NOTES ON THE LIGHTHOUSES OF THE PROVINCE BEFORE THE LITERARY AND HISTORICAL SOCIETY OF QUEBEC, 30th JANUARY, 1902.

Mr. President, Ladies and Gentlemen,

I intend to show you to-night, with a magic lantern, views of the Lighthouses, Fog Alarms, Signal Stations, &c., of the District of Quebec, from photographs taken by me, while on my inspection trips ; giving explanations of the same to the best of my ability.

I count on your indulgence, in this my first appearance, and attempt as a lecturer.

All the Lighthouses, Fog Alarms, and Signal Stations in Canada are under the control of the Marine and Fisheries Department, at Ottawa.

There are Agencies of the Department in five of the Provinces, as follows : Victoria, for British Columbia ;Halifax, for Nova Scotia ; St. John, for New Brunswick ; Charlottetown, for Prince Edward Island, and last but not least, Quebec, for the province of Quebec. The *smployés* of the Quebec Agency pride themselves in having the Veteran Agent in the person of J. U. Gregory, Esquire, thirty-seven years in the service and who has during that period zealously looked after the trust under his charge.

The Province of Ontario is the only exception as regards an Agency, its Lighthouses being looked after directly from the Marine Department, at Ottawa.

Besides the Lighhouses, Fog Alarms and Alarm Stations, the Marine Department sees to the establishment and maintaining of other aids to navigation, such as Buoys and Beacons, etc., and among the views I propose to show you this evening, will be some of the Buoys and Beacons in question.

The Quebec Lighthouse Division commences at Montreal, taking in Lake Memphremagog, and the Richelieu River, and extends east as far as Belle Isle, a distance of about 1,000 miles ; also including the Saguenay River, Lake St. John, the Province of Quebec side of the Baie des Chaleurs, and in the Gulf, Anticosti Island, the Magdalen group with the famous Bird Rocks.

In the Quebec Division as above described,, there are 188 Lighthouses, Light Ships and Gas Buoys.

At twenty of the Lighthouse Stations below Quebec, there are powerful Steam Fog Horns and Whistles, also Gun Cotton Cartridges, which are fired by the Keepers during fog by means of an electric battery every fifteen minutes, or every five minutes when it is ascertained by those in charge of the Station, that a vessel is in the vicinity and shut in by fog, as a warning to assist it to know its position ; I may add that this latter duty of firing every five minutes, was ordered by the Department last season, to improve this part of the service,—and I am aware of instances already where it has been of invaluable service,—the firing of these bombs I will illustrate with views.

There is also a Fog Siren at Belle Isle, worked by water power ;its installation cost $40,000.

These Fog Alarms and Gun Cotton Cartridge Stations have been placed at the most dangerous localities in the River and Gulf of St. Lawrence, and Straits of Belle Isle, to warn the mariner whose vessel, is shut in by fog, and who is perhaps out of his course by current effects, or the derangement of his compass,or has perhaps over run his calculated distance, by a defective log, or other circumstances, and believes himself to be in his right course, and out of danger, until to his surprise he hears the blast of a horn or whistle, or the report of a Cotton Cartridge, he hastily consults his chart,, stops his vessel, and uses his sounding lead, when

perhaps he finds he has been running to destruction on a dangerous reef.—His position ascertained, he changes his course ; thus life and property are saved by a timely warning.

The distance at which these Fog Alarms are heard vary according to atmospheric influences ; I have heard them, on some occasions nearly twelve miles off, and at other times, much less.

These Fog Alarms are distinguishable from one another by the duration of the blast of the Horn or Whistle,or by the length of the silence between the blasts, as the time of these blasts, and silences differ at each Station.

There are 22 Signal Stations in the River and Gulf of St. Lawrence, 19 of which are at Lighthouses Stations, the three others are at the following stations : Quarantine, L'Islet and Grosse Isle of the Magdalen Islands group.

The persons in charge of these Stations are competent telegraph operators ; they are also qualified in the working of the international code of signals, and having signal flags and telegraph lines at their disposal at each station, they receive from and give messages to, passing vessels ; these Signals Agents report twice daily not only on the inward and outward-bound vessels, but also the state of the weather of each station ; these reports are sent to the agent M. Gregory ; a record of the same is made out morning and afternoon by the clerk in charge of this work, and copies of the reports in question are sent to the shipping firms and others, as well as to the press for publication ; so as you may see, all persons interested or anxious about inward or outward-bound vessels, are daily posted of these vessels' movements.

Besides the two daily reports sent from these stations, special despatches are sent to the Agent when anything important requires it ; of course, the agent looses no time in having the interested parties notified of the same.

That a boon to the marine service the establishment of this Signal ng System has proved, not only to those interested in the shipping, who are anxious for news of ships and cargoes, but also to those who have relatives and friends on board ; for instance, an inward-bound vessel may have among her passengers a kind father returning to an anxious family from an extended business tour ; perhaps, a child coming home from a pleasure trip in charge of friends, and anxiously waited for by a loving mother ; or a fiancée counting the hours when the ship is to arrive to meet him who is to share with her the destinies of life ; perhaps, a noble and brave soldier returning to his dear old home and family, after a long absence at the seat of war, striking for King and Country ; and there may also be among the passengers a disgruntled old bachelor who has got no interest, except in himself, and who may be thinking if he only had the ship all to himself how happy he would feel ! be it as it may, what a pleasure to all to be able to get news of the vessels movements, the hour she may be expected to arrive, &c. ?

Besides the twenty-two signal stations situated in the Quebec division, the four following signal-stations in the Nova Scotia division report daily to Quebec, viz, Meat Cove, St. Paul's Island, Low Point and Cap Race, Nfd.

The including of Belle Isle in the Signal Stations, by the completion last fall not only of the north shore telegraph line and cable to that Island, but also the installation on the Island of the famous Marconi wireless system of telegraphy to Chateau Bay on the Labrador main land, thus duplicating the main line connecting, in case the cable be broken by icebergs or other causes ; this will, as you see, add to the importance of this service, as inward-bound vessels can now be reported as soon as they enter the Straits ; and the outward vessels when going that route, can be reported from there, whereas previously, the limit was East Point, Anticosti.

There are as already stated 188 Lights in the Quebec division, situated as follows, viz. :

Lake Memphremagog	6
Richelieu River	8
St. Lawrence, between Quebec and Montreal	58
Saguenay River	13
Lake St. John	5
St. Lawrence, below Quebec	59
Baie des Chaleurs	6
Gulf of St. Lawrence	26
Straits of Belle Isle	7

There are seven Light-Ships in this district; three of these are stationed on Lake St. Peter, each showing a fixed white Light from a 7th order Dioptric Lantern ; the four others are stationed below Quebec, at the following places, viz. :

Lower Traverse, White Island and Red Island ; these three vessels have powerful steam fog Whistles, the fourth Light Ship is stationed at Gaspe to guide vessels entering that harbour ; on board this vessel a large Bell is rung during fog ; these four Light-Ships are provided with 7th order dioptric Lanterns which are hoisted to the mast-head, and show a splendid light ; either two white lights, or a red and a white light, is shown from these light-ships, to distinguish them from other lights ; this is done by hoisting one of the two lanterns higher than the other, and the colour, by using a red or a white Chimney as required.

The Light-Ships below Quebec are placed in position as soon as practicable in the spring, and left on their stations as long as safe for life and property in the fall; they winter in the Louise Basin, where they are overhauled and repainted every spring ; or at Davie's dock, Levis, when more than ordinary repairs to the hull are required.

The Buoy Service from Platon above Quebec, to Bic below Quebec, a distance of about 200 miles is attended to by our Agency, these Buoys are placed on their respective stations ; as soon as possible in the spring ; left there as long as practicable in the fall, and the more important ones, when removed in the fall are replaced by spar buoys which are left there to assist belated vessels, on then way to Europe.

The Gas Buoys are placed as soon as possible after the 11th May, and removed as soon as convenient after the 10th November.

These Buoys are stored on our premises, (the King's wharf), during the winter, and are repaired and painted as required in the early spring.

From Platon to Bic, there are 170 Buoys, consisting of gas Buoys, iron can Buoys, wooden can Buoys, and spar Buoys, and the Government are procuring a new and specially equipped steamer for the service, with powerful hoisting gear for the handling of the large buoys, and tanks for the carrying of the gas from Quebec, to replenish the gas Buoys ; this steamer is being built in England, and will be ready for commission next season, 1902.

The gas Buoys are another valuable addition in the way of aids to navigation,and are moored in places where it would be very hazardous with only the aid of an ordinary Buoy for a vessel to pass. These gas Buoys are equipped with a small dioptric Lantern, and Pinch's Patent Burner ; they are filled with gas, lighted before leaving Quebec for their Stations, and remain lighted during the season all the time ; of course debarring any accident, sometimes they are struck by a passing vessel, and extinguished by the shock ; perhaps the lantern broken, or the buoy dragged out of its positon ; as soon as the accident is reported the Agent sees that immediate steps are taken to put matters right ; this is one of the reasons for having a steamer for this special and important service.

The gas that is used in these gas Buoys is made from Crude Petroleum oil in the Government Gas House, on the King's Wharf.

Buoys are painted various colours, according to the position they occupy ; the colours used are : Red, Black, White, Green, and Yellow ; some being all one colour, and others, striped or checkerred.

Stone and Iron Sinkers are used in mooring the Buoys, and vary in weight according to the size of the Buoy ; Chains from 1 inch. to 1-2 inch. are used: if the Buoy is a large one, the larger size would be necessary ; but if only the diameter of the Lighthouse inspected, the smaller size would suffice ; the length of the chain varies according to the place where the Buoy is moored.

The channel between Quebec and Montreal which is attended to by the Department of Public Works, see to the buoying of same.

What an assistance to the navigator all these buoys are, if moored along narrow and intricate channels, over dangerous rocks, and treacherous spits, &c., guiding the mariner where the ligths alone would be insufficient !

Another assistance to the mariner in addition to the Lights, and Buoys, are the Beacons, many of them are used in connection with the channel between Quebec and Montreal, being valuable guides ; these are of various sizes and shapes, and of course painted differently ; there are quite a number below Quebec also.

One feature of the views I will show you this evening which I think will interest you will be the variety of construction, as also the comparative size of the different Lighthouses ; you will see from the largest stone Tower, a light, each having their respective importance, and serving with equal utility the purpose for which they were esta-

blised, viz to assist the mariner. You will notice also that there are round, square, hexagon, and octagon-shaped towers, built of stone, wood, or iron.

A full description of all the lights, fog alarms, &c., is published by the Department of Marine and Fisheries, at Ottawa, annually ; it is done up in book form, and is called *List of Lights*. Copies of this book can be had by mariners requiring them on application to the Department, at Ottawa. Besides the issuing of this book, the Department also publishes during the year " Notices to Marines " advising of any changes or additions to the aids to navigation ; thus keeping those interested thoroughly posted on the Lighthouse Service.

With but three exceptions, Roberval Range, Quebec Harbour Range, where the electric light is used, and Sorel Range where gas is used, in all the other lights in the Quebec division petroleum is employed and gives satisfactory results. Several patterns of lamps, burners, chimneys, and wicks are in use ; there are from one to seventeen lamps in a light-house lantern, according to sort and size of light which it owns.

We have some very powerful both dioptric, and catoptric lights ; our large dioptric ones are at Belle Isle, Forteau, West Point of Anticosti, Cape Rosier, and Bird Rocks ; they are all fixed lights ; the establishment of the lights at Belle Isle and Forteau cost $90,0000, and the lantern alone of each of these five lights cost $20,000. They were made by the firm of Sautter, Lemonier & Co., of Paris, France, and are of the best quality of white glass, cut in prisms ; when set up in their polished brass frame form a round lantern, six feet in diameter and ten feet high, I have had occasion to see Belle Isle 25 miles off, and others nearly twenty miles off while proceeding to them on inspection trips ; with the exception of Bird Rocks, which is a wooden tower, these light-houses are

built of stone, and vary in height from 60 ft. to 112 ft., the walls at the base being 6 ft. thick.

Our large Stone Catoptric Ligths, are at South West Point, Anticosti, Bicquette, Red Island, and Pillars, which are revolving white lights, and Heath Point, Anticosti, Point de Mont, and Green Island, which are fixed white lights, and are also very good lights, I have seen the South West Point Anticosti light a distance of twenty miles by the ships log while crossing from Gaspé. These Towers also vary in hight from 60 ft. to 100 ft.

We have many powerful Catoptric Lights built of wood ; amongst them I would mention the following : Cape Bauld, and Greenly Island in the Straits of Belle Isle, South Point of Anticosti, Etang du Nord, Cape Gaspé, Perroquets Island, Cape Magdalen, Martin River, Egg Islands, and Cape Chatte.

The lamp reflectors used in our Catoptric lights are made of copper, the face of which are silvered, and vary in size from 18 inch. diameter x 7 inch. deep to 22 inch in diameter x 18 inch. deep.

The visibility of all lights as you may know will vary, according to the weather.

That the mariner may distinguish one light from an other, we have fixed white, and fixed red, revolving white, and revolving red, revolving red and white, and occulting lights ; but besides this, these revolving lights differ in the time of the revolution, whether red or white or both, giving different time of flashes. Thus the navigator is able to recognize them by referring to his chart, or list of lights, if he is not certain, as all the light houses are not only described in the list of lights, but also on the charts.

All Light-Houses are painted white to make them as distinguishable as possible as day-marks, or guides, and some of

them as you will notice by the views, have red or white horizontal, or vertical distinguishing stripes.

I think it right to say something about the Inspection of the Lighthouses; I have to report all this to the same agent. As regards the inspection, I visit every light in the division once every season; on these trips, I note the manner in which the Keeper attends to his duties; note also what he has on hand; see as to what he requires; see to the correct delivery of the supplies sent for the proper carrying out of the Lighthouse duties; I have to report all this to the Agent; I also on these trips have to report to him all the requirements in the way of repairs, painting, etc., found necessary; of course all such reports have to be made in writing, giving all possible details, particularly in the matter of repairs, that the Department may be in position to know the best means to adopt, and give instructions accordingly.

The supplies delivered to the lights consist mostly of the following, viz.:

Coal oil, Chimneys, Wicks, Burners, Lamps, Coal, Lubricating oils, Paints, Paint oil, Lumber, etc., etc.

To a number of the small lights, the supplies are sent by rail or steamers plying to these places. The supplies for the remainder are brought to their respective destinations on board the Government Lighthouse steamer "Aberdeen", on my inspection trips, taking supplies at a time. This necessitates several trips during the season; the length of these trips, of course, depends upon the number of lights to be supplied; the quantity of supplies we have to land, and the kind of weather we have to encounter: consequently they vary from three to five weeks. At some of the Stations in the Gulf and Straits of Belle Isle, we have frequently to seek shelter in harbours, for several days before we can effect a landing; and at some of these localities, the landing-places are anything but pleasant, even with favourable weather: the station

that takes the palm for difficult landing is the renowned Bird Rocks, which I will endeavour to illustrate, when showing you the views of that Station, we rarely supply this place without several days delay, and we have been as much as nine days anchored at Bryon Island, about nine miles off, as the anchorage at the Rock is not good, and it affords no shelter, in a heavy breeze ; and even after this long delay, it would be with difficulty that we would effect a landing ; this would, of course, occur in the fall of the year.

Besides the Lighthouse supplies, we take down on board the S. S. " Aberdeen " the provisions for the Lighthouse keepers and assistants, at the isolated stations in the Gulf, and Straits of Belle Isle, where they cannot be procured locally ; these Keepers have agents in Quebec, who purchase their supplies for them, transact their business and see to the shipment of their goods on the " Aberdeen." The landing of all these supplies has to be made in the ships' boats, from the steamer at anchor, and at some places quite a distance off from shore ; the handling of these supplies, and the landing of the same, is difficult and laborious work ; the landing of them sometimes hazardous, but I must say that it is to the credit of the officers and crew of the steamer "Aberdeen," that the goods are landed so effectively, and sometimes during very trying and contrary weather.

Besides these ordinary goods we may now and then have a steam boiler, or iron water tank for the Lighthouse or Fog Alarm, and the work in connection which such boiler or tank, does not end with placing it ashore ; as I will also show you by views, but will consist of a great deal of labor on the part of the officers and crew of the vessel, in hauling this boiler or tank to the Lighthouse or Fog Alarm, sometimes nearly a mile from the landing place, either up a hill, or over a rocky,or swampy ground;this work alone may occupy the crew from half a day to two days, according to the distance or nature of the gronud to be covered.

A few of our more important and isolated stations in the Gulf and Straits of Belle-Isle, are visited by me with the supply steamer twice during the season ; the later trip being in the fall with the winter supplies for these stations.

A few more words, as regards the Lighthouse'keepers duties and the manner in which they attend to the same.

The Keepers are obliged to have their Lights in operation as soon as navigation is open in the vicinity where the Light is stationed, and the station kept in operation untill navigation is closed in that locality.

The Keeper has to have his Light lit by sun down and extinguished by sun rise ; he is obliged to be very careful, as to the cleanliness of the lamps, chimneys and burners, as also to the polishing of the reflectors and lantern glasses, so as to obtain the best results from the lighting apparatus under his charge ; all the requisites for attending to his work, in the way of soap, towels, cotton, chamois skins, &c. ; of course, matches must not be forgotten.

The Keeper cannot quit his station without leave from the Department, which is granted when applied for ; he must however during his absence be replaced by a competent person.

At the isolated stations below Quebec, the Keepers winter on the main land ; it being almost impossible for them to winter at the station. I may add, it is not necessary for them to do so at Bellechasse, Pillars, Traverse Pier, Pilgrims, Kamouraska, Brandy Pots, Red Island, Lark Islet. Perroquet Island and Plateau Rock.

At all Lighthouses, the Keepers are required to see to the proper working of the Light under their charge, but particularly at stations where revolving lights are and Fog Alarms, a strict watch has to be kept, to see that the light is revolving correctly, also to note any change in the weather, requiring the immediate starting of the Fog Horn, or Whistle, or the firing of the Bombs (Cotton Cartridges). This watch is

kept by the keeper and assistant alternately; the clock gear working the revolving lights requires to be wound up every four or five hours.

As to the manner in which the Lighthouse Keepers attend to their respective duties, I am both happy and proud to say that I have little trouble in that respect, as invariably they are good, intelligent, and trust-worthy men, fully realizing their important positions with life and property depending upon their Lights.

By the description I have been endeavoring to give you of the Lighthouse ond Buoyage system of the province of Quebec, you will admit that the Department of Marine and Fisheries, at Ottawa, has kept pace, as regards aid to navigation, with the development of the country; and are you not pleased to see that the route of our grand old St. Lawrence, has been and is at the present time so well lighted and buoyed. The Department is improving the system by building more Lighthouses, and establishing additional Fog Alarms to meet the increasing requirements of the shipping, thereby making the Lighthouse system of Canada second to none the world over.

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Marine & Fishery Dept.,
Quebec.

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