several cases where the Albany Chemical Co. have quoted the same price for both grades. We have not been in a position to offer any Acetone for export and the best prices I have heard of would only net us about 11 to 11 $\frac{1}{2}$ ¢ per pound at Marquette.

**ACETONE OIL.** We have sold practically all of the Refined Light Acetone Oil we can produce up to Sept. 1st to Stein Bros., London, England, at a price that nets us 48 $\frac{1}{2}$ ¢ per gallon at Marquette.

We have recently had some complaints from this concern as to the quality of our product, and it develops that the boiling points of the different shipments we have made them during the last 10 months were not the same as the boiling points of the original sample shipped them from Marquette on June 24th, 1909.

Dr. Hudson admits this to be a fact and advises that the only

Mr. Wm. G. Mather --5--

tests he has given this product have been those of Specific Gravity. He is now investigating the matter and will send us a full report when his tests are completed.

Stein Bros. advised us that the car shipped Jan. 24th, 1910, was not equal in quality to the original sample but finally advised they would accept same. They, however, refused to accept the next carload shipped March 24th, and Mr. Farrell advised that we instruct them to sell this shipment at the best price obtainable, which netted us  $42\frac{1}{2}$ ¢ per gallon at Marquette.

We have another carload in transit which should reach destination by July 15th at the latest. Dr. Hudson advises that he feels sure the quality of this shipment will be satisfactory, although it is not exactly the same as the original sample.

HEAVY ACETONE OIL. We are now using all we produce of this grade in making Special Solvent No. 11, for which we obtain a price that nets us  $72\frac{1}{2}$ ¢ per gallon at Marquette.

I have been making a special effort in investigating various lines of trade with a view of creating a market for some of our Acetone Oil in this country. We have started some small demand, but believe this will steadily increase so that we can find an outlet in one way or another for increasing quantities of both the Light and Heavy Acetone Oil.

Some portions of these oils seem to be excellent solvents for special purposes, and I think it is advisable for us to continue our experimental work in separating and refining the different fractions so that we may ultimately be prepared to supply several different grades of special solvents made from this product.

Mr. Wm. G. Mather --6--

WOOD ALCOHOL 95% GRADE. The market on this product has been very unsettled. There has been considerable cutting of prices and some of our competitors' product has been sold as low as 43¢ in barrels delivered New York and Chicago. An allowance of 4¢ per gallon for coo-  
perage is made where the product is shipped in tank cars.

Mr. Stevens recently advised me that he has given both Gray in New York and Thurston in Chicago permission to buy outside Alcohol when they could do so at a favorable price. This explains why both of these Wood Products Co. agents have been in a position to make so low prices to the consumers.

I have found some cases where 95% Alcohol has been sold in five and ten barrel lots as low as 46¢ per gallon and several others where it has been sold at 47¢ and 47½¢ delivered at the customer's place of business.

We have lost several of our customers by refusing to meet these prices, as we have endeavored to obtain 50¢ per gallon, less 2½%, for 5 barrel deliveries, although it has recently been necessary for us to make a price of 47¢ and 47½¢ to some customers in order to prevent our competitors taking their business.

We are now shipping our Alcohol to Chicago in bulk in tank cars, allowing Peterson 3½¢ per gallon for barreling. This results in a saving of ½¢ per gallon on the barrels in addition to the cost of freight on same, so that our Alcohol handled in this matter when sold at 47½¢ in barrels delivered in Chicago nets us \$.40375 per gallon in bulk at our plant, which is practically the same price our Alcohol would net us in bulk at our plant if shipped in barrels and sold at 50¢ per gallon less 2½% delivered in Chicago.

Mr. Wm. G. Mather --7--

We have made a supplemental contract with the T.J. Peterson Co. by which they assume all responsibility for loss on account of shortage or discoloration on our Alcohol when shipped in bulk in tank cars after it leaves our plant.

Thurston in Chicago has been marketing Alcohol branded "Michigan Refined Wood Alcohol from Thurston & Co." which you will note does not state that it is Wood Products Co. goods, but, as he is the Wood Products Co's. agent, most of the people assume that it is their Alcohol which he takes in bulk in his tank cars and then barrels at Chicago.

I recently sent a sample of this Alcohol to Marquette and Dr. Hudson reports the following analysis:

Alcohol content	95.3%
Acetone content	19%
Methyl Acetone content	3.7%.

This product is a better solvent for the shellac cutters than our 95% Alcohol, as it contains over three times as much Acetone and Methyl Acetate. Dr. Hudson also advises that this sample is retort Alcohol, which I assume, from information I have been able to obtain, is made by either the Desmond Co. or the Mashek Co.

The Wood Alcohol consumers, especially the shellac cutters, are steadily using more and more Denatured Alcohol and a correspondingly less quantity of Wood Alcohol.

This makes it necessary for us to reach out further from our plant and renders it more difficult to obtain a good price for our product, as a large percentage of the concerns throughout the west who formerly purchased Wood Alcohol in carload lots, now only buy it in L.C.L. lots, one to five barrels or more at a time.

We closed a contract with the three wholesale druggists in

Mr. Wm. G. Mather --8--

Kansas City, Mo. during January covering their entire requirements of Wood Alcohol during this year, minimum quantity six carloads, maximum quantity twelve carloads. They have, however, only taken two carloads so far, and I do not believe they will take over three carloads more during the balance of the year.

We also closed a contract with E.E. Bruce & Co., Omaha, Neb. and the Des Moines Drug Co., Des Moines, Ia. We have shipped each of these concerns one carload so far this year, and I believe they will each require one or two carloads more before Jan. 1st, '11.

We closed a contract with the Langley & Michaels Co., San Francisco, Cal. for two carloads, one of which has been shipped. They have just asked us, however, to cancel our contract for the balance, as they advise there is a fight on on Denatured Alcohol, which is being sold at 20¢ per gallon less than Wood Alcohol can be sold.

Denatured Alcohol has been freely offered during all of this year in the Chicago territory at 10 to 12¢ per gallon less than the price for 95% Wood Alcohol, and I have heard of some carload lots being sold as low as 34¢ per gallon in barrels f.o.b. Chicago, while L.C.L. quantities, 5 barrels or more at a time, have been regularly sold at 36 to 40¢ per gallon.

I believe that at present there are six to eight carloads of Denatured Alcohol per month being used in the Chicago and Milwaukee territory and only about one-half that quantity of Wood Alcohol.

Several customers who formerly used one carload or more per month of Wood Alcohol have gone over entirely to Denatured Alcohol. In my judgement, if this condition continues, it will make it necessary for us to make lower prices on our Wood Alcohol in order

Mr. Wm. G. Mather --9--

to find a market for same.

We have at present 120,000 gallons of 95% Alcohol in stock at Marquette and Gladstone. It will require 225,700 gallons to complete our contracts during the balance of this year, if the maximum quantities are taken. If, however, our contract customers only use the same proportions they have used during the first five months of this year, it will require 185,000 gallons.

Outside of our contract customers, I estimate that it will require about 12,000 gallons per month to take care of the customers we are now doing business with but who are not under contract.

WOOD ALCOHOL 97% GRADE. There is very little demand for this product. We are continuing to get 5¢ more per gallon than we do for the 95% grade. I have recently found several cases where the Wood Products Co. have customers to whom they are supplying a product which they call either 97% Refined Wood Alcohol or 97% Special Solvent, which tests higher than 97%.

We found on examining one sample that it tested 99% for Alcohol. Most of these special products contain 10 to 15% or more of Acetone with some Methyl Acetate, but they are usually sold at about the price for regular 97% Alcohol. I believe we shall be able to secure more business on this grade, but will probably have to do so under special names.

SPECIAL ALCOHOL SUPPLIED THE CELLULOID CO. UNDER THE NAME SPECIAL SOLVENT NO. 12. This concern has been regularly taking their maximum contract requirements and everything was running along smoothly until recently, when they advised that one carload received did not meet the contract specifications for quality.

Mr. Wm. G. Mather --10--

I immediately took the matter up with our Production Department and we shipped promptly another carload which Dr. Hudson assured me he felt sure would be satisfactory. The Celluloid Co. also advised that this did not meet the specifications outlined in our contract, and the same thing happened with a third carload.

Then Dr. Hudson and myself went down to Newark and The Celluloid Co. demonstrated to us that our product discolored when given the Nitrous Acid test. We examined the drums carefully and they all seemed to be in good shape. The Celluloid Co.'s Superintendent, who has been with them over 20 years, having charge of all Alcohol received, advised me that he thought our tin lined drums were fully as good, if not better than the tin lined drums formerly used by our competitors.

Dr. Hudson stayed over in order to test some of this Alcohol which the Celluloid Co. had redistilled, and after his return home he advised me that he thought the trouble came from the gaskets used on the drums, but has later advised that he believes the trouble is due to an electrolytic action of the tin and iron after the Alcohol is placed in the drums, stating that he had recently made a test and found that out of 70 tin lined drums filled with this special grade of Alcohol only 25 of the drums did not show the presence of tin - that one of the drums which showed the largest amount of impurities had been cut open and he had found that the iron was exposed through the tin in a large number of places.

The Celluloid Co. finally advised me that if we would take back two carloads of this Alcohol they would use the balance in some of their dark colored materials and give us an order for another carload, which proposition I accepted and succeeded in selling the two carloads

Mr. Wm. G. Mather --11--

in New York at 3¢ per gallon higher than our contract price, also saving out the S.P.G. Acetone which we shipped with each carload.

The Celluloid Co. have since ordered two carloads more of this special Alcohol from us and advise they will inform us when their experiments are completed whether the tin, which Dr. Hudson states is taken up by the Alcohol from our tin lined drums, causes the discoloration or whether it is due to some other impurities.

Dr. Hudson is of the opinion that The Celluloid Co. have been having a great deal of trouble with their finished products discoloring and thinks they are trying to lay this trouble all to our Alcohol. I believe, however, from the fact that we have now gone along for nearly two years - shipping them a carload of our Alcohol every three weeks and receiving no complaints until recently - that there must be some other cause for the difficulty, as we are now using the same drums that we have used heretofore.

It is possible, of course, that the tin coating may have gradually worn off, but I think it is up to our Production Department to examine each lot of our drums carefully before making shipments and if same are not in satisfactory condition to have them made so or secure new drums.

Special Solvent No. 12, as we are now making it, contains 6% of the S.P.G. grade of Pure Acetone, which is shipped packaged separately, and, at the present market price for U.S.P. Acetone, is worth about 91¢ per gallon at our plant; the balance of the product is our regular Gladstone Alcohol testing 98% or better from which practically all of the Acetone and Aldehydes have been removed. This grade of Alcohol costs us ~~42¢~~ 3¢ more per gallon than our regular 95% Alcohol and could be converted



Mr. Wm. C. Mather --12--

into Soap Spirits, Diamond Spirits or Perfume Spirits.

Our Present contract price for Special Solvent No. 12 nets us about  $43\frac{1}{2}\%$  per gallon at Marquette so, taking into consideration the present good demand for pure Acetone, we are only obtaining  $43\frac{1}{2}\%$  per gallon for a finished product that is worth  $45.88\%$  per gallon at our plant, figuring that we could dispose of all of this Alcohol as regular 95% Wood Alcohol in case we cannot find a more profitable outlet for it as Diamond Spirits, Perfume Spirits or Soap Spirits.

The Celluloid Co. stated that the Wood Products Co. formerly made this special product by sorting their regular grades of Alcohol, reserving the middle of the run for this purpose. Dr. Hudson advises that we cannot make the product in this way meeting their specifications.

Mr. Farrell and Dr. Hudson seem to think that it would not be good policy to renew our contract with The Celluloid Co. as their requirements are so rigid that we cannot use anything but tin lined drums, and there seems to be considerable question as to whether even this style container will not contaminate the product.

**DIAMOND SPIRITS AND PERFUME SPIRITS.** We have developed a steady demand for comparatively small quantities of these products starting from time to time some new customers but losing others to whom our competitors make lower prices on a similar quality of goods.

I do not believe that we can build up a very large demand for these products, as the Pure Food and Drug Law curtails the field in which same can be used and, as the competition is sharp, the prices are continually being lowered. We have sold during the last 12 months  $10763\frac{1}{2}$  gallons of Diamond Spirits and 3428 gallons of Perfume Spirits at prices that netted us an average of  $65\%$  per gallon for the first product and  $88\%$

Mr. Wm. G. Mather ---13---

per gallon for the second product.

I believe we shall be able to continue selling about the same quantities of both of these products during the balance of this year, but the prices may be somewhat lower, especially on the Perfume Spirits, as one of our best customers has recently advised that our competitors are offering him an equally good product at a price that will net us about 72¢ per gallon at Marquette.

SOAP SPIRITS. This product is our regular Diamond Spirits re-distilled in order to make it so that it will not discolor in the presence of alkalies. The soap manufacturers use it in making transparent soaps. Formerly there was a large demand for this grade of Wood Alcohol, but during the last two years the Industrial Alcohol Co. have been making strenuous endeavors to get the soap manufacturers over to a specially Denatured Alcohol which they claim will do the same work, and have offered their product as low as 45¢ per gallon in carload lots delivered at Chicago and other points.

We are now supplying Swift & Co., Chicago, Ill. who I estimate will use about 5,000 to 7,000 gallons per year. The present price we are obtaining nets us about 60¢ per gallon at Marquette and I would not be surprised if we were forced to reduce this price by our competitors making lower quotations.

James S. Kirk & Co., Chicago, use about 50,000 gallons per year and have tested a sample of our Soap Spirits and advise the quality is satisfactory. They are now under contract with the Wood Products Co. but advise their contract expires about Sept. 1st. They will give us an opportunity to submit a proposition. Their Manager advises me that they are now buying this product for considerably less than 60¢ per gal-

Mr. Wm. G. Mather ---14---

lon delivered in carload lots, so I believe we shall have to make a price as low as 57¢ or perhaps 55¢ per gallon delivered at Chicago to secure this business.

Mr. Farrell advises that it costs us 9¢ per gallon more to make Soap Spirits than it does to make 95% Alcohol, which makes our cost at the plant 49¢ per gallon.

REFINED METHYL ACETONE. We have been handicapped in marketing our production of this product this year owing to the fact that the Wood Products Co. offer a product containing the same percentage of Acetone and Alcohol our product contains and, in addition, 15 to 30% of Methyl Acetate.

The Canadian manufacturers have also been offering during the last few months a similar product in Chicago.

Both of these concerns have cut our prices. In one case - that of The Sherwin-Williams Co. with whom we have a contract - Mr. Williams, Purchasing Agent, advised me that he had been offered a product equal to or better in quality for their work than our Methyl Acetone AA at a price considerably less than 55¢ per gallon delivered at their Kensington, Ill. plant. Our contract price with this concern is 57¢ per gallon f.o.b. Kensington, Ill. for carload lots, packaged in returnable drums.

I took this matter up with Mr. Farrell and Dr. Hudson at our last Chicago Meeting June 16th and they advised that it was impossible for us to make the same product offered by our competitors as we get practically no Methyl Acetate in our Alcohol.

They advise that I offer lower prices, stating that our Methyl Acetone AA cost us 45¢ per gallon at our plant. I believe that we may have to go as low as 52 or 53¢ per gallon, but think if we do so we will have

Mr. Wm. G. Mather --15--

no difficulty in selling all of the Methyl Acetone AA we can make during the balance of this year.

You will note the attached statement shows that we will be oversold about 10,000 gallons of this product Jan. 1st, 1911, if our contract customers use during the balance of the year the same average monthly quantities they have taken during the first five months of 1910.

Dr. Hudson advises me, however, that we can produce and ship 1000 gallons monthly of Methyl Acetone AA from Gladstone in addition to the quantities he has shown on his weekly reports and still leave about 5% Acetone in our 95% Alcohol shipped from this plant. This I believe will be ample to take care of our contract requirements.

The Sherwin-Williams Co. have recently advised me that they use very little of this product during the summer and will probably not require another carload shipped before the latter part of August or the first of September.

**SPECIAL DENATURING ALCOHOL.** The only customers we have left on this product are The Hammond Distilling Co., Hammond, Ind., who use about 4 to 6 carloads per year, and the Lakeside Distilling Co., Milwaukee, Wis. who use about 5 to 10 barrels per month.

The Industrial Alcohol Co. have made a deal with the Western Distilleries Agnew, Cal. so that the Wood Products Co. are now supplying their requirements of this product at a considerably lower price than we charged the Western Distilleries.

As near as I can find out the Wood Products Co. are selling this product at a price that nets them only 48 to 50¢ per gallon in barrels on board cars in Buffalo. We are obtaining 54-1/3¢ per gallon

Mr. Wm. G. Mather --16--

from the Hammond Distilling Co. which nets us 53¢ per gallon at Marquette.

There is a new Denatured Alcohol plant about ready to commence operations at Marshalltown, Ia. I have been unable to secure their business on Special Denaturing Alcohol and believe the combination will succeed in tying them up both for the sale of their Denatured and for their requirements of Special Denaturing Alcohol.

The Classen Lignum Co., Chicago, advise me that they have their new plant, located near Seattle, about completed and will commence operations within a month or two. I expect to be able to supply their requirements of Special Denaturing Alcohol and also hope to be able to make a deal whereby we can sell their Denatured Alcohol. They inform me that they will have a maximum daily capacity of about 3,000 gallons and state their cost will be low enough so that they can compete for the business in the Chicago, Detroit and Cleveland territory and also go further east if necessary to find an outlet for their product.

There is another new Denatured Alcohol plant now in operation at Los Angeles, Cal., making their Alcohol from sugar beet refuse. This plant is controlled by the Braun Chemical Co. whose President, Mr. C. W. Hill, called at our office two weeks ago. He said they were now buying their Special Denaturing Alcohol from the Wood Products Co. and would give us an opportunity to quote them when again in the market for this product. They use about 3 or 4 carloads per year.

ACETIC ACID. Owing to the fact that Mr. Farrell was unable to advise me during December when our plant would be completed and we would be ready to commence shipping this product, we were unable to close contracts with any of the consumers. Practically all of the carload buyers of this product make contracts during the fall covering their require-

Mr. Wm. G. Mather --17--

ments for the next year

We were not ready to commence making shipments until after the first of May, so that I have had considerably difficulty in getting business started on this product, but have sold and shipped two carloads of 60% Commercial Acetic Acid, which netted us \$3.718 per cwt. and two carloads of Pure Glacial Acetic Acid U.S.P. 99% which will be shipped as soon as the necessary carboys are received. This grade will net us \$5.834 per cwt. at our plant.

The consumers do not use nearly as much Acetic Acid during the summer months as during the balance of the year; consequently, I believe if we shall be unable to secure enough business to keep our plant running to its full capacity before fall or perhaps the first of next year.

We are having the same experience as we had when we first commenced to market Acetone. Our competitors, who have had the market well lined up, commenced cutting prices as soon as we approached the trade, and the prices were reduced from 25% to 33-1/3% on Acetic Acid about the first of April, and I find that all of the concerns who are now under contract have had their contract prices voluntarily reduced.

The principal buyers in the west use the Commercial grade, 28%, 56% and 60%. I have found no large consumers of the Glacial Acetic Acid. The only buyers are some of the pharmaceutical houses like Frederick Stearns & Co. and Parke, Davis & Co., who use small quantities - none of them over 10,000 to 15,000 pounds per year; they are in the habit of taking in their supplies in carboys - lots of one to five carboys or more at a time which are delivered at their place of business.

The Eastman Kodak Co., Rochester, N.Y., who use large quantities of this grade, about 100,000 to 150,000 pounds per month, advise me they

Mr. Wm. G. Mather --18--

have their requirements covered by contract up to Dec. 31st, 1911, and, as they are protected against decline in market price or lower quotations, there is not much chance of our securing any of their business during this or next year.

There are large quantities of Pure Glacial Acetic Acid used by the textile printing manufacturers who are located largely in the New England states. I have not completed my investigations with this line of trade, but believe we shall be placed at a considerable disadvantage in competing for this business, as our competitors have plants located on the Hudson near New York, at Newark, N.J. and near Boston, Mass.

I am negotiating with the following concerns, all located in the west, who use the grades of Acid mentioned. I think we should make a vigorous effort to secure most of this business, as it is in our logical territory where the freight rates should be more favorable for us, namely:

The Sherwin-Williams Co. - use about 1,000,000 pounds per year of 60% Commercial Acetic Acid at their Kensington, Ill factory. They advise they are just opening a plant at Newark, N.J. so will require some quantities delivered there during the coming year - probably not more than 10 to 15% of their total requirements.

Our present cost on this grade of Acid, delivered at Kensington, Ill. in carload lots, figuring on running our plant to its full capacity, 300 days per year, is \$3.434 per cwt. Our lowest cost, figured on the basis of Mr. Falding's estimate for producing our own Sulphuric Acid, is \$3.001 per cwt.

We sold this concern two carloads above mentioned at \$4.00 per cwt. They now advise me that the other manufacturers are now offering the same price. This price shows a profit of about 43¢ per cwt. on Acetate of

Mr. Wm. G. Mather --19--

Lime over and above our present cost for this grade of Acetic Acid.

Our present cost on Pure Glacial Acetic Acid U.S.P. 99% in bulk at our plant is \$4.971 per cwt. The sales we have made as above mentioned net us \$5.834 per cwt. Our lowest cost, based on Mr. Falding's estimate for Sulphuric Acid, for this grade of Acetic Acid is \$4.257 per 100 lbs.

The above selling price shows a profit of 48.7¢ per cwt. on Acetate of Lime over and above our present cost of manufacturing this grade Acid.

The Devco & Reynolds Co., Chicago - use about 400,000 pounds yearly of the 56% Commercial Acetic Acid. They advise, however, that they are installing a plant to manufacture their own Acid.

The Carter White Lead Co., Chicago, Ill. - use about 500,000 pounds per year of the 28% Commercial Acetic Acid at their West Pullman, Ill. and Omaha, Neb. plants. They are contracted up to the first of next year and recently advised me, when I quoted them a price of \$2.00 per cwt. for immediate shipments in carload lots, that this price was a trifle less than what they were now paying, but that the difference was not sufficient to induce them to take in any shipments from us. They stated they will give us an opportunity to submit them a proposition this fall before closing a new contract, and advise they would like to close a contract covering several years.

The National Lead Co., New York, N.Y. have plants at Chicago, Ill., Cincinnati, O. and St. Louis, Mo. where they use large quantities of the 56% and 70% Commercial Acetic Acid. They would not advise me what quantities they used and state they were covered by contract for the balance of this year.



Mr. Wm. G. Mather---20---

The National Aniline & Chemical Co., Chicago. - use about 300,000 pounds per year of the 28% and 56% Commercial Acetic Acid. This concern seem to control the business of the laundries and dye houses, all of whom use some Acetic Acid.

The Alston-Lucas Co., Chicago, Ill. use about 50,000 pounds per year of 70% Commercial Acetic Acid and purchase their supplies in L.C.L. lots.

The Western Dry Color Co., Chicago, Ill.--use about 50,000 pounds per year of the 56% Commercial Acetic Acid and purchase same in L.C.L. lots.

The Patton Paint Co., Milwaukee, Wis. - use about 200,000 pounds per year of the 56% Commercial Acetic Acid. They are prepared to take shipments in carload lots and are covered by contract for the balance of this year.

The Pfister-Vogel Leather Co., Milwaukee, Wis. - use about 40,000 to 50,000 pounds per year of the 56% Commercial Acetic Acid and take same in L.C.L. lots, one to five barrels at a time.

The Picher Lead Co., Joplin, Mo. - advise they use some Commercial Acetic Acid, but have been unable to learn the strength and quantity they use. They are also covered by contract over the balance of this year.

The wholesale druggists in Chicago and Milwaukee all use small quantities of Acetic Acid, mostly the 80% and the 28% Pure Redistilled, which they take in in quantities of one to five carboys or barrels at a time. This class of trade is now largely controlled by the General Chemical Co. who also supply the mineral acids used by these concerns and

Mr. Wm. G. Mather --21--

have established the custom of making deliveries every few days, as may be necessary, of a single drayload, taking back the empty containers.

Our competitors have established some customs for handling the Acetic Acid trade which are inconvenient and expensive for us to follow, namely, they invoice the carboys and barrels extra, taking same back at the price charged and in many cases take up these empties with their own teams at the customer's place of business, standing the cost of cartage and return freight.

I am trying to get away from this practice, and in some cases have made our quotations containers inclusive and not returnable; in other cases, where we allow the return of the containers, have specified that same must be delivered on board cars - we to pay only the return freight.

Mr. Farrell advises that the total capacity of our Acetic Acid plant monthly is about 230,000 pounds equivalent to 100% Acid and that of this amount 100,000 pounds is in the form of Glacial and testing 99%, the balance consisting of 28%, 56%, 60% and 85%.

I have asked him to advise us the cost of re-refining the lower grades and converting them into Pure Glacial Acetic Acid U.S.P. 99% or 99½%, also approximately the monthly production of each one of the different grades, so that we can determine whether it will be more economical for us to sell certain portions of our product as 28%, 56%, 60%, 85% Commercial Acid or re-refine them all to the pure Acid.

The foregoing costs are based on statement prepared by Mr. Myers based on Dr. Hudson's estimated production in his letter of 5/10/10.

FORMALDEHYDE. The consumption of this product is steadily increasing. Mr. DuBois advised me recently that the increase for the first six months of 1910 would be about 250,000 pounds over the corresponding period for 1909.

Mr. Wm. G. Mather --22--

Our records show that the increased consumption is largely throughout the northwest where the product is used by the farmers as a fungicide. There were 254,562 pounds more shipped in the whole United States during the first three months of 1910 than during the first three months of 1909 (percent of increase 27.52) and 411,043 pounds more shipped during the year ending March 31st, 1910, than during the corresponding year ending March 31st, 1909, (percent of increase 13.26).

The Perth Amboy Chemical Works furnished us shipping orders for more than we could produce during the first three months of this year and they had to ship two carloads from Perth Amboy into our territory during this period, as we were unable to make the shipments at the time they had to go forward, namely:

Date shipped.	Consignee.	Pounds.
3/18/10	Minneapolis Drug Co.	28,125.
3/21/10	F.C. Schapper	39,375.

It seems to me that we should either increase our storage capacity for Formaldehyde, so that we may accumulate during the months of May, June, July and August, when the demand is light, a sufficient reserve stock to enable us to take care of all of the orders which may be furnished us for shipment during the balance of the year when the demand is heavy, or else we should increase the capacity of our Formaldehyde plant sufficiently so that we shall at all times be in a position to take care of all of the orders for Formaldehyde from our territory.

We have been working vigorously on a revision of our freight rates to all of the points located in our territory and now have an advantage over Perth Amboy for all of the points except St. Louis. Mr. St. John assures me that he believes we shall be able to secure a re-

Mr.Wm.G.Mather --23--

vision of our present carload rate, 41¢, to the rate that now applies on Wood Alcohol, 26¢, which would entitle us to the business from this point.

Both the C.&N.W. and C. M.&St.P.Rys. have expressed themselves as being favorable to making this revision, and were it not for the fact that all of the roads have been making a universal effort for a general advance in rates, I believe we would have been able to secure the revision before this time.

Including the business from St.Louis we are entitled, on the basis of freight rates, to 45.543% of the total Formaldehyde shipments in the U.S.A. as shown by Mr.Jaynes' statement 5/21/10. This is figured on a basis of all the shipments of Formaldehyde that have been made from August 24th, 1905 to April 30th, 1910, inclusive, giving to each concern all of the business from the territory where they have an advantage in freight rates, and dividing equally the business from the territory where the freight rates are the same from Marquette and Perth Amboy, N.J.

HEXAMETHYLENAMINE, U.S.P. We have had a great deal of trouble with this product. All of our customers have objected to either the odor of our product or the size of the crystals.

Eli Lilly & Co., Indianapolis, Ind., our largest customer on this product, advised us during the latter part of December that our product seemed to develop a disagreeable odor after being compressed into tablets.

After sending them several different sample lots, Dr.Hudson went down to Indianapolis and advised that he was unable to determine the cause of the difficulty; in fact he seemed reluctant to admit that

Mr. Wm. G. Mather --24--

there was any order which developed in our product, but we have on hand here a lot of the tablets which this concern returned to us which have a very unmistakable odor. I followed this matter up vigorously and am satisfied that this concern were absolutely honest in making the complaint.

We shipped them another lot of Hexa. on March 12th, which seemed to be satisfactory, and they later gave us an order for 100 pounds, which we shipped them on April 8th.

These people advised me when I recently called on them that our last shipment of Hexa. seemed to be all right, but stated they had a large stock of our competitors' product on hand which they must use up before ordering further supplies from us. They also advised that they want to keep the tablets made from our product on hand long enough to be absolutely sure same would not develop a disagreeable odor before shipping them out to their trade.

Parke, Davis & Co. This concern have covered their requirements by contract up to Jan. 1st, 1911, and advised me that they would not be in a position to consider our product until the latter part of this year.

O. F. Schmid Chemical Co., Jackson, Mich. This concern have discontinued the use of our Hexa. on account of the fact that it makes a spotted appearing tablet, and furnished me samples of tablets made from our product and from our competitor's product, which they advised was satisfactory for their requirements. Dr. Hudson after examining these samples, advised me that he thought the difficulty was due to the fact that our product consisted of larger crystals than that of our competitors.

Mr. Wm. G. Mather --25--

He has recently sent them a pound sample of our product in very fine crystal form, which he felt sure would be satisfactory for their requirements. This concern have promised me that they will make up some tablets from the sample pound and resume the use of our product if satisfactory.

The Upjohn Co., Kalamazoo, Mich. have been using our product continuously during the last two years and have made no complaint as to the odor of our Hexa., but have complained on the lack of uniformity as to the size of the crystals shipped them.

They recently ordered 200 pounds shipped by express and advise that only one drum was the same sized crystals we had shipped them before. They, however, gave us an order for another lot and will use the balance of the first shipment for solution in some of their liquid products.

Dr. Hudson recently advised me that they had installed a new centrifugal machine which he believed would overcome the objections to our product so far as odor is concerned and thought we would have no difficulty in supplying each one of the different customers the proper sized crystals when he understood exactly what they wanted.

We have shipped during the last 12 months 5,200 pounds Hexa. of all grades out of which 1229 pounds have been returned to us on account of having been unsatisfactory to our customers. The selling prices have netted us an average of about 57 cents per pound at our plant. The Production Department are now reporting our cost on this product as 86.3¢ per pound.

It seems to me, however, that this cost is out of line, as our competitors seem to be very anxious to take the business at

Mr. Wm. G. Mather --26--

60 to 65¢ per pound for quantities of 100 pounds or more at a time delivered. Mr. DuBois advised me during one of our conversations that the R. & H. Chemical Co. could sell this product profitably at 40¢ per pound.

ACETATE OF LIME. According to Mr. Farrell's report of June 21st, we have a total stock on hand at both plants of 1,462,000 pounds which we have accumulated to take care of our requirements for the Acetone and Acetic Acid plant.

There has been no change in the market price (\$2.00 per cwt) but Wm. S. Gray & Co., in their report to the manufacturers under date of July 1st for the month of June, advise that the shipments for export and the domestic trade have been reduced and that, if the production is the same, there will be a considerable increase in the stock on hand, which on May 1st was about 6,000 tons. The indications point to a continued dullness during this and next month and doubtless a further increase in the stock unless some unforeseen change for the better should take place.

If we continue to operate both our Acetone and Acetic Acid plants to their full capacity during the balance of this year, we will use up most of our stock of Acetate of Lime. We will probably have no difficulty in obtaining shipping orders from Wm. S. Gray & Co. for whatever balance we will have to sell.

ACETIC ANHYDRIDE. Mr. Farrell advises that we shall probably be unable to commence shipping any of this product before Jan. 1st, 1911, as Mr. Meyer is about three months late in delivering the apparatus.

The Celluloid Co. recently advised me that they would use 10 tons or more per month of this product during next year and must

Mr. Wm. G. Mather --27--

have some definite information from us within the near future as to when we would be ready to commence supplying this product, our guarantee for quality and price on same, or else they would be forced to make a contract with some of the European manufacturers covering their requirements.

Mr. D. G. Maynard, 2nd Vice President of this concern, also informed me when I was last in New York that he had heard Mr. Eastman, of the Eastman Kodak Co., had been in Europe since the first of this year trying to corner the entire European production of this product.

The Eastman Kodak Co. advise me they are continuing to use large quantities of this product. I estimate from the information they have given me they are now using from 150,000 to 200,000 pounds per month, but they state that they are so tied up by contract that they would be unable to use any of our product unless we made them a price sufficiently low to warrant them in paying the amount they would have to pay to the foreign manufacturers to cancel their contracts. The most definite statement I have been able to get from this concern is that they estimate they could place some business with us, but that we would have to make them a price around 18¢ per pound for carload lots delivered at Rochester or to make it an object for them to do so.

From other sources I have learned that the present market price ranges from 22 to 25¢ per pound, according to the quantity purchased, but it is quite possible that the Eastman Kodak Co. are obtaining a lower price on account of the large quantity they use and the fact that they buy their supplies direct from the European



Mr. Wm. G. Mather --28--

manufacturers.

The Celluloid Co. have been paying 23 to 24¢ per pound for what they have bought in the open market on this side but seem to feel that they will be able to obtain a lower price if they make a contract covering their requirements over all of next year direct with one of the German manufacturers.

It is rumored that both the General Chemical Co. and the Warner Chemical Co. of New York are getting ready to manufacture this product. I have been unable to obtain any definite information regarding the first named concern, but the latter firm recently stated that they had formerly manufactured this product in a small way but were not making it at the present time owing to the present high value of the raw material, but were now perfecting their process of manufacture and were expecting by fall of this year to be in a position to compete successfully with the imported article both as regards quality and price.

I am afraid that the delay in getting our plant started will seriously handicap us in obtaining the business either of the Celluloid Co. or of the Eastman Kodak Co. during next year, and these two concerns are the only consumers of this product I have located.

Creosote Oils. Dr. Hudson advises that we are unable to make any large quantity of C.P. Beechwood Creosote due to the fact that our oils contain too small a percentage of guaiacol so that we cannot make the finished product come up to the United States Pharmacopoeia specifications. He advises that he is carrying on some experiments to determine whether we can make the Guaiacol synthetically for addition to the C.P. Beechwood Creosote in order

Mr. Wm. G. Mather ---29---

to make it meet the specifications, as he advises is the practice followed by the Germans.

REFINED CREOSOTE OIL FOR SHINGLE STAINS, etc. I started some business with the Acme White Lead & Color Works, Detroit, who finally approved of the quality of a sample gallon sent them. The next shipment made in a wooden barrel discolored when mixed with their pigments and they advised was unsatisfactory for their requirements. Dr. Hudson informed us that this shipment had probably taken up some tannic acid from the wooden barrel.

We have made them another shipment packaged in an iron drum. They will be able to use considerable quantities, I estimate about 15,000 to 25,000 gallons per year, at a price that will net us about 11 to 12¢ per gallon bulk at our plant. Mr. Farrell advises this grade of oil costs us 6¢ per gallon in bulk at our plant.

I have not gone any further with this product as I thought best to wait until we had determined definitely whether we could satisfy this concern as to the quality of our product. If so, I believe we shall be able to start some business with other concerns in the same line.

PAVING TAR. Dr. Hudson advised at our last meeting, June 16th, he believed the City of Marquette would use about the same quantity of this product they did last year, and that we would be able to obtain about the same price. Marquette used last year 21,774 gallons, which netted us 5.2¢ at our plant. It is uncertain as to whether Gladstone will use any of this product this year; they used last year 1200 gallons.

Mr. Wm. G. Mather --30--

CHLOROFORM. Mr. Farrell advised at our last meeting June 16th that they had succeeded in making some of this product meeting the U.S.P. specifications and said that he would send down as promptly as possible samples of both the Commercial and U.S.P. grades, together with full information regarding cost and quality we can produce. There is a good demand for this product and the market price is being held firm at 25 to 27¢ per pound delivered for the U.S.P. grade and 18 to 20¢ per pound for the Commercial grade.

NEW PRODUCTS WE ARE INVESTIGATING.

BLUE VITRIOL. (Copper Sulphate). This product is made from metallic copper and Sulphuric Acid. Inasmuch as we are located so close to the copper country and will have a surplus of Sulphuric Acid, we may perhaps be able to manufacture this product profitably. The present market price is 4 to 4½¢ per pound.

The paint manufacturers all use large quantities of this product. I estimate that there are from 2,000 to 5,000 tons per year used in the Chicago, Milwaukee and western territory. So far as I can learn, this product is now made in and around New York and Newark, N.J. and shipped into the western territory.

CALCIUM CHLORIDE. There are large quantities of this product used for refrigerating purposes by the breweries, cold storage plants, etc. The present published market price is 65 to 90¢ per cwt. delivered. Dr. Hudson advised at our last Chicago Meeting, June 16th, we might be able to make this product from the refuse Calcium Carbonate left as a by-product in making Acetone. It requires Hydrochloric Acid which we can make from salt, using some of our surplus Sulphuric Acid in this way. Considerable quantities of Carbonic Acid

Mr. Wm. G. Mather --31--

Gas would be liberated in the process of making Calcium Chloride. I believe it would be profitable to save and compress this Gas, as there is a very large demand for Liquid Carbonic Acid Gas, which is used by nearly every soda fountain and many of the saloons and soft drink places.

SODIUM ACETATE. Large quantities of this product are used by the textile printing trades and is also used to some extent by the paint manufacturers. The present market price is from 4 to  $4\frac{1}{2}$ ¢ per pound. I have not been able to secure any definite figures as to the amount consumed but know it to be a carload business.

PARIS GREEN (Aceto Arsenite of Copper). This product is made from Copper, Arsenic and Acetic Acid. There are very large quantities of this product used both by paint manufacturers and the wholesale druggists, the latter as an insecticide. The present market price is from 15 to 17¢ per pound.

Aside from one or two concerns located in Chicago, I understand that practically all of this product used in the west is made in and around New York and Newark, N.J. and largely by concerns who do not manufacture Acetic Acid or Arsenic; consequently, I think we should be able to make this product at a cost that would enable us to compete favorably for the western business.

There are some other dry colors used in paint manufacturing made from Acetic Acid which I am looking up and will report on later.

DENATURED or ETHYL ALCOHOL FROM WASTE PAPER MILL LIQUOR.

Mr. Farrell and Dr. Hudson advised me at our last meeting, June 16th, they believe it is possible to make a considerable quantity of Al-

Mr. Wm. G. Mather --32--

cohol from this source and that it can be produced at a very reasonable price when we have installed proper facilities for handling the large volume of waste liquor. They will prepare and send you a report covering the result of their investigations.

THE CLEVELAND-CLIFFS IRON CO.

CHEMICAL DEPARTMENT.

C.P. ACETONE

STATEMENT SHOWING STOCK ON HAND, ESTIMATED PRODUCTION DURING BALANCE  
OF YEAR AND MAXIMUM CONTRACT REQUIREMENTS.

	STOCK ON HAND AND ESTIMATED PRODUCTION	SHIPMENTS AND UNFILLED ORDERS
<u>M A Y</u>		
Stock on Hand 5-1-10, per A. F. report 5-1-10	30,000	
Shipped 5-3-10 - Prest-O-Lite Co. Oakland, Cal.		1,300
Shipped 5-4-10 - Prest-O-Lite Co. Cambridge, Mass.		1,300
Shipped 5-5-10 - Prest-O-Lite Co. Indianapolis, Ind.		23,400
Diamond Rubber Co. - 1 car for shipment on or before 5-15-10		25,350
Diamond Rubber Co. - 1 " " " " " " 6-1-10		25,350
Prest-O-Lite Co. - 1 " " " " " " 5-21-10		23,400
Prest-O-Lite Co. - 1 " " " " " " 5-31-10		23,400
Coml. Acetylene Co. - 1 " " " " " " 6-1-10		26,000
Goodyear Tire & Rubber Co. - Shipment for about 5-15-10		6,750
Prest-O-Lite Co. - Estimated Req. for branch offices balance of month	10,000	1,300
Celluloid Co. - " " " " Special Solvent #12	135,000	1,300
Estimated amount we will recover from Recovered Acetone in transit from P.-O.-L. Co.	10,000	
Estimated Production for May, per A. F. report 5-1-10	135,000	
	175,000	158,850
Estimated amount available for shipment up to 6-1-10 over above requirements	16,150	
<u>J U N E</u>		
Prest-O-Lite Co. - Bal. they may take each month to complete max. req. Ind.		73,480
Prest-O-Lite Co. - Bal. they may take each month to complete max. req. Branches		2,700
Diamond Rubber Co. - Bal. each month to complete maximum requirements		37,514
Goodyear Tire & Rubber Co. - Maximum requirements		6,750
Celluloid Co. - Estimated requirements for Special Solvent #12		2,600
Estimated Production for June, 1910	135,000	
	151,150	123,044
Estimated amount available for shipment up to 7-1-10 over above requirements	28,106	
<u>J U L Y</u>		
Prest-O-Lite Co., Indianapolis - Estimated average monthly balance maximum		73,480
Prest-O-Lite Co., Branches - " " " " " "		2,700
Diamond Rubber Co. - " " " " " "		37,514
Goodyear Tire & Rubber Co. - Maximum requirements		6,750
Parke, Davis & Co. - " " " " " "		3,375
Celluloid Co. - Estimated requirements for Special Solvent #12		1,300
Estimated Production for July, 1910	135,000	
	163,106	125,119
Estimated amount available for shipment up to 8-1-10 over above requirements	37,987	
<u>A U G U S T</u>		
Prest-O-Lite Co., Indianapolis - Estimated average monthly balance maximum		73,480
Prest-O-Lite Co., Branches - " " " " " "		2,700
Diamond Rubber Co. - " " " " " "		37,514
Goodyear Tire & Rubber Co. - Maximum requirements		6,750
Parke, Davis & Co. - " " " " " "		3,375
Celluloid Co. - Estimated requirements for Special Solvent #12		2,600
Estimated Production for Aug., 1910	135,000	
	172,987	123,044
Estimated amount available for shipment up to 9-1-10 over above requirements	49,943	
<u>S E P T E M B E R</u>		
Prest-O-Lite Co., Indianapolis - Estimated average monthly balance maximum		73,480
Prest-O-Lite Co., Branches - " " " " " "		2,700
Diamond Rubber Co. - " " " " " "		37,514
Goodyear Tire & Rubber Co. - Maximum requirements		6,750
Parke, Davis & Co. - " " " " " "		3,375
Celluloid Co. - Estimated requirements for Special Solvent #12		1,300
Estimated Production for Sep., 1910	135,000	
	184,943	125,119
Estimated amount available for shipment up to 10-1-10 over above requirements	59,824	
<u>O C T O B E R</u>		
Prest-O-Lite Co., Indianapolis - Estimated average monthly balance maximum		73,480
Prest-O-Lite Co., Branches - " " " " " "		2,700
Diamond Rubber Co. - " " " " " "		37,514
Goodyear Tire & Rubber Co. - Maximum requirements		6,750
Celluloid Co. - Estimated requirements for Special Solvent #12		1,300
Estimated Production for Oct., 1910	135,000	
	194,824	121,744
Estimated amount available for shipment up to 11-1-10 over above requirements	73,080	
<u>N O V E M B E R</u>		
Prest-O-Lite Co., Indianapolis - Estimated average monthly balance maximum		73,480
Prest-O-Lite Co., Branches - " " " " " "		2,700
Diamond Rubber Co. - " " " " " "		37,514
Goodyear Tire & Rubber Co. - Maximum requirements		6,750
Parke, Davis & Co. - " " " " " "		3,375
Estimated Production for Nov., 1910	135,000	
	208,080	123,819
Estimated amount available for shipment up to 12-1-10 over above requirements	84,261	
<u>D E C E M B E R</u>		
Prest-O-Lite Co., Indianapolis - Estimated average monthly balance maximum		73,480
Prest-O-Lite Co., Branches - " " " " " "		2,700
Diamond Rubber Co. - " " " " " "		37,514
Goodyear Tire & Rubber Co. - Maximum requirements		6,750
Estimated Production for Dec., 1910	135,000	
	219,261	120,444
Estimated amount available for shipment up to Jan. 1, 1911, over above requirements	98,817	







STATEMENT OF OPERATIONS

OF

SUPERIOR CHARCOAL IRON COMPANY.

FOR YEAR ENDING DECEMBER 31st, 1910.

PRODUCT.

Product for the Year.										
BRAND	1910	% of Total	1909	% of Total	1908	% of Total	1907	% of Total	1906	% of Total
Pioneer	35081	24.45	39236	23.15	29154	26.64	37520	15.77	36162	17.26
Antrim	14942	10.41	36099	21.30	23656	21.61	33197	13.96	30549	14.58
Elk Rapids	16352	11.39	11559	6.82	9899	9.05	31419	13.21	31611	15.09
Champion	13027	9.08	32721	19.31	9022	8.24	35909	15.09	35360	16.88
Marquette	37185	25.92	30538	18.02	20109	18.38	38919	16.36	36956	17.64
Michigan	13922	9.70	866	0.51			23700	9.96	23795	11.36
Excelsior							12546	5.27	15059	7.19
Pine Lake	12987	9.05	18447	10.89	17599	16.08	24691	10.38		
Total	143496	100.00	169466	100.00	109439	100.00	237901	100.00	209492	100.00

FURNACES BANKED OR OUT OF BLAST DURING THE YEAR.

	1910	1909	1908	1907	1906
Pioneer	9 Days	4 Days	67 Days	8 Days	4 Days
Antrim	206 "	5 "	118 "		46 "
Elk Rapids	184 "	225 "	247½ "		2 "
Champion	238 "	40 "	272 "	6 "	10 "
Marquette	10 "	86 "	179½ "	26 "	30 "
Michigan	185 "	360 "	366 "	35 "	27 "
Excelsior	365 "	365 "	366 "	68 "	65 "
Pine Lake	188 "	126 "	116½ "	31 "	
Total	1385 "	1211 "	1732½ "	174 "	184 "

FURNACES BANKED OR OUT OF BLAST ON DECEMBER 31, 1910.

BRAND	LOCATION
Antrim	Mancelona, Mich.
Excelsior	Marquette, Mich.
The Superior Charcoal Iron Company has not been concerned with the output of the following furnaces since July 1st, 1910.	
Elk Rapids	Elk Rapids, Mich.
Champion	Manistique, Mich.
Michigan	Newberry, Mich.
Pine Lake	Boyer City, Mich.

AVERAGE DAILY PRODUCT DURING OPERATIONS.					
BRAND	1910	1909	1908	1907	1906
Pioneer	98.5	108.7	97.5	105.1	100.2
Antrim	93.9	100.2	95.8	91.	95.8
Elk Rapids	90.3	82.5	84.2	86.1	87.
Champion	102.6	100.7	97.	100.	99.6
Marquette	104.8	109.4	108.4	114.8	110.3
Michigan	77.3	57.7		71.8	70.4
Excelsior				42.2	50.2
Pine Lake	73.4	77.2	70.8	73.9	
Total Daily avg.	640.8	636.4	553.7	684.9	613.5

STOCK

Stock of Pig Iron on Hand December 31, 1910.

	At Furnace	At Dock	Total	1909	1908	1907	1906
Pioneer	30457	10794	41251	26031	15893	3969	3852
Antrim	21544		21544	24172	11424	2634	2432
Elk Rapids	8860	5091	13951	10684	3334	1895	3450
Champion	17146	3384	20530	17207	3141	2747	4180
Marquette	19792	24045	43837	25095	12833	3525	7793
Michigan	7042	1881	8923	1152	654	1748	2833
Excelsior					16	794	1752
Pine Lake	16187	6301	22488	16789	10228	1964	
	121028	51496	172524	121130	57523	19276	26292

Shipments of Pig Iron made from various furnaces by water to Buffalo, and weights on each cargo. The "Over" and "Under" represents the difference between the furnace weights and the weights made at the Dock when the cargo was unloaded.

DATE	Pion.	E.R.	Champ	Marq.	Mich.	P.L.	Buf. Wts.	Over	Under
May 10	1944						1947- 380	3- 380	
" 26		1944					1933- 600		10-1640
June 2			1636				1635-1460		- 780
" "	1550						1551- 800	1- 800	
" 14		1967					1904-1640		62- 600
" 17						1833	1826- 980		6-1260
July 2					1958		1957- 100		-2140
" "						1461	1475-1710	14-1710	
" 3	2075						2 077-2160	2-2160	
" 11				1697			1694- 760		2-1480
" 17	1970						1977-2200	7-2200	
" 24				1713			1736-1200	23-1200	
" 28				2202			2242- 150	40- 150	
Aug. 7				1725			1727- 900	2- 900	
" 8	1970						1967- 470		2-1770
" 11	1550						11544-1880		5- 360
" 29				S 1515			S 1509-1740		5- 500
Sept. 10						1806	1810- 350	4 - 350	
" 17	1500						1495-1660		4- 580
" 30				2817			2815- 440		1-1800
Oct. 15				S 2708			S 2661- 860		46-1380
" 30						1660	1646-1490		13- 750
Nov. 5		2458					2415- 710		42-1530
" 10			2479				2463-1380		15- 860
" 25				S 4003			S 4021-1100	18-1100	
	12559	6369	4115	S 8226	1958	6760	50039- 240	118-1990	220-1750
				10154					101-2000

RECAPITULATION OF SHIPMENTS VIA WATER TO BUFFALO (L.V. DOCK) IN 1910.

Brand	Furnace	Buffalo	Over	Under
Pioneer	12559	12562- 590	3- 590	
Antrim				
Elk Rapids	6369	6253- 710		115-1530
Champion	4115	4099- 600		15-1640
Marquette Special	8226	8192-1460		33- 780
Marquette	10154	10215-1210	61-1210	
Michigan	1958	1957- 100		-2140
Excelsior				
Pine Lake	6760	6759- 50		-2190
Total	50141	50039- 240	64-1800	166-1560
1909	49147-1120	Cleve. 7327- 110 41702- 10		118-1000
1908	42016-1320	41850-1652		165-1905
1907	29074-1970	28948-1900		126- 70
1906	48644-1860	48361-1490		283-370

SHIPMENT OF PIG IRON DURING YEAR 1910.

Month	Pioneer	Antrim	Elk Rap.	Champ	Marq.	Mich.	Excel.	P.L.	Total
Jan.	2430	1971	2313	1447	1165	131		1050	10507
Feb.	1545	14 95	1019	1179	708	82		893	6921
March	1816	1639	1408	1264	820	74		648	7669
April	979	1927	930	1153	968	172		516	6645
May	1700	2287	1710	608	2887	1826		399	11417
June	1579	1848	1168	745	2694	1000		541	9575
July	1761	1232	762	483	1920	1025		676	7859
Aug.	1565	1553	868	645	2474	1368		574	9047
Sept.	1506	1249	1050	518	981	116		380	5600
Oct.	2088	523	892	557	1906	110		559	6635
Nov.	1639	937	509	505	1182	174		650	5596
Dec.	1452	909	458	599	738	74		402	4632
Total	19860	17570	13087	9703	18443	6152		7288	92103
1909	29097	23351	4210	18655	18276	384		12805	106778
1908	17230	14866	8460	8628	10801	1061	767	8672	70485
1907	37403	32996	32987	37342	43187	24785	13504	23193	245397
1906	34416	33458	34548	40391	44140	29310	17362		233625

APPROXIMATE AVERAGE PRICE AT FURNACE ON IRON SHIPPED IN 1910.

Month	Pion.	Antrim	Elk Rap.	Champ	Marq.	Mich.	Excel.	P.L.	Total
Jan.	18.22	18.43	19.12	18.82	18.25	18.02		18.28	18.55
Feb.	18.45	18.27	18.40	18.67	17.51	17.96		18.07	18.30
March	17.98	18.30	18.31	18.01	18.09	18.43		18.18	18.15
April	17.97	17.91	18.00	18.04	18.04	17.81		17.66	17.98
May	17.74	18.21	18.09	18.09	16.99	16.51		17.91	17.53
June	17.64	18.00	18.47	18.15	17.06	16.46		17.84	17.57
July	17.51	17.87	17.64	18.00	17.11	16.4 5		17.31	17.33
Aug.	17.52	17.44	17.54	17.61	16.95	16.36		17.51	17.18
Sept.	17.07	17.50	17.65	17.41	17.72	17.60		17.48	17.46
Oct.	17.16	17.50	17.28	17.36	18.69	17.07		17.35	17.67
Nov.	16.95	17.36	16.95	16.86	17.88	17.90		17.11	17.25
Dec.	16.38	17.32	16.88	17.27	16.55	16.55		17.83	16.88
Total	17.57	17.99	18.10	18.01	17.41	16.64		17.76	17.69
1909	18.16	18.08	18.80	18.15	18.22	18.48		17.91	18.15
1908	19.61	19.41	19.49	19.74	20.02	21.73	22.02	18.31	19.55
1907	22.36	22.13	22.33	21.99	22.00	22.08	21.74	22.51	22.17
1906	17.57	17.66	17.50	17.50	17.37	17.30	17.32		17.42

PIG IRON SALES FOR YEAR ENDING DECEMBER 31, 1910.

Month	Pioneer	Antrim	Elk Rap.	Champ	Marq.	Mich.	Excel.	P.L.	Total
Jan.	1917	2102	4003	1115	1360	287		1163	11947
Feb.	472	735		425	370	285		99	2386
Mar.	1130	770	658	2150	5415	3000		117	13240
April	1275	3545	1355	635	950	125		1455	9340
May	1149	1025	725	983	605	170		1072	5729
June	1260	1375	1500	125	550	180		262	5252
July	540	100	300		275	25		242	1482
Aug.	1595	155	100	575	480			29	2934
Sept.	1920	675	300	130	1315	300		210	4850
Oct.	1170	1162	150	140	1300	25		350	4297
Nov.	1980	740	620	400	1355	300		400	5795
Dec.	1695	805	280	350	1570	250		440	5390
	16103	13189	9991	7028	15545	4947		5839	72642
Trans. Canc.	18				917	1841			
		995	1746	1970				290	2225
Total	16121	12194	8245	5058	16462	6788		5549	70417
1909									114268
1908									78724
1907									132616
1906									304920

APPROXIMATE SELLING PRICE AT FURNACE FOR YEAR ENDING DECEMBER 31, 1910.

Month	Pion.	Antrim	Elk Rap.	Champ	Marq.	Mich.	Excel.	P.L.	Total
Jan.	18.11	18.10	17.75	17.88	17.72	17.99		18.42	17.88
Feb.	18.05	17.76		18.12	18.26	18.32		18.42	18.05
Mar.	17.11	18.07	17.25	16.42	16.47	16.30		17.90	16.62
April	17.38	17.28	17.22	17.81	17.30	17.20		17.14	17.30
May	17.31	17.40	17.27	17.23	17.38	17.47		17.43	17.34
June	17.30	17.59	17.44	17.55	17.32	17.43		17.12	17.42
July	17.02	17.91	16.82		17.14	17.20		17.02	17.06
Aug.	17.16	17.32	16.50	17.07	17.04			17.31	17.11
Sept.	16.69	17.50	16.89	16.90	16.31	16.00		16.93	16.69
Oct.	16.14	16.09	16.09	16.14	16.54	16.50		16.00	16.23
Nov.	15.88	16.03	16.02	16.00	16.31	16.00		16.03	16.07
Dec.	16.17	16.06	16.08	16.29	16.01	16.05		16.06	16.09
Total	16.91	17.28	17.28	16.85	16.72	16.46		17.46	16.98

COMPARISON

Month	1910	1909	1908	1907	1906
Jan.	17.88	18.49	20.71	24.17	18.72
Feb.	16.05	18.48	19.95	24.63	18.49
Mar.	16.62	18.23	18.90	24.47	17.76
Apr.	17.30	17.47	18.85	24.70	17.49
May	17.34	17.67	18.55	25.30	17.29
June	17.42	17.74	18.28	26.05	16.96
July	17.06	17.36	17.87	26.59	17.23
Aug.	17.11	17.92	18.08	26.11	17.75
Sept.	16.69	18.37	18.16	24.56	18.43
Oct.	16.23	18.51	18.25	24.37	21.09
Nov.	16.07	18.31	18.04	23.58	22.72
Dec.	16.09	18.34	18.13	21.34	22.87
Total	16.98	18.00	18.28	24.61	19.25

SHIPMENTS DURING THE YEAR 1910 WERE MADE TO THE FOLLOWING DISTRICTS.

State	Pion.	Antrim	Elk Rap.	Champ.	Marq.	Mich.	Excel.	P.L.	Total
Minn.	2602			1192	722	135			4651
Wis.	2304	220	3001	1740	2403	50			9778
Mich.	140	4087	2285	96	1220	111		1067	9006
Ohio	285	3848	1056	1247	398			1247	8081
Ind.		1376	640		19			100	2135
Ill.	1926	602		1783	1595	150		500	6556
Iowa					25				25
Mo.				100	26	120		310	556
Penna.	4749	75	227	810	923	49		420	7253
Pitts. Dis	386	6069	3519	600	1506	126		1399	13605
Ky.	60	133	86						279
W. Va.	49	65	58	185				50	407
N.Y.	1870	426	721	638	1457			1273	6385
N.J.	1021	45	250	264	82				1662
Del.	296		176	94	329				895
Md.	1183	25	363	615	99			229	2514
N.Eng.	2215		605	313	2408	29		549	6119
Wash.	50								50
Neb.					75				75
Colo.	106								106
Va.		30							30
Tenn.		26						144	170
Canada	45	543			5028	5382			10998
Export	513		100	26	128				767
Total	19860	17570	13087	9703	18443	6152		7288	92103

SHIPMENTS DURING THE YEAR 1910 TO THE FOLLOWING DISTRICTS COMPARED WITH 1909.

	1910		1909		% Increase	% Decrease
	Tonnage	Percent.	Tonnage	Percent.		
Minn.	4651	05.05	2017	01.89	03.16	
Wis.	9778	10.62	6408	06.00	04.62	
Mich.	9006	09.78	8748	08.19	01.59	
Ohio	8081	08.78	11321	10.60		01.82
Ind.	2135	02.32	6565	06.15		03.83
Ill.	6556	07.12	5726	05.36	01.76	
Iowa	25	00.03	49	00.05		00.02
Mo.	556	00.60	571	00.54	00.06	
Penn.	7253	07.87	16427	15.38		07.51
Pitts. Dict.	13605	14.77	22238	20.83		06.06
Ky.	279	00.30	201	00.19	00.11	
W. Va.	407	00.44	828	00.77		00.33
N.Y.	6385	06.93	8279	07.75		00.82
N.J.	1662	01.81	2201	02.06		00.25
Del.	895	00.97	1360	01.28		00.31
Md.	2514	02.73	2189	02.05	00.68	
New Eng.	6119	06.65	9397	08.80		02.15
Wash.	50	00.05	599	00.56		00.51
Neb.	75	00.08	153	00.14		00.06
Colo.	106	00.12	81	00.08	00.04	
Va.	30	00.03			00.03	
Tenn.	170	00.18			00.18	
S. Dak.			200	00.19		00.19
Ore.			29	00.03		00.03
Canada	10998	11.94	1101	01.03	10.91	
Export	767	00.83	90	00.08	00.75	
Total	92103	100.00	106778	100.00	23.89	23.89

TONNAGE WAS FURNISHED DURING 1909 FOR THE FOLLOWING PURPOSES.

	1910		1909		% Increase	% Decrease
	Tonnage	Percent.	Tonnage	Percent.		
Cars & Car Wheels	25422	25.43	42640	39.93		14.50
Malleables	30893	30.54	28123	26.34	07.20	
Gen. Foundry	27419	29.77	21263	19.91	09.86	
Rolls	5665	06.15	6611	06.19		00.04
Tubes & Sheets	475	00.52	1247	01.17		00.65
Bars	2237	02.43	4176	03.92		01.49
Miscellaneous	1992	02.16	2718	02.54		00.38
Total	92103	100.00	106778	100.00	17.06	17.06

ORDERS

UNDELIVERED ORDERS DECEMBER 31st, 1910 COMPARED WITH SAME PERIOD PREVIOUS YEARS

	1910	1909	1908	1907	1906
Pioneer	7039	11000	7539	6721	23525
Antrim	6244	10718	9397	4318	20652
Elk Rapids	2983	7598	3650	3658	19384
Champion	2282	7720	5095	5496	23292
Marquette	5368	7377	6234	5711	26531
Michigan	902	298	924	3239	16015
Excelsior		41	81	573	9968
Pine Lake	1873	3091	6878	3271	10663
Total	26691	47843	39828	32989	150030

Approximate average price at the furnace on 26691 tons of Orders on Hand December 31st, 1910, is \$16.77.

UNCOMPLETED CONTRACTS DECEMBER 31st, 1910.		Tons Due	Contract Price
Order No.			
3524	New York Car Wheel Co.	1566	18.00
3580	Ottawa Steel Castings Co.	75	18.50
3702	Walter-Wallingford & Co.	217	18.00
3859	Pittsburgh Malleable Iron Co.	170	18.04
3865	Portage Lake Foundry & Machine Co.	398	18.50
3871	M. A. Hanna & Co.,	51	18.50
3908	Barney & Smith Car Co.,	1409	18.50
3914	Humphrey & Sons	58	18.00
3921	Allis-Chalmers Co.	24	19.00
3941	Carroll Foundry	182	19.00
3943	Northern Malleable Iron Co.	641	18.25
3971	Mesta Machine Co.	250	18.50
3972	Mesta Machine Co.	106	18.50
3981	United States Malleable Iron Co.	742	18.00
4004	Allis-Chalmers Co.	231	18.20
4016	Chicago Malleable Castings Co.,	126	18.00
4026	Werner & Pflsiederer	118	19.00
<u>1910</u>			
4062	Michigan Malleable Iron Co.,	343	17.65
4069	Allis-Chalmers Co.,	63	18.00
4071	Stoughton Wagon Co.,	130	17.00
4075	W. F. Focs, Receiver	426	18.50
4100	Davis-Hanson Co.,	73	18.00
4129	Lake Shore Engine Works	263	18.50
4136	Lack Malleable Iron Co.	37	18.00
4149	Albion Malleable Iron Co.,	1703	17.00
4150	Elbel Company	914	17.50
4157	Ft. Pitt Malleable Iron Co.,	180	17.00
4160	C. A. Lawton Co.	200	18.00
4192	Jeffrey Manufacturing Co ,	208	17.00
4195	Buffalo Car Wheel Foundry Co.	16	17.50
4217	LeRoy Plow Co.,	23	18.00
4218	Lack Malleable Iron Co.,	133	17.50
4222	Bass Foundry & Machine Co.	79	17.40
4224	Flour City Ornamental Iron Works,	160	17.50
4225	Herzog Iron Works,	161	17.50
4226	Central Machine Co.,	50	17.50
4278	York Manufacturing Co.,	426	16.75
4283	J. H. Hillman & Son,	50	16.50
4285	Northern Malleable Iron Co.	850	17.25
4286	Crown Iron Works	74	16.50
4295	Werner & Pflsiederer	400	16.50
4299	Power & Mining Machinery Co.,	126	16.25
4315	Fisher & Norris,	100	17.00
4322	J. H. Fleming	500	17.00
4325	St. Louis Car Wheel Co.,	970	16.00
4331	Pittsburgh Malleable Iron Co.	3000	16.00
4344	Jeffrey Manufacturing Co.,	250	16.00
4349	B. Hoffman Manufacturing Co.,	75	16.50
4350	Bass Foundry & Machine Co.,	300	16.00
4358	Prescott Company	320	16.00
4359	E. B. Hayes Machine Co.,	150	16.00
4360	Forster-Waterbury & Co.,	436	16.00
4361	Maryland Car Wheel Works	750	16.00
4363	SeamanSleeth Co.,	500	16.00
4369	Buffalo Car Wheel Foundry Co.,	100	16.00
4371	Norfolk & Western Ry. Co.,	900	16.00
4375	Buffalo Car Wheel Foundry Co.,	50	16.00

4381	Westmoreland Malleable Iron Co.	50	16.00
4382	Wilkes-Barre Iron Manufacturing Co.	67	16.00
4383	Wilkes-Barre Iron Manufacturing Co.,	64	16.00
4386	Calumet & Hecla Mining Co.,	399	16.00
4387	Baltimore Malleable Iron & Steel Castings Co.	72	16.00
4388	A. Kilpatrick & Sons Foundry Co.	125	16.00
4390	J. H. Fleming	200	17.00
4395	M. A. Hanna & Co.,	150	16.00
4398	Ft. Pitt Malleable Iron Co.,	1000	16.00
4399	Andrew Terry Co.,	387	16.00
4401	Davis-Hansen Co.,	300	16.00
4405	American Sheet & Tin Plate Co.,	200	16.45
4406	Martin Manufacturing Co.,	125	16.25
4408	American Iron & Steel Manufacturing Co.,	600	16.00
4409	M. A. Hanna & Co.,	35	16.00
4411	National Car Wheel Co.,	904	16.00
4412	Manistee Iron Works	50	16.50
4414	Pennsylvania Castings & Machine Co.,	35	18.50
4415	S. B. Stine,	75	16.25
		26691	16.77



TOTAL ORDERS ON HAND DECEMBER 31st, 1910 CONSIGNED TO THE FOLLOWING TERRITORIES.									
	TONNAGE DUE	PION.	ANTRIM	ELK.RAP.	CHAMP.	MARQ.	MICH.	EXCEL.	P.L.
Minn.	1936	751			1011	74	100		
Wis.	1372	672		46	313	341			
Mich.	4176	320	1506	1108		1242			
Ohio	5049		2615	898	761				775
Ind.	600		201	178		221			
Ill.	399	215		58	103	23			
Mo.	1095					795	300		
Penna.	2222	1460				545	152		65
Pitts.Dt.	5291	935	1856	475	44	1051			930
Ky.	170		66	104					
W. Va.	217	64			50				103
N.Y.	1955	1400		16		539			
N.J.	100			100					
Md.	822	522					300		
N. Eng.	387					387			
Canada	200					150	50		
Export	700	700							
<b>Total</b>	<b>26691</b>	<b>7039</b>	<b>6244</b>	<b>2983</b>	<b>2282</b>	<b>5368</b>	<b>902</b>		<b>1873</b>

ANNUAL STATEMENT

of

OPERATIONS.

SUPERIOR CHARCOAL IRON CO.

1910.

*Checked with Ledger Acct.*  
L.....

**RECEIVED**

JAN 27 1911

**Ack. .... Ans. ....**

22 \*

22 \*

