## Professor Slichter Recommends Shoal Lake Water Supply For Winnipeg

Orges Purity and Quantity as Ideal for Winnipeg's Perpetual Needs-Source Is Arm of Lake of the Woods 85 Miles East of the City.

poplar Springs Condemned—Fifteen More Wells Suggested for Present—Cost \$10,000,000—Mayor and Council Study Report-Bylaw Goes to Vote.

summer of 1916. The sinking of fifteen wells for immediate purposes.

This is the substance of the recommendations made by Professor Slichter mendation. Wis., to Public Utilities Commissioner Robson, as the result of the recent investigation into the water apply of Winnipeg. The report was sent of the commissioner, who pre-

Bents it to Mayor Waugh. The report of Professor Slichter goes the face of the recommendathat Col. Ruttan, the city engineer, that characterize a perfect water supbest of the water commission of ply. Such a supply must be:

The scheme of Col. Rutten as now to Poplar and Crystal Springs northwest of the city. The recommendations e the commission of 1907, were to get the commission of the Winnipes

ries. Crystal Springs proposition is The Crystal Springs proposition is condemned by the professor as being condemned by the professor as being in the water at the present system of artesian wells. The water at twinsipag river is said to be impure winsipag river is said to be impure winsipag river is said to be impure and on the other hand it is claimed that the water at Shoal Lake is pure and pentiful, it would need no filtration, pentiful it would need no filtration, it would provide a perpetual supply and would provide a perpetual supply ind would provide a perpetual supply in the water at the water and the water at the water

shoal Lake for a permanent visible as condemning any public official or servant of the city of Wirnipeg.

A statement issued by Mayor Waugh Saturday is to the effect that the decision of the people on Friday next, in the matter of the Poplar Springs question will determine the action of the some of 1916. The sinking of fifteen double. The sinking of fifteen away: if pot, some other scheme will

away; if not, some other scheme will have to be taken up. At any rate the sity needs water and must get it.

PROF. SLICHTER'S REPORT The following is in part the text of

the report presented to Commissioner Robson by Prof. Slighter: I shall enumerate, substantially a listed in the report of 1907, the qualities

1. Safe and wholesome from a sani-tary standpoint—an imperative quality.

2. Soft and free from increasing the table referred to may prevail for the scheme of vouncil and to be 2. Soft and free from incrustants. 2. a number of years. purposed by the ratepayers for sanc. Free from corresive ingredients. planted to the to install a pipe line Free from disagreeable tastes and t. 6. Free from coloring matter. 7. Low in temperature. 8. Uniform in

> to rate a water by mere preponderance of good qualities. A water may be condemned by extreme departure from normal in any one of the desirable qualities; on any other basis sea water would rank nearly as high as well

water.
Failing in a numerical process of weighting the qualities of water, one plentiful. It would need no intration, the would provide a perpetual supply the quality, but more copious than it like quality, but more copious than like quality, but more copious than like quality, but more copious than like qualities of water, one can merely take due note of all, and express final judgment in terms similar to the following: 1. Excellent. 2. Good. 3. Fair. 4. Poor. 5. Very unsatisfactory. Applying this method to the available supplies at Winnipeg,

### PROF. SLICHTER'S RECOMMENDATIONS

arm of the Lake of the Woods. That an immediate provision of \$6,000,000 be made for this project, to provide for the construction of the first conduit. A like expenditure should be contemplated for construction of a second conduit later on.

2. That the construction of the first line be begun at the earliest possible moment, and that every effort be made to finish the line by July 1, 1916. BIG RESERVOIR NEEDED.

3. That an additional storage re-Barvoir of 18,000,000 to 20,000,000 galions capacity be immediately constructed within the city of Winnipeg. Such reservoir was duly included in the estimates of the Shoal Lake pre-

#### FIFTEEN NEW WELLS.

4 That additional 18-inch wells be drilled in continuation of the present system, in and near the city, to fur: Lh additional water until the Shoal Lake project is in readiness. An 18-inch hole should be drilled at once, both in attence, about onesatisfactory 18-inch well should be weeks. equipped with direct driven multiple

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1. That the city of Winnipeg take are for temporary supply only, and fit water supply from the Shoel Lake the expense is not great. The preposed spacing of the 18-inch well at one-quarter mile intervals is too close for best operation. It should be distinctly understood that I recommend permanent equipment of only those wells that show satisfactory capacity

> The amount of water available in 1918 and 1914 can, by this process, be kept drainage line of the Red river indithe Crystal Springs project.

Nothing here stated removes in the slightest degree the necessity of immediate inauguration of the major project to Shoal lake,

5. That the well installation, with the pumps and machinery, be retained wells 1 and 2 and well 7 should be in readiness to serve the city as omfunnelled in search of shattered or ergoncy supply in case of interruption proached. cavernous rook. A number (at least of the new supply when completed. (15) of 18-inoh wells, in addition to the After the present wells have stood number thirteen, now being sunk, idle for several months, they should quarter mile spart in lines north and ciently to furnish \*15,000,000 to 18,000,also west of the precent wells. Each 000 gallons daily for two or three

stage centrifugal 'deep well pumps. studies be made of the proposed pipe These wells should average 800,000 gal- line to Shoal lake, so that the maxilone per day each, and the number mum supply may be had for the least should be increased as needed. These outlay of both time and money.

one may express judgment as follows:

Shoal Lake—Excellent.
Winnipeg River—Good.
Crystal and Poplar Springs—Poor.
Well near Crystal Springs—Poor.
Present supply—Very unsatisfactory. The above refers to quality only. · Consumption is Low.

Consumption is Low.

The percentage of water-takers to population seems to have settled down to a fixed per cent. The per capita consumption of water is very low, due in part to the excellent meter system and to the means of preventing waste, and also to the fact that the high pressure system supplies some water to the Canadian Pacific Railway company and for fire

Pacific Railway company and for fire use. The per capita water consump-tion must, however, increase with the growth of industries and with an increased supply. The scant supply at Winnipeg has kept down consumption. I believe that it would not show ordinary prudence to estimate for the near future a per capita consumption of less than 60 gallons per day. Even this amount seems unperferent supplements the search and for an lievably low, and cannot hold for an extended period.

extended period.

A dolly average supply of 24,000,000, and a maximum dally supply of 30,000,000 gallons, possibly may be sufficient, then, for a population at Winnipeg of 400,000. This is using a percapita rate much less than is used elsewhere, and far below that shown in table 3 of the report of 1907. I have no doubt that there are a number of exceptional conditions present at Winniper of the supplementation. exceptional conditions present at Win

#### Poplar Springs Shallow.

The ground water supply, both at Winnipeg and at Crystal and Poplar Springs comes from a shallow zone of flow found in the upper beds of the local magnesium limestone or dolomite. This supply is protected against local contamination by a heavy deposit glacial material and lake deposited clays. The thickness of the impervious cover seems to be at least twenty fifty feet at every point at which ground water is taken or is proposed to

to taken by the city.

To understand the shallowness of the principal ground water drainage, one must remember that the local rock formation was obliged to sustain enormous lead of moving glacial of moving glacial ice, thousands of feet in thickness, including in the underlying rock differential and secondary stresses of high magnitude As the result of this loading it is ni-most invariably found that the upper 30 to 60 or even 90 feet of stratified rocks that once sustained the ice load are fractured or cracked in an irregumanner.

The amount of underground water available for use and the normal rate of flow of the same through the rock, when not disturbed by pumping is almost always greatly exaggerated by those not familiar with such matters. Ground waters usually move but a few fact a day except, of course, in the feet a day, except, of course, in the neighborhood of a well during pumping. That there is not a free and bountiful underground drainage in the zone of The procedure above described will ber of considerations. The original static head of the water at Winnipeg seems to have been from three to five ahead of that proposed by the Crystal Springs project, and the amounts available for 1915 and 1916 will certainly equal that furnished by the Springs during those years, and at a fraction of the cost.

Fifteen new active wells for 1913 is an immediate and imperative necestable.

drainage line of the Red river indicates a lack of freedom of onward movement. Also the very low gradient of the water plane of about five feet per mile westward to Winnipeg is not consistent with a high rate of flow, as is also the well known 'small per cent. of run-off to rainfall peculiar to all the central plains of North Americal the central plains of North American immediate and imperative necestal plains of the rainfall and the contribution to percolating waters sity. the contribution to percolating waters

the contribution to percolating waters is very small.

Striking evidence of the slow movement of the underground waters at Winnipeg appears in the paper of Professor Edgar B. Kenrick, in the Journal of Cemical Industry, vol. XXI, 1902, p. 747, where he shows from the evidence of some seventy wells that the chlorine content of the water rapidly chlorine content of the water rapidly increases as the drainage line is ap-

The well system of Winnipeg covers a north and south range of about five miles, and the amount of water intercepted is less than 2,000,000 gallons gallons per day per mile. In several of the per day per mile in several of the spring water fiver valleys of the plains, similarly situated, it is possible to withdraw over ontains only about half of the total solids contained in the city water. Most of this difference is made up in the mile of section. The mutual interference of the wells has been considerable, weeks.

6. That adequate comparative weeks.

6. That adequate comparative will 5 has been especially active in the city water. The other stituent in the city water. The other stituent in the city water. The other per day per mile of the group.

In the spring water is will be seen that the spring water in the city water. The other stituent in the city water. The other per day per mile of the group.

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In the spring water is will be seen that the spring water is will be seen well system of Winnipeg covers

increased by deepening existing wells
1 and 2 by the distribution of a
more uniform draw-down or draft throughout.

The amount of ground water pumped The amount of ground water pumped dous venture to attempt to increase the at Winnipeg in the past ten years is amount of water furnished by the not large. The total pumped since the springs by lovering their head by installation of the well system would not large. The total pumped since the installation of the well system would cover a township of land with about two feet of water, an amount of water that the city of Winnipeg will require in a single year in the not distant

#### Water Not Flowing In.

It must be borne in mind that a part, at least, of the water taken from the ground in the last ten years represents water that was merely stored there, and not flowing in. not flowing in. The static head has materially dropped. Some of the water used represents actual depletion, just as there is depletion when one draws upon a deposit of oil or of coal. In other words the city has not taken only the interest, but has made a draft upon the interest. the principal. The seriousness of this will be more apparent as time goes on.

The group of springs known as Poplar and Crystal Springs seems to have a combined flow of between ten and fifteen million realions per day. I measured at a good section the combined flow of Jumbo and Crystal Springs and such other springs as enter above the highway bridge near Crystal Springs. flow of Jumbo and Crystal Springs and such other springs as enter above the highway bridge near Crystal Springs, and found the same to be 2,100,000 gallons per day. From measurements that all of these would furnish kindly submitted by Col. Ruttan it seems that the flow is increased within less than a mile to 5,800,000 gallons per day. My own measurement of Poplar Springs, at the outlet, to the same, was

waters.
Tampering With Supply.

I regard to as an exceedingly hazar-

pumping or by any other means designed to increase their flow. Doubt-less an increased yield of water can be less an increased yield of water can be obtained by such means for a short period of time, but the final yield is apt to recede to nearly the present flow. The fundamental reason for regarding with the The fundamental reason for regarding as hazardous any tampering with the supply is the danger of drawing by such means upon a deeper zone of flow or from remoter parts of the rock, and thence drawing water into the spring that is more hearthy. thence drawing water into the spring that is more heavily mineralized. Both common sait and symsum are found in the deposit of limestone from which the spring flows. It is common to find these deposits so disposed in this particular geological formation that it is gest to change the quality of the ground water by disturbing its normal channels of flow. If it is desired to draw more heavily upon the ground draw more heavily upon the ground waters of that locality, I would advise that operations be begun three or four miles south of Poplar Springs by the sinking of 18 inch wells, testing them

must be termed excessively hard der to locate the best point of diver-

Shoal lake lies almost exactly 300 feet above the city of Winnipeg. It is a large irregular body of water, of extreme dimensions, 18 by 14 miles. The commission of 1907 proposed their estimate, number 9, page 95, 22.6 miles of 64-inch pipe, 27 miles of 54inch pipe, 43.0 miles of 48-inch pipe, with intake laid in about 20 feet of water, extending about six miles

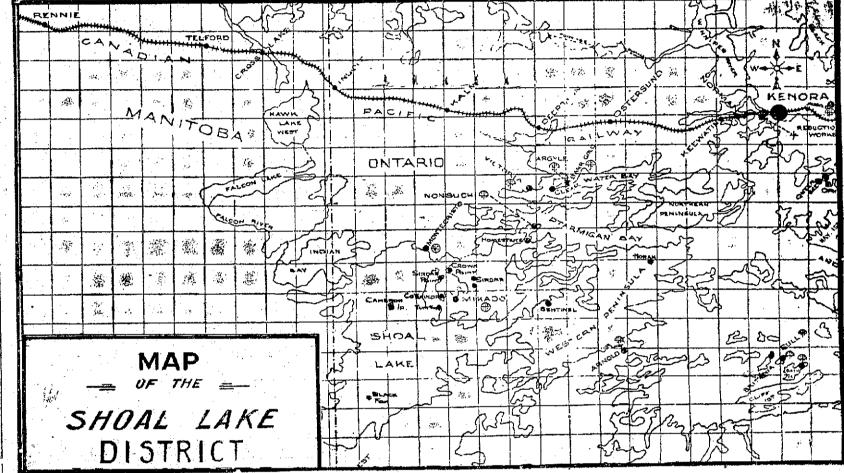
the \$560,000, the amount possible to be saved in the production in the size of the pipe, nor have I made the very considerable reduction that results from the elimination of the deep-cutting. The estimates also include, it should be remembered, \$270,000 to cover a reservoir, and \$270,000 for a new numbers station in Winnings.

# REFUSED TO TAL

Says He Wants More Time to Discuss Report of Prof. Slichter -Others Speak.

City Engineer Ruttan, who has strongly advocated the Poplar-Crystal S rings scheme and on whose recommendation the council decided to submit the Poplar Springs bylaw to the ratepayers, would not discuss the report of Prof. Slichter Saturday on the ground that he wished more time to study it. He intimated, however, that he does not consider that the recommendation of Shoal Lake as a permanent visible supply in any way alters the present problem, which is that an additional water supply must

### WHERE THE WATER SUPPLY OF WINNIPEG MAY BE FOUND



SHOAL LAKE AS A BRANCH OF THE LAKE OF THE WOODS.

The above sketch shows Shoat Lake in its close connection to the Lake of the Woods. It lies as a far-out arm of the lake into which Kenora poura its waters, while between it and Winnipeg is a desert which few have as yet travelled.

1,190,000 gallons per day. The measurement made by J. F. Henson in urement made by J. F. Henson in August 1910, at practically the same poi was only 894,000 gallons per day.

ways protected from contamination and the elements. The warning is directed against any ettempt to lower the head and increase the yield of the springs.

At the Winnipeg River.

I have visited the proposed intake at this point, I have assumed, was settled by the roprt of the commission of 1907.

I made rough tests of its turbidity and the rough tests of its turbidity and color by means of a white disk. The water, in the condition found on the water, in the condition found on the treatment recommended in the report of the common in nearly all river water may gradually become of 1907. The suspended matter and color were both high on the date seen by me. In addition to the spores of water plants, algae and minute particles common in nearly all river water may gradually become of the rapid current. The color and all of the suspended matter would be removed by the treatment proposed in the report of the amount of 1907. The water algae and minute particles common in nearly all river water may gradually become of the springs.

At the Winnipeg River, of a capacity of 36,000,000 and place and inspect the capacity of the water and carefully watered and dilitered for color and suspended matter and color by means of a white disk. The water 100 means of 100 m

water after proper treatment would be satisfactory.

Estimated Cost for Shoal Lake.

The estimates of the cost of supply from Winnipeg river as prepared by the commission of 1907, were \$3,362,-

Since the above report was prepared the electrical power plant of the city is has been completed. Steam pumping, tas proposed in the report of 1907, would no longer be adopted. The saving in pumping stations would be considerable. On account of the low cost of electrical power it would be desirable to consume more power than originally estimated, and bring the water to the city under a higher velocity. This would increase the daily capacity of the pipe line to 35,000,000 or 40,000,000 gallons daily, and would materially postpone the date at which the second pipe line need be constructed.

The cost of pumping, in any case, would be less than the cost of pumping an equal amount of water from Since the above report was prepared

ing an equal amount of water from a miscellaneous group of wells in the

a imscending group of which is a city of Winnipeg.

I assume that \$20 per horse-power per year would be a fair rate for the city to pay itself for electrical current without from its high tension line hear taken from its high tension line near Seven Portages, the cost of new construction and the transformer losses to be paid for by the water plant. The load factor would be as near 100 per cent. 25 is practically realizable. Shoal Lake Recommended.

I visited Shoal lake on August 24, 1912, and inspected the various points at which intakes have been proposed. I also made comparative tests of the color and turbidity of the water at various points by sinking a white disk to invisibility. I also determined the temperature of the water at various places and at various depths, and took samples of the water from these various zones. The date of my inspection was especially favorable as I undoubtedly saw the lake at the time when the growth of algae, etc., is at the maximum. The amount of suspended matter in the water was surprisingly small. The amount of pelagic life in Shoal lake is very small, due in part to the clean, rocky character of its shore, and of its water-shed. The clean Laurentian granite and schists have collected together a body of water of exceptional softness and purity. The water in Indian bay possesses a slight color and there is also more matter in suspension. The water, at the lake itself and in Indian I visited Shoal lake on August 24 more matter in suspension. The water, both in the lake itself and in Indian hay, was tree from disagreeable odors and taste.

and taste.

Eefore an intake for Winnipeg water supply is finally laid out in Shoal lake, observations, during the entire summer season, should be made by a competent person, in or-

up, walled and roofed, and in other would certainly permit the construction strongly of the opinion that the most

water supply.

Lake Water Sanitary.

The water of Shoal Lake would require no treatment. No fear need ever she in mind that the sanitary quality of the water would be poor at any time in the future. The sheres of the law and the country thereabouts must remain in its present wild state interiors of the shore of Shoal Lake. The Lake of the shore of Shoal Lake. The Lake of the woods constitutes an enormous reservoir of clear, pure and soft water, situated 300 feet above the city of Winnips, and within 100 miles of the city.

As previously stated the water of Shoal Lake would never require sanitary treatment. I believe that an intake could be so located that there would be no trouble from algae. The algae are harmless from the health yeard odor and taste to water, and accordingly should be removed when measure. They may grow in any

accordingly should be removed when present. They may grow in any artificial or natural reservoir open to

sunlight.

If, for any reason, it should be determined that an intake entirely free from algae is impracticable, their removal can be effected by straining or mechanical filtration at the station, 22.6 miles from Shoal Lake. This plan, if necessary, need be operated during a portion of the summer months only. Filtration at River

a portion of the summer months only. Filtration at River

It is an objection to the Winnipez River project of some importance that the water must be carefully watched from the sanitary standpoint and filtered to secure proper purification. It is, of course, possible by proper care to purify the Winnipez River water, even though the industrial population at Kenora and elsewhere on the river should graw, and the present minute contamination should materially increase. If the city can command the services of suitable experts and enforce such military discipline among its employees that filtration and similar works can be operated with practically no lapse in efficiency, then it need never fear a polluted supply. In America it has been found to be very generally the case that the cities are unable to maintain that discipline and expert supervision that is absolutely essential to the operation of sanitary water treating plants. Water supply engineers of high standing quite generally refrain from recommending such plants where a safe supply is available from other sources. plants where a safe supply is available

from other sources.

The construction of the conduit line to Shoal Lake presents no unusual engineering difficulties. The lake can

(Continued on Pass Bustiess,)

be made public until the meeting of the city council on Monday night, but it is believed, in view of the fact that Professor Slichter was engaged by the public utilities commission, that Judge Robson's report will largely traverse the same ground and arrive at the same conclusions as the report of Professor Slichter to Judge Robson, published today.

Chairman of Fire, Water and Light

Chairman of Fire, Water and Light
Alderman Fowler—I have not yet
read the report of the public utilities
commissioner, and cannot therefore
discuss it. We have got to bave an
additional supply of water at once. We
could not get water from Shoal Laske
for three or four years. Therefore,
whatever we may eventually do, we
must go to Poplar Springs for what
we require now.
Controller on Water Committee Chairman of Fire, Water and Light

Controller on Water Committee
Controller McArthur—Water from
Shoal Lake is what I have always
advocated, on account of gravitation
advantages. As for cinking wells at
Poplar Springs, I am opposed to it
absolutely. This business of spending
money digging wells is a gamble—
nothing more. I decline to express
any opinion as to the advisability of
going to Poplar Springs for a temporary supply. Controller on Water Committee

porary supply. Always for Shoal Lake T. R. Deacon, president of the Mani-toba Bridge and Iron Works, speak-ing of the water supply of the city

said:
"I lived near Shoal Lake for ten years. I was at that time in private practice as an engineer in Kenora. In conjunction with the late J. E. practice as an entire the late J. E. conjunction with the late J. E. Schwitzer, I made surveys of the Lake of the Woods and surrounding lakes for a distance of 200 miles. I am perfectly familiar with Shoal Lake, and know of its value as a source of water

for the city.
"In this regard Shoal Lake is prac-"In this regard Shoat Lake is practically perfect. It has an area of about 120 square miles. Loch Katrine, which supplies the city of Glasgow, a city of about a million people, has an area of only 15 square miles. Shoat Lake is deep and contains no algae. It has no human habitation on its banks and never will have. The water is pure, clear and soft, ideal for Winnipeg.

"With reference to the general question of a water supply for the city.

i'With reference to the general question of a water supply for the city. I have always expressed agreement with the findings of the commission of 1907. Shoal Lake, setting aside the question of cost, is the ideal source. As the destiny of Winnipeg is now practically certain, it may be possible to disregard the element of cost and proceed with the arrangements for obtaining a permanent supply from this source."

Fears for Cost

Controller Douglas-I would prefer not to discuss the report in any detail (Continued on Page Fifteen.)

WHERE EXPERTS WOULD HAVE WINNIPEG GET ITS WATER

GENERAL FLAN SHOWING ROUTES FOR PIPE LINES

THE WAY TO SHOAL LAKE

The above map shows the location of Shoal Lake and Winnipeg River, where two successive commissions have indicated that the water supply of the tity should be found. The above cut shows the routs of the pipe line from Winnipeg to Indian Bay, which is an arm of Shoal Lake. This would be about miles distant from the city. The second cut shows the elevation from the city to Shoal Lake from an elevation of 760, to 1,060 feet, which gives erop for the water route to the city from the lake.

MAYOR WAUGH'S VIEWS

Mayor Waugh made the follow-

ing statement when interviewed Saturday on Prof. Slichter's

"Yes, I have perused the report but have not had time to get more

than the conclusions and recom-

mendations into my head, Fifteen

additional wells as a temporary ex-

pedient, Shoal Lake as the perma-

elimination of both the Poplar-

Crystal Springs and the Winnipeg

river propositions as recommended

in the report, is a sufficient change

of programme to require some co-

"None of us can contend that our

pet conclusions on this much dis-

cussed and difficult question are

entirely correct. The investigation

the Shoal Lake scheme with all pos-

"It is a large outlay for us with

quiring large expenditures, but I

justify the sacrifice necessary to

"However, what we want is more

water. If the people vote for the

Poplar-Crystal Springs project on

Friday next, it will mean the ap-

proval of that source as a supply

until the city is ready to tackle

the Shoal Lake scheme. If voted

down, we will of necessity require

Mayor Waugh explained that the

report, as a matter of courtesy,

should first have been submitted to

council before being made public,

but as the intention of the in-

vestigation was to give the rate-

payers as much information as pos-

sible, he thought the press should

as much time as possible for pe-

character of its shores and of the immediate district around it, will forever

remain as wild and as naturally pro-tected against the solling of human habitation as are the artificial moun-

tain lakes just referred to. It is for-tunate indeed that Winnipeg, situated

in a limestone plain, has within going distance an ample reservoir of pure, soft water. It was inevitable that the

picturesque woodland slopes and wild rocky shores of Shoal lake should re-mind one of Loch Katrine, the source

of the bountiful supply of the city of

Glasgow. Those that have personally viewed that Scottish lake will better

appreciate the virtue of the present

not in disagreement with the report of the commission of 1907 when I recom-mend that the city water supply be taken from Shoal Lake.

No Filtering Needed.

No Filtering Needed.

When cities are obliged to go a distance of from fifty to one hundred miles for a suitable water supply, they usually expect to obtain a supply that it will not be necessary to filter or treat from a sanitury standpoint. The project that the city of Winnipeg now puts forward commits it indefinitely to a peculiar source of supply. No hardship can ensue and there will be no apologics later to be offered if we now commit the city to the best possible source of supply. The city of Winnipeg is no longer merely the supply point of the North-west prairies, or merely the capital of a province. It has entered the class of world-cities, and has begun to direct the commerce and

be appealed to. The city cannot af-ford to be committed to a temporizing or inadequate policy, or to permit fur-ther postponement of the settlement of the matter on large and adequate

Conclusion.

Nothing in this report should be considered as either directly or indirectly implying any criticism of any of the authorities that have passed upon this matter. The need for increase in the immediate supply of the city is re-

basts

Shoal Lake Is Purest.

rusal and discussion.

recommendation.

to sink more wells immediately."

a new perspective.

sible dispatch.

carry it through.

nent visible source, and an entire

water supply report:

### FINANCIAL

Richelieu @ Ontario Makes Further Recovery at Montreal-Better Tone In Wall Street Stocks.

### RICHELIEU LEADS MONTREAL STOCKS

Continues Upward Movement Gaining Two Points-C.P.R. Firmer at New York.

Winnipeg, Sept. 7 .- The resumption of Saturday sessions on the local stock exchange was marked by an increase in activity. Eleven Union Bank sold at 152, and two lots of Northern Crown at 105. Two parcels of crown rights sold at \$1 even. The odsiness in pank lastes has come to be an important element in the trad-ing here, and it is noteworthy that b. ces are tending gradually higher. In the unlisted department two saids of Lucky Jim at 20 were put through.

The regular dividends of 12 per cent on the preferred and 11 per cent on the common stock of Twin City have been declared. The regular dividend on Great Northern preferred has also oeen declared.

Gross earnings of Louisville & Nasnville for August show an increase

#### MORNING LETTERS.

New York, Sept. 1.—About the only repressive factor is the money situation but as has been intimated the relative quietness makes it possible to divert surpus funds to the needs of general business. Meantime there is no good reason way stocks should not continue to improve.—Laidlaw & Co.

New York, Sept. 7.—A majority of our important stocks are sugarity migher in London. London has shown a consistent busing a disposition toward our market for some days but there has not need much response to its buying on the part of our traders. What the market needs is buil leadership and nobody of cambra seems wishing to furnish it at this time, owing to uncertainty regarding crops, positics and money. With the recent covering of shorts the more nervous bears left their positions and the technical weakness we think will result in prices working lower.—Finley, Barrell & Co.

(McDougall & Cowans.)

New York, Sept. 7.—The bank statement to-day may not be as untavorable as indications suggest. It may be interesting and instructive to carefully examine the statements of the national banks as to securities holdings when they issue same as of Sept. 4 in answer to the government call just issued. Information are favorable to the market. The street seems to be waiting for the haine election and government grain report Monday. The government figures should be very builish. The tendency is slowly upward. On slight recessions we think stocks should be bought for the government grain statement Monday and steef tomage statement Tuesday should province sullish inspirations. (McDougali & Cowans.)

#### RICHELIEU ADVANCES

Stock Gains Nearly Two Points or Montreal Market, 1,900 Shares Changing Hands,

Montreal Sept. S.—A fairly active demand for Kichelieu under which the brice advanced hearty two points was the feature of the Saturday session of the local stock exhange. After opening at 112/2, just level with previous day's ing at 12%, just level with previous day's close and gooding around that price in the first matt, the market began to move upward to a high point of 114%. After a recession of ½ the price firmed up again and lust sale was at 114½, only 15 lower than the best of the day with the close steady at 114½ big, 114½ asked. The net change was a gain of 1½ points. Nearly 1,500 shapes changed hands or about 50 per cent, of the lotal

or acoust so per cent, of the total business for the morning. A further improvement in Quebec Kailway stock and bonds and a new Railway stock and bonds and a new high record for Canadian Locomotive common were other features of interest. Quebec Stock Rovence 1/4 point to 21, and that was the price bid at the close, with 11/4 asked. Quebec bonds sold at 15, three points higher than the closing bid of the previous day, men they corred a five point recovery. The turnover in the bonds, however, was only 8,00, and the close was easiler with seiters asking 22 and no bids in the market. Lucomotive common continued its advance, selling at 57/2 or 17/3 over the previous record price and closing strong at 58 bid, 58/2 asked. Detroit was also a strong feature, advancing 11/4 points to 721/4.

There were no obspaces of impact of the strong that the points.

a strong feature, advancing 114 points to 7214.

There were no changes of importance at other points in the list. Steel was fractionally higher at 6475. Power 18 lower at 220 and was very quiet. Pacific was dull and weak, selling at 23 as compared with 274 bid at Friday's close, with the final bid 2734.

Tramway and Power continued the active features among the unlisted stocks. The former recovered three points to 33, but was offered at a recession of one point from the best at the close. Tramway and Power was firm between 504 and 50½.

Total business 3,342 shares, 665 mining shares and \$8,000 bonds.

#### AUGUST FIRE LOSSES

During the Month the Waste Amounted to \$1,164,760-A Normal Loss.

The Monetary Times' estimate of Canada's fire loss during August amounted to \$1,164,760 compared with July loss of \$1,164,770 compared with July loss of \$1,164,771 and \$20,000 for the corresponding period last year. The following is the estimate of August losses:—
Fires exceeding \$10,000. \$878,900 small fires 183,935 Estimates for unreported fires 151,925 

#### AUGUST MUNICIPAL ISSUES

Western Cities Were Almost Entirely Absent From the Market-Ottawa Borrows a Million.

The municipal bond sales in Canada for August as compiled by The Monetary Times amounted to \$1,649,547, compared with \$1,961,356 for July and \$1,403, 50 for the corresponding period last year. Ottawa made the largest issue, rialton County, Ont., and Lethbridge made only other large issues. Therowere five provinces in the market.

The following are the particulars by provinces:

| St. | St.

### \$1,649,547 REVENUE IS GROWING

Dominion's Financial Statement For August Shows Increase of \$3,000,000

Ottawa, Sept. 8.—The Dominion financial statement for August out to-day shows continued evidences of gratifying growth fin revenue. The total for the month was \$14,445,849 an increase of three millions over the corresponding period last year. For the five months ended with August the aggregate was \$66,903,167, an increase of \$14,000,000. Expenditures on consolidated revenue for the five millions. In August \$6,953,065 was spent.

of the minons, in Acquait signs, was spent.
Outlays chargeable to capital in the five months totalled \$5,701,167 a decrease of \$280,000. The August expenditure on capital was \$4,805,811. Between July 1

and August the public debt was decreased by \$3,097,926. The net debt is now \$319,628,099. This is a decrease or eight million compared with a year ago.

#### BRITAIN'S TRADE STILL BOOMS

Large Increase in the Exports of Manufactured Goods in August. London, Sept. 7 .- The August statement of the board of trade shows in-

creuse of \$45,600,000 in imports and 3\$8,480,-000 in exports. The gains in the former were equally distributed between food stuffs, raw materials and manufactured goods, while coal and manufactured goods snowed the largest increases in

#### STOCK QUUTATIONS

W	IN	N	1P	E	G

е	AA TTATATT TOTAL	
ŭ	Winnipeg, Ser	. 7
_	Listed Stocks— Bid.	Asked
t	Can. Fire, fully paid 150 City and Provincial Louis	
n	City and Provincial Loan	140
1	Com. Trust and Loan	105
•	lit West Life 55 me set	115
	Gl. West Perm 135	310
t	Home Invest	14.3
-	South Airlean Warrants	1050
Д.	Gt. West Perm. 135 Home Invest. 140 South Airlean Warrants 104 Union Bank 151	105
Ð	Chron Dank	105 153
u	Nor. Can. Mort., 25 p.c. pd. 114	
υ	North, Mort., 20 p.c. pd 120	. 128
	Northern Trust 130	138
	Standard Trusts	
Ł	Wpg. Land and Mort 150 Wpg. Pt. and Class Pfd 108	116
U	Northern Rights	. 110
	Crown Rights	
	Saics—Listed Stocks	
	11 Union Bank	152
	10 Northern Crown	103
-	1 Northern Crown	105
1	65 Crown Rights	1
۵	Sales-Unlisted Stocks-	
٠.	100 Lucky Jim	20
Ţ. Ĭ	200 Lucky Jim	. 20
ŗ		

#### MONTREAL

			*
	(Reported by McDougall Win	піред, Еер	ns.) t. 7. Asked.
	Canada Cement		29
	Cement pfd		
	C 2 2 2	92 273 <i>1</i> 4	274
	C. P. R.	213%	314
	Crown Reserve	34.	345
	Crown Reserve Canadian Converters Detroit United Dominion Canners	*****	43
	Detroit United	$72 y_2$	73
	Dominion Canners	673%	68 va
	Domini Hon and Steel		
	Dom. I. and S. pfd	105	106
	Ill. Traction	, 93	94
	Lake of the Woods com	130	135
Ì	Mackay	105 93 130 75	. 77
1	Mackay pid	69	70
١	Mexican Light	90	94
1	Montreal Power	229	230
ł	Mackay pfd Mexican Light Montreal Power Nova Scotia Steel Ogilvie Flour common	90	90 4
Į	Ogilyle Flour common	127	129
	ognivie Flour common Ottawa Power Penmans. Porto Rico. Quebec Railway R. and Q. Nav. Rio do Jan	1657	166
ŀ	Penmans	56	5534
1	Porto Rico	. 70	73
1	Onchee Railway	. żĭ .	21 /4
	8 and O Nor	1146	114 6
	Pio do Inn	1477	140
1	Sherwin Williams com	14772	52
	Sherwin Williams prd	, 101	
1		2.000.00	1 50
1	Soo	149%	19017
	Textile Toronto Railway Twin City Sao Paulc Winnipeg Electric	69 % 142	100/4
	Toronto Ranway	142	100
	Twin City J	10	108
ı	Sao Paule	268	260
	Winniper Electric	227	230

NEW YORK					
(Reported by  Amai. Copper Amer. Ag. Cl Amer. Beet Amer. Cor I Amer. Loco. Amer. Loco. Amer. Stoel Amer. Stoel Amer. T. and Amer. Woole Ameconda. Atchison Atch. pfd	Osler.	Hamr	nond e	ind Na	nLon.)
	,	Open.	High.	Low.	Close.
Amer. Ag. Cl	nem	8774	88	8778	59
Amer. Beet 1 Amer. Car I	dry	61	61.74	61	74 /4 61
Amer. Cotton	Ņij.	57 ¼ 43 ¼	571/4	561/2 431/2	56 % 44 %
Amer. Smeltl:	ng	85 1/2	86 %	85 1/2	85/4
Amer. Sugar	- ;				125%
Amer. Woole	n	1411			. 28
Atchison		108%	108	108	103
Atch. pfd Atlantic Coast	Line				101 % 142
Balt. and Ohi	· · ·	106%	9134	9134	106 % 91 %
C. P. R.		273	273 14	272 /	275
Ches, and Or	ilo	80 %	80 1/2	80%	80%
C. M. and St.	P	106%	107	106%	106 %
Col. F. and	1	331/2	35 4	33 1/2	138 ¼
Amer. Stoel Amer. Sugar Amer. T. and Amer. Wood Ander. Wood Ander. Wood And Amer. Wood And Amer. Wood Atch. pfd Atlantic Coast Balt. and Ohi E. R. T. C. P. R. C. Central Leath Chess. and Of Chicago and C. M. and St. Chicago N. W Col. F. and Col. Southern Cons. Gas. Del and Hud				71.1	39 ¼ 145 ½
Col. Southern Cons. Gas Del. and Hud Denver and R Denver pfd	son .		:::;	106 % 33 ½	21 %
Del. and Hud Denver and R Denver pfd Duluth S. S. Duluth pfd Eric 1st pfd Eric 2nd pfc General Elect	and.			14,54	38 14
Duluth pfd .			22.12	7.5	19 /2
Erio lat pid			30 74		53 %
General Elect	ric :	182	1821/2	182	182
Great Nor. p	id	138 14	138 %	158%	138 ¼ 46 ½
Great Western Illinois Centr	a1 .:		• • • • •	1	19 130
Interboro	rn				19 ⊹s 37
Erie	ash	163	162%	1611/2	161 %
Mackay ptd .					14014
M. K. and T					28
Mo. Pacific.		41 %	41%	41	41
N. Y. Centra	<u></u> .	1-11	1,144		115 1/4
Norfolk and	vest	116%	37.74	37	37 116 %
Northern Paci   Pacific T. and	nc T.	1277	1271/2	1271/4	127 /4 50
Penn People's Gas		123%	1241/2	123%	123%
Pressed Steel	Car.,	• • • •			\$7 A
K. C. Souther Louis. and N. Mackay ptd. Mackay ptd. Soo M. K. and T. Mo. Pacific. N. Y. Centra N. Y. O. and Northern Pacifical T. People's Gas. Pressed Steel Ry. Steel S Feading Rep. I. and Rep. ptd. Rep. ftd. Rock Island	St.	169	1591/2	168%	169 4
Rep. pfd		26			SB %
R. Lt. ptd		20			51 Ya
St. L. and S	w				35 %
Sloss Sheffield	à''				75 55
Southern Pac		30	$\frac{111\%}{30}$	111 % 29 %	111 ¼ 29 ¼
So, Ry, pid Tenn, Copper		44 1/2	44%	4414	81
Texas Pacific	a w.	1,11			25 Va 12 Va
Pacific T. and Penn Penn Penn Penn Penn Penn Penn Pe		1714	17214	17114	107 %
U. B. Rubber		171 % 51 % 73 113	172% 51% 73%	171 14 51 14 72 14	73.0
U. S. Steel t	ıld	113	7.574		73%
					4 1/4
Wabash pid Western Uni					46 /4 4 /4 14 /2 81 /2
Wisc. Central Total sales		roci.	• • • • •		54 %
LONDON					

#### LONDON

	20112011	
	Corsols London, Sept. 7.	Close:
ł	Corsols	74 3-15
	Action Copper	807.1/2
	Amer. Smelting	85%
ł	Amer. Smelting	45 %
	Alchisol	3.08 %
	Baltimore and Ohio	1 DA %
	Canadian Pacific Railway	272 W
	C. M. and St. Paul	106
	Denver and R. G.	2174
	Denver pid	38 %
	15716	369/
Į		
į	tuners central	729%
	Louis and Nash	163
1	LANGW York Canted	· 73 = 34
	N. Y., Ont. and W. Norfolk and Western	37 4
	Norfolk and Western	116%
	Northern Pacific	127 /
	Pennsylvania	124 /2
	Reading	169%
	I FOUR INIRIU	25
	Southern Pacific	71111
	Southern Rallway	2010
	Southern Rallway Union Pacific	123 6
	U. S. Steel	- 457
	U. S. Seel pfd	11374
	Wabash pfd	14 %
	would pill	1478
		200

#### BANKS

(Reported by Osler,		anto
Montreal	. Sellers.	Виус
Monthear	249	200
Dominion		231
Molsons		201
Ninta Canala		208
Nova Scotia		.250
Merchants		190
Imperial		
110.5		-225
Union	152 /2	151
Commerce	223	222
Royal		
77		225
Hamilton	205	206

Owen Sound Physician Dead.

Ower Sound, Ont. Sept. 6 .- Dr. Allan Cameron, Own Sound's oldest physician dled today aged 83. He came here in 1884 and practiced until the present

#### PROF. SLICHTER RECOMMENDS SHOAL LAKE WATER SUPPLY

be reached, it seems, without rock-cut-ting. It appears certain that Shoal Lake and Falcon River can be drained into Boggy River by a cut of about ten feet, and thus avoid about ten miles of wet excavation at the castern terminal of the conduit. While the Shoal Lake line constitutes a major project, it is free from serious en-gineering difficulties. The project would be considered attractive by a arge range of competent contractors.

Objections to Present Supply. The present water supply of the city of Winnipeg from the well system is so highly undestrable and ex-pensive on account of its high inneral content, that it should be abandoned it the earliest possible date: The water is excessively hard and incrusting, and is corrosive and destructive to an

and is corrosive and destructive to an unusual degree. The expense that this water causes the citizens of Winnipeg by its destructive influence on plumbing, boilers, heating plants, etc., and increased cost of fuel, soap, compounds, and the destruction of woollens, and other laundered articles, would well pay the interest on \$15,000,000 to \$20,000,000. As the city engineer, has tersely remarked in his printed report, "The water in its natural condition is much too hard for general domestic and boller use." The water is expensive to soften and after treatment it is still hard water, and more than that, still retains all of its corthan that, still retains all of its cor-rosive qualities. The water is not only destructive of wealth, it is a handlcap to and a serious drawback to the proper operation of many industries, and a hindrance to the introduction of new industries. The following typical industries would be seriously handicapped by the present supply: Meat-packing industries, canning industries, woollen milis, starch and kindred polato product industries, any industry, of which there are many, that requires the use of live steam, or drying processes, or distillation, or kin dred material, or the application of heer two diderion or application of heat for digesting or liquifying or combining a variety of commercial substances. There is no industry that would not be favorably affected by the abundance of pure soft water, and to many it is an absolute essential.

Wells Will be Polluted. Without causing any unnecessary alarm, I must afirm that I do not regard the well water of the city of Winnipeg as free in the future from all possible causes of contamination. all possible causes of contamination. The well water now is certainly pure, and I hope that it will always remain so. It must not be forgetten, however, that the well water supply is taken from a cavernous limestone lying beneath a large city; that the diaff made upon this water has been in the static head or as to lower the static head at beneath the level of the Red river; that there are in the city itself numerous abandoned wells that pene-trate the impervious cover of the lime rock; that it is entirely possible that some of these wells are not romote from sewers and domestic laterals; that the city if Winnipeg uses a combined system of sewers, which become heavily loaded during heavy rains. When one takes into consideration the above facts and the fact that most sewers leak, it is entirely possible that at some time in the future leakage from a sewer or sewer lateral may find admission through an abandoned well to the lime rock and the city water supply.

#### Not Soriously Considered.

This is sufficient to show that the city of Winnipeg should not place itself in a false position of safety concerning its present wells. The hazard is sufficient to be carefully kept in mind. Due prudence is not shown if the water from wells 2 and 3 is not frequently tested for liquifying bacilli. An actual danger may reven the An actual danger may never arise, but the situation must be watched. If raw sewage should penetrate into one of the abandoned wells, the cavernous limestone would prove to be a very poor purifying or filtering medium. The danger of course is so remote that no one should in the slightest be sharmed. one should in the slightest be alarmed about the matter. The hazard has some bearing however upon the permanent value of the local well system. For the above reasons, leaving out of consideration any possible husani of contamination it seems impossible seriously to consider the present well system as a permanent part of the water supply of the city of Winnipeg.

Springs Unsatisfactory. I have constantly endeavored, ever I have constantly endeavored, ever since I began the study of the present problem of supply for Winnipeg, fully to consider every favorable aspect in which the Crystal Springs project might be viewed. In every possible way have I attempted favorably to weigh the claims that might be urged in its behalf. The project temporizes in its behalf. The project temporizes with the whole subject, it fastons upon the city an undesirable supply of water, not markedly better than the present supply, and more than all, one requiring the city to maintain the present supply, with its well-known disadvantages, for an unknown indefinite period. The spring supply as properiod. The spring supply as pro-posed does not lead to a desirable end-situation of any sort. The expenso involved in the project is high, and should be applied to a more desirand should be applied to a more desirable and more permanent source. It should be used to lead up to and apply to the supply that the future city of Winnipeg must have.

#### No Emergency Capacity.

On account of the inelasticity in the On account of the inelasticity in the yield of a spring such supply must be enormously supplemented by the use of wells. An essential in a city water supply is the ability to respond to an emergency demand. Natural springs have no such capacity. Wells, however, if the number be kept largely in excess of the average demand, have a considerable elasticity of output

#### Extend Present System.

A supply equal to the capacity of the combined Crystal and Poplar Springs route can be had by introducthe present system, and the new supply can become available before the line to Crystal Springs can possibly be constructed. The present method of drilling 18 inch wells, testing them out by air lift and installing deep well found to the class of world-cities, and has begun to direct the commerce and industries of a vast territory. Within the small group of cities of this class, pride as well as self-interest may well be appealed to. The city cannot be appealed to. out by air lift and installing deep well pumps represents the best practice that can be adopted. Two additional well rigs should be put at work at once so that fifteen additional wells and 12,000,000 gallons additional supply may be available by April 1, 1913.
As before remarked there is only
moderate elasticity to the yield of
wells, and none at all to the yield of

springs, so that an ample capacity for the maximum annual daily demand must always be in readiness. In my judgment it is not reasonable to expect that the Crystal Springs project can be completed by the summer of 1912. The project does not offer the quick relief to immediate needs that is

#### Conclusions Reached.

I recommend that the water supply for the city of Winnipeg be taken from Shoal lake, basing this judgment upon the fact that this is the very best supply available, and as near ideal as any city can expect to find. There, at an elevation of 300 feet above the city lies an enormous reservoir of pure and soft water, which nature has collected and impounded. Many other cities as New York and Lies Angeles, at the cost of millions, have been compelled to build dams and create artificial to build dams and create artificial lakes which in perfection of water-shed or in quality of water or in magnitude of supply do not compare with the enormous reservoir which has been naturally provided at the Lake of the Woods. The lake, because of the

cognized by everyone. That I have come to a different conclusion from others as to the programme that is is

cthers as to the programme that is is nadessary to adopt to bring this about in the best manner possible, does not signify, and is not intended to imply, chy chiricism of those who have placed their time and energy at the service of the city of Winnipeg.

The sanitary purity of the water supply of Winnipeg has been a fortunate safeguard during what we may term the childhood of the city. If we must row turn away from it to secure a supply better adapted to the city in its maturity, due recognition of the protection of the past must be acknowledged.

Very Respectfully Submitted,

Very Respectfully Submitted, CHAS, S. SLICHTER.

#### THE COMMISSION OF 1907

Co: ulting Engineer.

The water commission of 1907, which consisted of a number of members of council and citizens, appointed a board of four engineers to study the respective merits of four sources for the water supply of the city for a population of 500,000. These were, the artesian well system, Red River, Shoal Lake and Winnipes River.

The four engineers appointed for the work were: J. H. Fuertes, C.E., New York; G. C. Whipple, C.E., New York; G. C. Whipple, C.E., New York; R. S. Lea, C.E., Montreal; and the late J. E. Schwitzer, Winnipes.

On Aug. 29 they handed in their report recommending the Winnipes River supply. On the strength of this report the commission recommended to the council that the necessary steps should be taken as soon as possible to obtain the future requirements of the city from the river.

They recommended making provi-

and report has given us at any rate "Prof. Slichter, speaking from long study and experience of development in other cities, gives us a new idea of what he believes is the inevitable great future of Winnipeg as an industrial centre and if his conclusions are right that abun-

ments of the city from the river.
They recommended making provision immediately for the necessary pumping and filter capacities for 12,000,000 gallons daily, and single pipe line and reservoir capacities for 17,000,000 gallons daily, and that after the construction of the first pumping and filter units and the completion of the first pipe line, further pumping and filter units, together with additional pipe lines be provided from time to time as the daily consumption of water demanded. dant soft and pure water will hasten that result are correct, it may the part of wisdom to proceed with so many other pressing needs rebelieve the result would more than

of water demanded.

The commission further recommended that a start be made toward accomplishing this work without delay, as it was felt that no time should be lost owing to its having been pointed out by the board of engineers that it would take at least three years that it would take at least three years to complete one pipe line, a year of which would be consumed in office and field work preliminaries. This would bring the date of completion of one pipe line to the latter part of the year 1910.

the year 1910.

The commission also recommended the extension of the present well system, to be proceeded with as rapidly as possible to provide for the temporary requirements of the city for the period pending the completion of one pipe line from the Winnipeg River, but not to include any additions to the softening plant, as it was not a permanent requirement. The commission desired to point out clearcommission desired to point out clearly that such extensions to the well system should not interfere with the policy of providing for the permanent supply from Winnipeg River being im-mediately determined upon and carhave it at once to allow the public

ried into effect. What the Engineers Said. The following are some of the statements of the board of engineers:—
The consumption of water in Winnipeg is athormally low.
The per capita consumption should increase from 32 gallons a day to 85

at least. Provision should be made, if the water is to be taken from a distance, for a daily supply of 17,000,000 gallons.

lons.

The water pressure in the city should be at least 70 lbs. per square inch, instead of 20 to 25 as at present. The quality of the ground water near Winnipeg is such that even after softening it would not be a good boller water, and the quantity that could be safely depended on is very uncertain. This source should therefore be considered as suitable merely for a temporary supply.

I recommend the Shoal Lake supply solely for the reason that it is the best; it is not the cheapest: I do not believe that it is not coessary at this time to weigh too nicely the cost of such a water is unknown and probably project. The commission of 1967 said: limited, while the expanse of opera-

"Considered from the standpoint of tion from that source would alone the quality of the water in its natural condenin such a project.

The present ground water supply use of the water for all purposes, the should be used only till a new supply is optained from another source, but Shoal Lake water is unquestionably the for several years after that it should be used.

The difference in first cost was the reason then liven for recommending the supply from Winnipeg river. Since that date Winnipeg has grown from another source, but the supply from Winnipeg river. Since that date Winnipeg has grown from 110,000 to 175,000, and the permanence of the wealth-producing power of the become rigorous.

Opposed Shoal Lake.

110,000 to 175,000, and the permanence of the wealth-producing power of the extensive area which it supplies has become rigorously established. Factors which were then problematic are now certainties, and the vision has enlarged upon a growing empire of untold possibilities. The second transcentinental railroad line is now a fact. The water power of the Winnipeg river is in part developed. The water power yet undeveloped. The capable The opposition to Shoal Lake is on the grounds that the scheme would involve the construction of conduits of large size capable of standing heavy pressures, and the great cost of this work would render the proyet undeveloped I estimate is capable of producing, from raw products, from \$20,000,000 to \$200,000,000 of new wealth annually, depending upon the particular line of manufacturing which the new development takes. Under all of these circumstances I believe that I am not it disacreement with the report of ject inadvisable.

### MUCH WHEAT HAS

STARTED TO SPROUT The crop report of the Canadian

Pacific railway company for the week ending Friday, Sept. 6, says: "Rain has been the principal feature "Rain has been the principal feature of the week so far as the crop is concerned, the rain of Thursday being generally spread over the three prairie provinces. In Manitoba 75 per cent. of the wheat has been cut. A large proportion of the wheat standing in stock from Morris to Manicou has standing the standing that the wheat the wheat standing in stock from Morris to Manicou has started to sprout, which will considerably lower the yield and the grade. This year's crop contains more wheat

#### The Canada Standard Loan Co. DIVIDEND NO. 3.

Notice is hereby given that a dividend at the rate of Eight per cent, per annum upon the paid up capital of the Standard Loan Company has been declared for the half year ending September the half year ending September 15, 1912, and that the same will be payable at the offices of the Company on and after the 16th day of September, 1912. The transfer books of the Company will be closed from the 10th to the 15th of September, inclusive. inclusive. Ey order of the Board of Directors.

J. C. KYLE, Manager.

NORTHERN

HEAD OFFICE -TRUSTEES, ADMINISTRATORS, EXECUTORS. DIRECTORS; G. F. Galt, Pres. R. T. Riley, Man. Dir.

G. R. Crowe, Vice-President. J. A. M. Aikins P. Burns J. A. McDougall W. Allan D. K. Elliott R. D. McNaughton J. H. Ashdown G. V. Hastings A. M. Nanton J. H. Brock A. Macdonald J. Robinson F. W. Stobart.

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yet been seen in Manitoba. The conser for the farmer with six rows on the head than has will be cheaper for the farmer to handle this year than last on account of lighter straw. The average per acre will be slightly better than last

#### - In Saskatchewan.

"Not such a large proportion of the wheat has been cut in Saskatchewan, probably 50 per cent. Weather on the whole has been better than in Manitoba. A number of samples from the threshing machines have been received from different parts of the province and all grade 1 and 2 northern. The yield per acre will be better than last year and the quality, with favorable weather, will be from one to two grades higher. There were light frosts on the Kerrobert and Forward subdivisions, but no damage reported. divisions, but no damage reported. Light Frosts in Alberta.

"Cutting in southern Alberta is more that 80 per cent done and completed at a number of points. Weather was very good in this province with the exeption of the last few days. frosts were experienced on some sections, but no damage anticipated."

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## 85 Million Gallons Water Per Day From Shoal Lake Pipeline

Body of Water Would Fill Reservoir as Big as Portage Avenue From Main to Sherbrook Street—Thousands of Tons of Cement Used.

The magnitude of the city of Win nipeg's undertaking to carry water from Shoal lake to the city, a distance of over 96 miles, is shown by the following figures which guarant tee that the reconstruction period will see industries and domestic needs easily supplied with practically unlimited soft water:

The Water District have in preparation structures for the furnishing of 85 million gallons of soft water per 24 hours to the population of Greater Winnipeg Water District.
Eighty-five million gallons of water

would fill Portage avenue between the building lines from Main street to Sherbrook street to a depth of 10 feet; the contents of the reservoir which will be built at Deacon, ten miles east of the city of Winnipeg, combined with the contents of the reservoirs now owned by the city of Winnipeg, would fill this same area to a depth of 62 feet, or to the height of the fourth story windows. Would Fill Red River

The quantities of earth handled by the contractors and paid for by the District during the three seasons of aqueduct construction work would be sufficient to fill the Red River to the top of the banks for one and a third miles.

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The quantities of concrete poured in the aqueduct structure and its anpurtenances during the same period would provide 24 feet of pavement six inches thick over 134 miles of streets, or would provide a concrete walk six feet wide wherever there is now in Winnipeg a sidewalk of plank pr concrete,

The reinforcing steel used in the construction of the aqueduct to date, if all rolled into rods five-eighths of an inch in diameter, would stretch from Montreal to Regina.

The Portland cement consumed during the same period would fill a train of freight cars 18½ miles long and would weigh 4½ times as much as the entire population of the Water District.

built in pre-moulded sections and laid in trench in the streets. The construction is of a type similar to that of the 5ft, 6in. pipe line between Deacon and the Red river, except that the pipe is cast in lengths of ten feet instead of eight feet.

For supplying water to the various municipalities comprising the Greater Winnipeg Water District outlets have been provided as follows:

A 36-inch outlet for Transcena from the 5 ft. 6 in. pipe at Plessis Road;

A 36-inch outlet for the City, of St. Boniface and St. Vital from the 5 ft. 6 in. pipe where it passes through pumping station yards of St. kone Boniface:

A 24-inch outlet for the Elmwood district and East Kildonan from the 5 ft. 6 in. pipe at Archibald street;

36-inch and 24-inch outlets for the high pressure pumping station and for Fort Garry at west shaft of the Red river tunnel;

A 24-inch outlet for Kildonan from 48-inch pipe at King street;

24-inch outlet for Assiniboia from 48-inch pipe at Arlington street. from

Sue Infringers of Wright's Patents. med

Paris, Jan. 31.—The General Company for Aerial Navigation, which is towns the Wright Airplane patents in pen France, has resumed legal action against infringers of the patents with a view to having a claim to royalty on machines built on the principle of the patents recognized. All legal action tion, was suspended during the was

### Jellicoe Starts Tour About Feb. 20

ONDON, Jan. 31.—(Canadian Press despatch from Reuter's.)—Admiral Lord

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