1853.

Victoria.

REPORT

FROM

THE SELECT COMMITTEE

OF THE

LEGISLATIVE COUNCIL

ON

LIGHTHOUSES,

TOGETHER WITH

MINUTES OF EVIDENCE,

AND

APPENDICES.

ORDERED BY THE COUNCIL TO BE PRINTED,

22nd DECEMBER, 1853.

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D.—No. 13, *a*.

EXTRACTED FROM THE MINUTES.

TUESDAY, 13TH SEPTEMBER, 1853.

4. LIGHTHOUSES.—The Auditor General moved, pursuant to *amended* Notice :—

(1.) That a Committee be appointed, to enquire whether any steps should be taken towards the improvement of the lighting of the Coast of this Colony, with power to take evidence.

(2.) That such Committee do consist of Mr. Cole, Mr. Rutledge, Mr. Henty, Mr. Strachan, Mr. Hodgson, The Surveyor General, Mr. Mark Nicholson, The Collector of Customs, Mr. Graham, and the Mover.

Question—put and passed.

TUESDAY, 13TH DECEMBER, 1853.

5. THE COLLECTOR OF CUSTOMS.—The Colonial Secretary moved, pursuant to notice, That the name of "THE AUDITOR GENERAL" be struck off from all Committees upon which he has been appointed a Member, and "THE COLLECTOR OF CUSTOMS" inserted in lieu thereof.

Question—put and passed.

LIST OF WITNESSES EXAMINED.

REPORT.

The Select Committee of the Legislative Council, appointed on the 13th day of September, 1853, to enquire whether any steps should be taken towards the improvement of the Lighting of the Coast of this Colony, with power to take evidence, have agreed to the following Report.

Your Committee, in entering upon the enquiry to which your Honorable House directed their attention, were unanimously impressed with the extreme importance to this Colony, the commerce of which has increased since the discovery of Gold to so unparalleled an extent, of taking prompt measures for obviating, as far as possible, the loss of life and property by shipwrecks on our coast, and rendering our ports easy of access. They are convinced that no considerations of economy should be allowed to prevent the most judicious arrangements for effecting these objects being carried into execution; and in taking the evidence, and making the suggestions which they now submit, they have felt confident that this principle will be admitted and acted upon by the Legislature.

The enquiry appeared to them to resolve itself into the following branches, information upon each of which your Committee have endeavoured to obtain:

First, what steps have been taken already to light the coast of the Colony.

Second, what additional lights are required; and

Third, under what arrangements, or upon what system the additional Lighthouses should be established.

Your Committee find that at the present time the following Lighthouses are in operation.

1. A Lighthouse built of freestone, and erected on Cape Otway, at an altitude of four hundred and twelve feet above the level of the sea, shewing a flash of white light every three quarters of a minute, visible in clear weather about twenty-three nautical miles.
2. A Lighthouse on Shortland's Bluff, within the Bay of Port Phillip, built of sandstone, shewing a fixed white light at an altitude of one hundred and sixty-six feet above the level of the sea. This light is visible in clear weather about fifteen nautical miles.

3. A leading light at Shortland's Bluff, recently finished. The tower is built of timber framing, and is sixty feet high: it shews a fixed white light one thousand feet south of the present Lighthouse on Shortland's Bluff, and is thirty feet lower than that light. The two lights in conjunction, mark the Channel at the Heads.
4. A Lighthouse on Gellibrand's Point, near Williamstown, built of blue stone, and shewing a fixed white light at an altitude of sixty feet above the level of the sea. This light is visible in clear weather about eight miles and three quarters.
5. Arrangements are being made for erecting a small Lighthouse on the Bird Rock, for which provision has been made on the Estimates for the current year. This light will mark the passage over the bar into Corio Bay.

With respect to the Lighthouses at present in existence, your Committee do not recommend any material alteration. Both at Shortland's Bluff and Gellibrand's Point considerable repairs to the buildings appear to have been required, but they presume that the appropriation on the Estimates for 1854 which has been adopted, will suffice for this purpose.

They now proceed to consider the additional lights, which, according to the evidence adduced by them, appear to be imperatively called for. These are

1. A Lighthouse, either of iron or stone, on Point Lonsdale ; the light to be at a sufficient altitude to be visible at a distance of about twenty-five nautical miles. The light to be dioptric, of the first order, and to emit a flash of white light every minute.
2. A Lighthouse on Cape Bridgewater, to be built of stone, of which there is abundance in the neighbourhood. The light to be elevated not less than three hundred feet, so as to be visible at least twenty nautical miles. The light to be dioptric, of the first order, and to exhibit a flash of white light every quarter of a minute.
3. A Lighthouse, either of stone or iron, according to situation, upon Wilson's Promontory, Cleft Island, or Rodondo. The light to be at such an altitude as to be visible for at least twenty-five nautical miles. The light to be dioptric, of the first order, and to exhibit a flash of white light every half minute. The exact site for this Lighthouse to be determined after a special survey.

With respect to the Lighthouse on Point Lonsdale, your Committee are aware that in recommending its erection, they are but renewing a proposal already approved by your Honorable House, though not to the present time carried out. They are at the same time sensible of the objections which have been urged by several of the witnesses against placing the light intended to guide mariners to the Port Phillip Heads at this point, and of the preference which is entertained by many for Cape Schanck, as the site of this building. But, after carefully weighing the arguments on both sides, they are of opinion that the reasons urged by the Harbor Master in favor of Point Lonsdale are conclusive ; and they do not recommend the erection of a Lighthouse on Cape Schanck, unless the establishment of any considerable settlement in Western Port should render it necessary for the approaches to that Harbor.

In recommending the erection of a light on Cape Bridgewater, your Committee have considered the great advantages which would result from it, not only to coasters between South Australia and the Colonies to the east of that settlement, but to oversea Vessels bound to Port Phillip or New South Wales through Bass's Straits, which now make the land at Cape Otway, but

which would prefer to make it at some point more to the westward, if a light were shewn there.

Your Committee are of opinion that for this purpose Cape Bridgewater affords greater facilities than either Cape Nelson or Cape Northumberland, both of which Headlands have been suggested.

The Lighthouse at or near Wilson's Promontory would be of great service to Vessels, and especially Steamers, trading between this Port and Sydney, by which the light on Kent's Group is little used. The conflicting evidence, as to the exact site which should be chosen for this building, induces your Committee to recommend to your Honorable House that a careful Survey of the Coast should be made, before either of the three points named is selected.

In addition to these three coastlights, your Committee are of opinion, that, at each of the outports, Harbor Lights should be erected; the expense both of constructing and maintaining which, need not be considerable.

The Catoptric principle being now almost universally superseded by the Dioptric, in the construction of lanterns for Lighthouses, your Committee recommend its adoption in each case. They would also suggest that, in lieu of the oil now used, Colza Oil should be procured; and they are of opinion that it will be found here, as in England, both more efficient and more economical.

With respect to the management of the Lighthouses of the Colony, your Committee, although they have given due attention to the subject, are unwilling to do more than express their opinion that if a Board, similar to the Trinity Board, be established, for the supervision of the Ports and Harbors of the Colony, it would be, so far as this department is concerned, a satisfactory arrangement. At the same time they have no reason to find fault with the manner in which, to the present time, the existing Lighthouses have been managed.

In conclusion, your Committee, with reference to the proposed arrangement with the Governments of New South Wales and Van Diemen's Land as to the expense of maintaining the Lights on Gabo Island and Kent's Group (upon which they were directed to report), see no reason for objecting to the course suggested by those Governments; but they are of opinion that a moiety of the expense of maintaining the Light on Wilson's Promontory, if their recommendation on this head be carried out, should be borne by New South Wales.

(Signed) HUGH C. E. CHILDERS,

Chairman.

MINUTES OF EVIDENCE.

WEDNESDAY, 28TH SEPTEMBER, 1853.

MEMBERS PRESENT:—The Auditor General, in the Chair; Mr. Henty, Mr. Cole, Mr. Rutledge, Mr. Strachan, Mr. Hodgson, Mr. Graham, and Mr. M. Nicholson.

Stephen George Henty, Esq., called in and examined.

S. G. Henty, Esq., 28th September, 1853.

1. *By the Chairman.*—Q. You are well acquainted with Portland I believe, and with the coast in that locality? A. Yes, I am; I have known it for the last seventeen years.

2. Q. You have the opportunity then of knowing to what extent the coast is lighted? A. I have.

3. Q. Are there any beacons or lights to the west of Cape Otway? A. There are none.

4. Q. No local lights? A. No.

5. Q. Do you think that any are required? A. Most decidedly I do.

6. Q. That being your opinion, where would you place them? A. I think that Cape Bridgewater, from its situation and boldness, would prove a very good site for a lighthouse. Cape Nelson would also be a good situation for a lighthouse, though not so good as Cape Bridgewater, as it would be liable to have the light shut out by high lands intervening.

7. Q. Then you think that Cape Bridgewater is the proper place? A. I do.

8. Q. Would you have the light upon Cape Bridgewater for the benefit of the town of Portland, or for general navigation? A. For general navigation, for vessels from foreign ports would make that light previously to making Cape Otway.

9. Q. Do you think that mariners could readily distinguish between a light on Cape Bridgewater and the one at present on Cape Otway? A. The light on Cape Otway is a revolving light, and means might readily be taken to distinguish the one to be erected on Cape Bridgewater from it.

10. Q. Then you think that a light on Cape Bridgewater would not mislead mariners, and that it would prove a general benefit? A. Yes, I do.

11. Q. Would not a local light be found of service at Portland? A. A small light to lead vessels into the anchorage ground would be of service.

12. Q. Is the amount of shipping great enough to justify incurring the expense of a light? A. The cost would be comparatively trifling, and the light would be an advantage.

13. Q. Where would you place the light? A. Either upon Observatory Point or Whaler's Bluff; the latter I think would be the safer position.

14. Q. Do you think that there would be any advantage in having a harbor light at Port Fairy? A. I think that a light would be as useful there as at Portland.

15. Q. Are there many dangers at Port Fairy to which vessels are exposed? A. No, not many.

16. Q. Do you think that a light at Warrnambool would be useful? A. Yes, as a harbor light it would be of use.

17. Q. Is the amount of trade at Warrnambool great enough to justify this expenditure? A. Yes, I believe it is; the expense would be but trifling.

18. Q. Travelling eastward, do you think that any coast lights are required to the east of Cape Otway? A. I do not.

19. *By Mr. Strachan.*—Q. Might not the effect of those three lights which you recommend, be to deceive mariners? A. The ports are sufficiently remote from each other, and the lights would be visible at so short a distance, that an error could scarcely arise.

20. *By Mr. Rutledge.*—Q. Coasters are, generally speaking, the only vessels requiring these lights, and masters could not be so much out in their reckoning as to mistake one port for another? A. I am of opinion that they could not.

21. Q. Large vessels do not stand so close in, so that they would not see these lights? A. They would not.

22. *By Mr. Cole.*—Q. What is your opinion of the lights at Port Phillip Heads? A. I am not competent to form an opinion respecting them.

Mr. Alexander Campbell called in and examined.

Mr. A. Campbell, 28th September, 1853.

23. *By the Chairman.*—Q. You are the Assistant Harbor Master of Melbourne, I believe? A. I am.

24. Q. Do you know Port Fairy and Portland, and the line of coast in that locality? A. I do; I have been trading there for about seventeen years.

25. Q. Then you know the coast thoroughly from its western border to its eastern limits? A. I do.

26. Q. Do you think that any additional light is needed farther to the west than Cape Otway? A. I think that a light would be found of service either upon Cape Northumberland, Bridgewater, or Nelson, but I give the preference to Cape Northumberland on account of a reef of rocks which runs out about two miles in its vicinity.

27. Q. But with respect to Capes Bridgewater and Nelson, which would offer the most eligible site for a lighthouse? A. Of the two I should certainly give the preference to Cape Bridgewater, because from the position of Cape Nelson the light would be shut out from view if a vessel got close in.

28. Q. Do you think that the light upon Cape Otway is of great service to mariners? A. Yes, it is a very good light, but it has the disadvantage so far as foreign ships are concerned in making land, that it is situated too far in the Straits.

29. Q. Do you think that there would be any advantage in having a harbor light at Portland? A. Perhaps there would be an advantage, but masters of vessels like to get into port by daylight if possible.

30. *By Mr. Nicholson.*—Q. If there was a light, do you think a stranger could go into Warrnambool by night? A. It would be very foolish to attempt it. I should not like to go into Port Fairy by night.

31. Q. But a light would be some guide? A. Yes, of course it would.

32. *By Mr. Rutledge.*—Q. If a light is put up at Portland, where would you recommend that it should be placed? Would not Whalers' Bluff be a good position? A. I should prefer Observatory Point. At Port Fairy the best position would be on the Sand Hills; at Warrnambool the light should be placed as far out as possible.

33. *By the Chairman.*—Q. Is it your opinion that any additional light is required on this side of Warrnambool? A. I do not think that any is requisite.

34. Q. What light is there at the Heads? A. There is only one at present, but a second one is about being exhibited to serve as a leading light.

35. Q. Is it your opinion that these two lights will be sufficient? A. The present light is too low, it is a miserable one; considering the number of ships entering Port Phillip Heads, the light shewn there should be a first-class light.

36. Q. But supposing the present light improved, do you not think that with the leading light, the Heads will be lighted sufficiently well? A. I should say that they would.

37. Q. Then you do not think that for vessels making the port from the west any other light is necessary? A. I do not, as I think that the leading light will prove a great advantage.

38. *By Mr. Hodgson.*—Q. Would any advantage be gained by placing a light upon Point Nepean? A. I think it would do harm.

39. *By the Chairman.*—Q. Do you happen to know what is the angle covered by the two lights at the Heads? A. No, I do not.

40. Q. When you want to make a certain course by bringing two lights together, do you know what the extreme visual angle should be? A. I do not know.

41. Q. Coming into the Bay there is a floating light at the north end of the channel, is that sufficient? A. I do not know, my duties do not call me down there.

42. Q. Do you know that it is proposed to erect a light on the Bird Rock off Geelong? A. I know little of that port.

43. Q. Do you consider that any further light is required at Williamstown? A. I do not think that a second one is required.

44. Q. Going eastward from the Heads, do you think that any advantage would result from having a light upon Cape Schanck? A. The advantage would be very considerable to vessels from Sydney and from Van Diemen's Land.

45. Q. Then you think that to vessels coming from the east, a light upon Cape Schanck would be of service? A. Most decidedly so.

46. Q. Supposing that a light were placed upon Wilson's Promontory, would it then be necessary to have a light upon Cape Schanck? A. For the harbor it would.

47. *By Mr. Rutledge.*—Q. It is your opinion, I presume, that a light upon Cape Schanck is of much more consequence than one upon the Promontory? A. Yes, Cape Schanck is the better situation, decidedly.

48. Q. The light would be principally useful to steamers? A. It would be of as much use to coasting vessels as to steamers.

49. *By the Chairman.*—Q. But a light would be of service on the Promontory; the

channel is best there, is it not? now, supposing a light were placed there, where would you recommend it to be situated? A. At the extreme point of Cleft Island, where it would be well seen from the eastward, Mr. A. Campbell, *continued*, 28th September, 1853.

50. Q. Do you know Alberton? A. No, I have never been there.

51. Q. What is your opinion as to a light upon Gabo Island? A. I think that the light proposed to be erected there will be of more advantage than if put upon Cape Howe.

52. Q. If it had been placed lower down, do you think that it would have been equally useful? A. Yes, I think so.

53. *By Mr. Graham.*—Q. You have stated that a light upon Cape Schanck would be serviceable to coasters from Van Diemen's Land and Sydney; do you not think it would be useful to vessels from England? A. Equally so.

54. *By Mr. Strachan.*—Q. What is your reason for stating that the present light at the Heads is too low? A. It cannot be seen for a sufficient distance.

55. *By the Chairman.*—Q. How much, in your opinion, ought it to be raised? A. As much again as now.

56. *By Mr. Cole.*—Q. After rounding Cape Otway, what lights do you think are necessary for guiding vessels into this harbor, and for the navigation of the coast? A. I think if the light were made higher at Shortland's Bluff, and a light placed upon Cape Schanck, that would be found quite sufficient.

57. Q. Then you think that a light upon Cape Schanck would be of more advantage than one upon Point Lonsdale? A. I do.

FRIDAY, 30TH SEPTEMBER, 1853.

MEMBERS PRESENT:—The Auditor General, in the Chair; Mr. Graham, Mr. Henty, Mr. Cole, and Mr. Nicholson.

Captain Charles Ferguson called in and examined.

58. *By the Chairman.*—Q. You are the Port and Harbor Master of Melbourne, I believe? A. I am. Captain C. Ferguson, 30th September, 1853.

59. Q. You have a considerable acquaintance with the coast of this Colony? A. Yes, I have made several voyages from England to this and the other Australian Ports, and have acquired, in this way, a fair knowledge of the coast.

60. Q. What are the lights at present employed, and what is your opinion respecting any addition being made to them? A. There is a revolving light at Cape Otway, a fixed light at Shortland's Bluff, another on Gellibrand's Point, a leading light house at the Heads, in course of erection, and a light ship at the north end of the west channel.

61. Q. Do you consider that any further light is required at the entrance to the bay? A. Yes, another light is required upon Point Lonsdale.

62. Q. Do you know that it has been proposed to place a light upon Cape Schanck? A. A light there would be of service to vessels approaching this port from the eastward, but it would not answer the purpose of a port light so well as one upon Point Lonsdale.

63. Q. What are your reasons for forming this opinion? A. Cape Schanck is sixteen or seventeen miles from the entrance to this port, and in thick or cloudy weather, times when lights are most needed, it could not be visible to vessels approaching the Heads from the westward; and, in my opinion, a light there would not have prevented the loss of any of those vessels recently wrecked at the entrance of this port.

64. Q. But if the master of a vessel got a sight of the light on Shortland's Bluff—of the leading light—and a bearing of a light on Cape Schanck, he would be very stupid if he could not carry his vessel into the bay safely? A. Yes, that might be done in clear weather, but a ship from the westward may be in danger before she could get those bearings. For instance, a vessel coming down along the land from Cape Otway in thick weather might get into the bight between Point Lonsdale and the Sandy Point, when the lights on Shortland's Bluff are shut in by Point Lonsdale. This was the cause of the ships *Kestrel* and *Tenasserim* running ashore some years back; and recently the *Earl of Charlemont* was wrecked at the Barwon Heads, which wreck, I believe, would not have occurred had there been a light on Point Lonsdale; and, to my own knowledge, many masters of vessels have had narrow escapes in the Barwon Bight. These accidents would, I think, be prevented by the erection of a lighthouse on Point Lonsdale, which could be so constructed as to shew mariners in the night time when they were past Point Nepean reef and might keep away for the anchorage.

65. Q. If the leading light had been erected would they have run any risk? A. The leading light is merely a harbor light, only serviceable when you have the entrance open.

Captain C. Ferguson, *continued*, 30th September, 1853.

66. Q. Would there be any advantage in elevating the present light on Shortland's Bluff? A. None that I am aware of; the present light is 109 feet above the level of the water, and I do not think you can elevate it high enough to be seen over the land at Point Lonsdale and Point Nepean; but were this done you would have to pull down the present tower, which, I believe, is not now considered very secure, and its efficiency, as a leading light, would be destroyed by raising it higher, as it is always advisable, where there is not much space between two leading lights, to have them of equal heights.

67. Q. Then you would have three lights at the entrance to the Bay? A. Yes, that is necessary, if you wish to ensure vessels making and entering this port safely by night.

68. Q. Where have the wrecks that have happened principally taken place? A. Generally near to the entrance of the port. Four of them at least, are, in my opinion, traceable to the absence of a light on Point Lonsdale—that is, a lighthouse would have warned them in time of the vicinity to danger: although in the cases of two of them, great carelessness was shewn by the masters and officers; I allude to the *Sacramento* and *Earl of Charlemont*.

69. Q. Supposing a light placed upon Point Lonsdale, would you recommend one upon Cape Schanck? A. I would, as I consider that a most excellent position for a coast light.

70. Q. Would any other lights be requisite between Cape Schanck and the Heads? A. No.

71. Q. Assuming that a light is placed upon Point Lonsdale, would not Nelson's Promontory be a good position for a light? A. A light thereabouts would be very useful.

72. Q. Where would you place it? A. If it were practicable I would place it on Cleft Island, on account of its being more to the southward, and right in the way of vessels going round Wilson's Promontory.

73. Q. But which do you think the most practicable position? A. Probably the Promontory; I never was on Cleft Island, and rather doubt the practicability of landing there.

74. Q. Would not a lighthouse on Seal Island be useful? A. It would to coasters bound to Alberton, and to steamers and others coming from the eastward with strong northerly winds, when they usually keep the land aboard.

75. Q. What is your opinion of a light on Rodondo? A. I do not think it would be practicable to land there, and moreover, Rodondo is far too high for a lighthouse on the top of it.

76. Q. Do you think that the light upon Kent's Group is of service to vessels coming to this port? A. I think that it is very useful to coasters coming from Van Diemen's Land, and occasionally vessels from Sydney sight it, and all the Port Albert traders pass within its range.

77. Q. We have been called upon to pay a portion of the expenses of that light, do you think it reasonable that we should pay it? A. I think that as this Colony participates in the advantage of having it, it ought to contribute to its maintenance.

78. Q. Do you know anything of the Long Beach? A. I know nothing more than that it is generally avoided by ship masters.

79. Q. Do you think that Gabo Island offers a better site for a lighthouse than Cape Howe? A. Yes.

80. Q. Do you know the coast to the west of this port? A. Yes, I have sailed along it frequently.

81. Q. Do you think that a light to the west of Cape Otway is required? A. I think that a light placed upon Cape Northumberland, would be of service to the coasters between here and Adelaide.

82. Q. But would the benefit of such lights be confined to the coasters? A. Mainly, the over sea traffic to this Colony would rarely be benefited by it.

83. Q. But is not the Cape Otway light sufficient for them? A. Cape Otway is a most valuable light; but it being situated at the entrance of the Straits, vessels in trying to make it, run a certain amount of risk with respect to King's Island. A ship has to run down so much longitude without seeing land, that a master feels anxious as he approaches the land to know his position; for this purpose a light placed upon Cape Bridgewater, or Nelson, would be of great service.

84. Q. But of the two, Cape Bridgewater or Cape Nelson, which would be the better? A. Cape Bridgewater would be preferable, though as far as Portland Bay is concerned, Cape Nelson would be the most preferable.

85. Q. Then you would prefer Cape Nelson for that reason perhaps? A. No, if a harbor light be erected at Portland, I should certainly prefer Cape Bridgewater.

86. Q. Do you consider local lights of much advantage? A. I consider that wherever you have a harbor, there you should have a lighthouse.

87. Q. Then you would recommend the placing of lights both at Belfast and Warrnambool? A. I would, more especially when it is considered that the traffic to all these

places is rapidly on the increase, and will soon I believe all be carried on by steamers, which can enter a port having a lighthouse at all times of the night. Captain C. Ferguson, *continued*, 30th September, 1853.

88. Q. Let me call your attention to Corio Bay; where in your opinion is the best situation for a light there? A. The Bird Rock.

89. Q. But supposing the bar were cut through? A. Then the lighthouse should be erected to seaward of the entrance to the cut, upon piles; but I think that a slight timber or iron light could easily be erected at the Bird Rock, and could be removed to the cut when needed there.

90. *By Mr. Cole.*—Q. If there were a light on Gabo Island, would vessels keep so far to the southward? A. No, they would not. If there was a light there, vessels on their passage to and from Sydney would often save a day, and in some cases many days, by being able in northerly gales to haul close round it in the night time.

91. Q. Do you think that a light on Cape Howe would be visible to them? A. Yes, but it would be of no service to vessels coming through the Straits.

92. *By the Chairman.*—Q. Supposing you place a light on Seal Island, you must have a light to the west of Wilson's Promontory also? A. Yes, in that case it would be necessary.

93. *By Mr Cole.*—Q. But a light on Wilson's Promontory would be of service to vessels coming from Europe? A. It would most undoubtedly.

94. *By the Chairman.*—Q. A good powerful light upon Rodondo or Wilson's Promontory would illuminate all around? A. It would; but a light on Rodondo would often be obscured by fogs, which is the case with Kent's Group in hazy weather.—(In concluding his evidence, the Witness observed with respect to elevating the present lighthouse at the Heads—If that were done, it would be certain to destroy its utility as a leading light, and drew the Committee's attention to the danger which would be entailed by altering its present position, as on all charts it was so placed that by keeping it on a certain line of bearing, vessels could enter the port in safety.)

THURSDAY, 6TH OCTOBER, 1853.

MEMBERS PRESENT:—The Auditor General, in the Chair; Mr. Cole, Mr. Rutledge, and Mr. Nicholson.

Captain Wing called in and examined.

95. *By the Chairman.*—Q. Captain Wing, you are the Assistant Harbor Master at Williamstown? A. I am. Captain Wing, 6th October, 1853.

96. Q. You are acquainted with the greater portion of the coast of this Colony, I believe? A. Yes, I am.

97. Q. Have you ever given special attention to the important subject of lighting the coast of the Colony? A. I have given considerable attention to the subject.

98. Q. What is your opinion with respect to the present lighting of Port Phillip? A. A powerful flash light is required on Point Lonsdale.

99. Q. At the present time there is a light at the Heads? A. Yes, there is a light, but it is hardly anything better than a harbor light only: whereas a more powerful light is required, that may be seen at a greater distance to seaward, whereby the light would be seen eight or ten miles to the south-east of Cape Schanck in clear weather.

100. Q. A leading light is in course of erection, I presume you are aware of that? A. I am.

101. Q. Will not that be sufficient? A. It will be very serviceable as a leading light to direct the masters of vessels through the Heads.

102. Q. But will it be sufficient as a beacon to show where the Heads are? A. No, I do not think it will.

103. Q. Supposing the erection of another light were contemplated, which place would you consider the best position for it? A. Point Lonsdale I think would be found the most suitable situation for a light to conduct vessels to the port; it should be a powerful light, so that it might be seen a considerable distance.

104. Q. You have heard I presume of there being an intention to place a light upon Cape Schanck; which position do you think the more useful of the two for a light, Cape Schanck or Point Lonsdale? A. I give a decided preference to Point Lonsdale, as then vessels could run for the port by night with confidence.

105. Q. By obtaining a true bearing off Cape Schanck, together with the assistance of the leading light, would not that be found sufficient? A. In clear weather perhaps it might, but a light both upon Cape Schanck and Point Lonsdale would be very useful as coast lights; a light upon Point Lonsdale at the same time would serve more especially to direct vessels to the mouth of the port.

Captain Wing, *continued*, 6th October, 1853.

106. Q. But if a light were placed upon Point Lonsdale, do I understand you to recommend a light upon Cape Schanck also? A. Though a light upon Cape Schanck would be useful, it would not be so much so, as one on Point Lonsdale, and its erection might be deferred for the present. I consider that if there had been a light on Point Lonsdale the wreck of the *Earl of Charlemont* would not have taken place.

107. Q. Now coming within the bay, there is a light at the head of the western channel; is that sufficient after passing Shortland's Bluff, or do you think that a second is required? A. No, I think not; as I think that vessels of an easy draught of water, from either way, can safely go through the channel when the night is not too dark, and judgment is used, with the assistance of a large beacon buoy on the Swan Spit.

108. Q. Have you heard that it is intended to place a light upon the Bird Rock, at Geelong? A. I have not heard it mentioned.

109. Q. Do you consider that a light in that position would be of service? A. I do not think so at present; but if the channel were deepened, it might prove of considerable utility.

110. Q. It might you think be useful, if the channel were improved? A. I do think so.

111. Q. Now going from the Heads towards the east, there is no light until you get to Kent's Group, is there? A. There is none.

112. Q. Vessels going to Sydney generally keep towards Wilson's Promontory, close in shore, do they not? A. Yes, that is the usual course.

113. Q. Would not then a light be useful on this side of the Long Beach? A. Very useful indeed.

114. Q. Where would you place it? A. On the Cleft Rock.

115. Q. Do you know the Cleft Rock sufficiently well to be able to inform the Committee whether there would be difficulty in landing the stores, &c., necessary for the maintenance of a light there? A. I do not think that there would be any difficulty experienced in the summer season, or when the weather is fine from the eastward.

116. Q. What is the character of the rock? A. It rises abruptly from the sea on the south-east side, with a shingle or boulder-stone beach. On the north side a landing place could be found in fine weather.

117. Q. Do you think it would be practicable to erect a lighthouse on the rock? A. I do, I think it perfectly practicable; and a light in that position would be visible to vessels sailing to the east and west, if they did not get into the bight of the Long Beach too much.

118. ***By Mr. Rutledge.***—Q. Have you sailed much from the east, say from Sydney to the westward? A. I have.

119. Q. After sighting the Promontory, do you think that a light upon Cleft Island, would be of as much service as one upon Wilson's Promontory? A. I think that it would, because it would lead clear of all danger in that quarter.

120. Q. Supposing that vessels were coming either from the west or east, would they not see a light upon the Promontory quite as well as upon Cleft Island? A. Perhaps they would, if it were kept well above the islands. Yet that would be a great evil when near the islands of Glennie's Group. Also the light would often be shut out of sight by the fogs which generally hang over high land.

121. *By the Chairman.*—Q. Upon the whole which do you prefer, a light upon Cleft Island or upon Wilson's Promontory? A. I would rather say Cleft Island; the subject may require further deliberation, but I am quite sure that a light is required in that locality, somewhere.

122. Q. Is it your opinion that Gabo Island is preferable to Cape Howe, as a site for a lighthouse? A. I think Gabo Island the better position of the two, for several reasons.

123. Q. Do you think that the Ram Head is properly laid down on the charts? A. No, it is not; it lies more to the southward than it is represented to do.

124. Q. Do you think that a light upon the Ram would be of service? A. No, it would not.

125. *By Mr. Cole.*—Q. Supposing a light were placed on Cleft Island, would it not also be advantageous to have one on Seal Island? A. Such a light would be very useful to vessels going to Port Albert, also for sighting Cleft Island light, when too much in the bight.

126. *By the Chairman.*—Q. Going westward, is it your opinion that another light would be useful in the neighbourhood of Portland Bay? A. A light further west than Cape Otway is desirable, so that vessels might close the land sooner.

127. Q. Would it be much advantage to the foreign traffic? A. To a certain extent it would; but it would be more advantageous to coasters, than to ships coming past Cape Lewin.

128. Q. Do vessels making Cape Otway run any risk from the proximity of King's Island? A. No.

129. Q. Is not Cape Otway generally considered as being in the entrance of the Straits? A. It is. Captain Wing, *continued*, 6th October, 1853.

130. Q. Would not a light upon Cape Bridgewater be desirable? A. It would.

131. Q. Would a light there be much out of the way? A. That entirely depends upon the wind and where the ship was bound.

132. Q. Upon the whole, which position to the west would you think most advisable for the erection of a lighthouse? A. I give the preference to Cape Bridgewater, over either Cape Nelson or Cape Northumberland.

133. Q. Is it your opinion that advantages would result from the general adoption of harbor lights—at Portland, for instance? A. Harbor lights are very necessary; at Portland, I would have one on the outer part of the land near the reef, which would be an excellent guide for the anchorage at night.

134. Q. And you think they would be generally useful? A. I do.

135. *By Mr. Nicholson.*—Q. You know the harbor of Warrnambool? A. I do, and consider it safe with proper moorings.

136. Q. Do you think that it would be rendered more safe by a light at night? A. I do.

137. Q. Do you consider that vessels could come into Warrnambool by night if there were a light? A. Yes, with perfect safety.

138. Q. Could such lights be managed with very little expense? A. Yes, the expense would be very trifling, compared with their usefulness.

139. Q. Would it require a person to attend to the light? A. It would.

Captain George Warcus called in and examined.

140. *By the Chairman.*—Q. You are well acquainted with the coast and ports to the westward of Port Phillip, are you not? A. I am. I have been trading there for the last eight years. Captain G. Warcus, 6th October, 1853.

141. Q. Did you ever pay much attention to the manner in which the coast is lighted? A. I have thought of the subject, and I consider that very great improvements might be effected.

142. Q. You think that additional lights are requisite? A. I do.

143. Q. Where would you place them? A. I would place a light on Observatory Point or on Whaler's Bluff; a light at Port Fairy is required, and I think that there should be a light either upon Point Lonsdale, or Point Nepean.

144. Q. Do you not think that the present light and the leading light at the Heads, would be sufficient? A. I do not.

145. Q. Why do you think so? A. Because vessels from Cape Otway never see the light at the Heads, until they are close in.

146. Q. What is your opinion with respect to a light on Cape Schanck, and one on Point Lonsdale? A. I think that they are both required.

147. Q. Do you think that any coast light is required west of Cape Otway? A. I do, and I think Cape Bridgewater the most suitable situation; I have known instances in thick weather, when vessels have never seen the Otway light.

148. *By Mr. Cole.*—Q. Would it be generally advantageous to have harbor lights? A. It would.

149. Q. With respect to a coast light to the west of Cape Otway, you think that Cape Bridgewater is the best situation for one? A. I do.

150. Q. Why do you give it the preference? A. Because it is further to the west and higher than Cape Nelson.

151. Q. Have you ever thought of Cape Northumberland? A. I have, but I think that Cape Bridgewater is preferable.

152. *By the Chairman.*—Q. Do you know Wilson's Promontory? A. I have not seen it lately.

153. Q. Did you ever consider that a lighthouse was necessary there? A. I cannot say; I think that the lights at the Heads ought to be attended to before anything else.

FRIDAY, 14TH OCTOBER, 1853.

MEMBERS PRESENT:—Mr. Cole, in the Chair; Mr. Graham, Mr. Henty, Mr. Hodgson, and Mr. M. Nicholson.

J. Balmain, Esq., called in and examined.

154. *By the Chairman.*—Q. You are the Acting Colonial Architect? A. I am. J. Balmain, Esq., 14th October, 1853.

155. Q. You have superintended the fixing of the lights shewn on the coast? A. I have had to do with the Cape Otway light, the leading light at the Heads, and the one at Williamstown.

J. Balmain, Esq., *continued*, 14th October, 1853.

156. Q. Of what material is the Cape Otway lighthouse built? A. Of freestone, procured within three or four miles of the site of the lighthouse.

157. Q. It is proposed to build a lightouse on Point Lonsdale, what material do you think would be best? A. Stone in all probability, if it could be procured conveniently.

158. Q. It is also proposed to erect a lighthouse at Cape Bridgewater; you have been to Portland Bay, have you not? A. I have.

159. Q. Is there plenty of stone there? A. Yes.

160. *By Mr. Hodgson.*—Q. Of what kind? A. It is sandstone near the Cape, but bluestone can be obtained not very far off.

161. *By Mr. Henty.*—Q. Cape Bridgewater is quite accessible from the mainland? A. Yes, quite so.

162. *By the Chairman.*—Q. Where was the stone procured for the Shortland's Bluff lighthouse? A. On the spot; it is not of very good quality. I have no doubt that stone of better quality, could be procured in the locality of Point Lonsdale, for the erection of the new light there.

163. Q. Would screw piles be serviceable for the foundation of the Point Lonsdale lighthouse, which is intended to be erected on a sandbank? A. Yes, they might be found so, but I do not think they will be necessary, a wooden platform could be laid down on the sand for that purpose; but probably a foundation of rock will be obtained by excavating.

164. *By Mr. Hodgson.*—Q. In erecting Cape Otway lighthouse, you had no difficulty in getting plenty of good stone, had you? A. None at all; it was plentiful, and very good.

165. *By Mr. Graham.*—Q. Which could be quickest built, iron or stone lighthouses? A. Lighthouses of stone, because you get the towers erected ready to put the lanterns on as soon as they come out; whereas in the case of iron lighthouses, you would have to wait until they could be got from England.

166. Q. What do you think would be the cost of a stone lighthouse on Point Lonsdale? A. Speaking roughly, I should think about £4000.

167. Q. Do you think that iron answers well for lighthouses? A. Yes, I should think so, when not exposed to the actual wash of the sea.

168. *By the Chairman.*—Q. What kind of lights are at present shown on this coast? A. The light on Cape Otway is a revolving catoptric light, completely revolving every one and a-half minute, and showing a flash at every half-a-minute; it is illuminated with twenty-one Argand burners. The light at the Heads is a fixed light, of a similar description, illuminated by twenty-four burners.

169. Q. What was the expense of the lighthouse on Cape Otway? A. About £3500, but it was built when labor was comparatively cheap; it would cost ten times as much now to erect it; you would have great difficulty in getting persons to go to such a remote district.

170. Q. But your last remark does not apply to Cape Bridgewater, and Point Lonsdale? A. No.

171. Q. Probably, Mr. Balmain, if you were to embody the information you possess on this subject in a Report, to be laid before this Committee as early as convenient, it would be found of considerable service? A. I will comply with your request, and submit a Report within a fortnight from this date.

THURSDAY, 20TH OCTOBER, 1853.

MEMBERS PRESENT:—Mr. Cole, in the Chair; Mr. Hodgson, Mr. Graham, Mr. M. Nicholson.

The Colonial Engineer called in and examined.

The Colonial Engineer, 20th October, 1853.

172. *By the Chairman.*—Q. Will you inform the Committee what are the relative merits of iron and stone as materials for the construction of lighthouses? A. The adaptability of these materials depends entirely upon the situation in which it is intended to place the lighthouse, and without being acquainted with the proposed site I could not speak positively. In exposed situations, subject to the full force of the sea, stone is to be preferred to iron, but with respect to other situations, beyond the reach of the sea, iron is a cheaper and better material than stone. Immersed in the sea, I should be inclined to fear that the constant tremor which would be produced in an iron lighthouse in bad weather would make it get weaker and weaker by degrees.

173. Q. It is recommended that lighthouses be erected on Cape Bridgewater, Point Lonsdale and Wilson's Promontory, which would be the most suitable material to use for the erection of lighthouses in those localities? A. If placed on rock or land beyond the reach of the water, iron is to be preferred, as the lighthouses could be made in England and sent out, and put together here, the necessary foundations having been put in previous to their arrival. Labor is so costly here that by getting the lighthouses made in England where labor is cheap, a very great reduction of cost would be secured.

174. Q. What way would you recommend for getting those lights? A. The specification should be written out here and sent to the Agent General for the Colony, who would get a competent engineer to draw out a contract in accordance with the terms of the specification and then to employ some eminent firm to construct them, such a firm for instance as Fox and Henderson.

175. Q. What kind of arrangement do you consider best for distributing the light? A. I consider that the dioptric system is greatly to be preferred to the catoptric principle; there is much less loss of light caused by refraction than by reflection, whilst lenses are much more easily kept clean than reflectors.

176. Q. The place at Point Lonsdale where the lighthouse is proposed to be erected is a sand hill, how would you get a good foundation there? A. It would be necessary for borings to be taken to ascertain the depth of the sand and the nature of the soil below it, before an opinion could be formed.

177. Q. Screw piles are sometimes used are they not, as foundations for lighthouses? A. They are.

178. *By Mr. Hodgson.*—Q. The price of iron lighthouses would be less than stone you think, and in such a situation as that at Point Lonsdale iron might be used? A. Yes, I think so.

179. Q. Would the same foundation do for either stone or iron? A. No, iron being lighter than stone, that is, lighthouses of iron being lighter than those of stone, so solid a foundation would not be required.

180. *By the Chairman.*—Q. With regard to harbor lights, would it be necessary to have iron standards for them to elevate them so thay might be seen eight miles off? A. It depends on situation, if required to be high, and you would have them of iron, it would be necessary to get them from England, but I think that iron would not generally be required for harbor lights as wooden standards would answer every purpose.

181. *By Mr. Nicholson.*—Q. Supposing that Point Lonsdale was as high as Shortland's Bluff, what would have to be the height of the column of the lighthouse that it could be seen for a distance of twenty-five miles? A. I think that it is not so high as Shortland's Bluff, and without knowing the actual height I cannot say what elevation would have to be given to the tower.

TUESDAY, 1ST NOVEMBER, 1853.

MEMBERS PRESENT:—The Auditor General, in the Chair; Mr. Nicholson, Mr. Cole, and Mr. Henty.

Mr. J. E. Briggs called in and examined.

Mr. J. E. Briggs, 1st November, 1853.

182. *By the Chairman.*—Q. Mr. Briggs, the Committee have requested you to come before them in consequence of a letter sent by you to the Colonial Secretary, in which you stated that your firm had supplied the Trinity Board with oil for the lighthouses under their control, have you got any papers from that Board in corroboration of your statement? A. No, I have not any by me, but I have some private letters from my father containing references to the fact of our firm having supplied our patent oil to the Trinity Board, and

Mr. J. E. Briggs, *continued*, 1st November, 1853.

that it had been severely tested by order of the Board, and that from the experiments that had been instituted it was concluded that the light from lamps supplied with our oil could be seen at least a mile farther than the light from lamps fed with the best sperm oil.

183. Q. What is the nature of your oil; is it animal or vegetable? A. It is a vegetable oil, and is expressed from seed which we obtain from Calcutta. It is not so glutinous as sperm oil, and not so liable to congeal in cold weather, and gives a whiter light in combustion.

184. Q. Is yours an economical oil, what is its relative price as compared with sperm? A. It is only about half the price of sperm oil, but the lamps consume it faster. The Trinity Board, at home, do not make the expense of anything they employ in their lighthouses the only consideration, but what they principally consider is, what is the best thing they can obtain to answer the purpose for which they require it.

185. Q. Have you any papers from the Trinity Board showing the results of the trials of your oil against other oils employed for the illumination of lighthouses? A. None, that I am aware of just now.

186. *By Mr. Cole.*—Q. Would the same oil answer for any lighthouse, and burn in any kind of lamp? A. No, not perfectly; the Trinity Board had their lamps altered to burn our oil; the oil would burn in any lamp, but not with the same degree of efficiency as it would in our lamps, which are made on purpose for it.

187. Q. Then the adoption of your oil does not involve any difference in the form of the lenses or the reflectors, but merely in the burner of the lamp? A. That is all.

189. Q. Would any kind of oil burn in your lamps, in the event of there being a short supply of your oil at any time? A. Yes, any kind of lamp oil will burn in our lamps. The light on Cape Willoughby is supplied with our oil.

189. *By the Chairman.*—Q. Is that light spoken well of by nautical men? A. I have made many inquiries of persons likely to know how far that is a useful and a good light, and they have all spoken well of it. The machinery of that light was got from parties whom I directed the authorities to.

190. Q. Is that the light that gives such a peculiar light vertically towards the zenith? A. Yes, a drawing of it appeared some time ago in the *Illustrated News*.

191. Q. That is owing to the form of the lenses? A. It is.

192. *By Mr. Henty.*—Q. Any lighthouse could be made to send the light upwards if desirable to do so? A. Yes, by suitable arrangements in the interior of the lantern.

APPENDIX A.

Portland, 26th September, 1853.

SIR,

At your request I beg leave to offer a few remarks relative to a light on this part of the coast, and take pleasure in stating my opinion, which I believe to be in concurrence with the greater part of the well-informed commanders of ships trading to these Colonies :—that a great benefit would be derived by the shipping in general, from the erection of a light on the coast about Cape Nelson or Cape Bridgewater. From my long experience trading on this part of the coast, and having had so often an opportunity of making that part of it in all kinds of weather, by night and by day, I have invariably noted Cape Nelson as being the most conspicuous land, and the most elevated, and also the most southern promontory. A light would therefore, if placed on that Cape, be visible at a greater distance than it would be, if erected at Cape Bridgewater; and it would also be placed on a central part of that cluster of high land, as it appears when seen from a distance from the eastward and from the south-westward, it would also serve as a grand point to make, for ships coming from Europe, and indeed from all parts to the westward; it would also be seen in like manner coming from the eastward. Its erection would entirely obviate the great uncertainty that exists with commanders of ships making the light at Cape Otway, in stormy weather, from its proximity to the western coast of King's Island; and if a light were erected on Cape Nelson, it would be hailed by seafaring men as a great boon conferred on the shipping at large.

I have the honor to be
Sir,
Your obedient Servant,
JAMES FAWTHORP,
Harbor Master.

J. Blair Esq.,
Police Magistrate, &c.

APPENDIX B.

Colonial Secretary's Office,
Melbourne, 6th October, 1853.

G.B. 4064. 53 | 11,317.

SIR,

I have the honor to transmit herewith, for your information, the copy of a letter of Mr. J. E. Briggs, recommending a substitute for sperm oil for use in Lighthouses, &c., and offering to explain personally his views more fully on the subject.

I have the honor to be,
Sir,
Your most obedient servant,
(By order) L. GILLES,
Assistant Colonial Secretary.

To the Chairman of the Committee of the Legislative Council
on Lighthouses, &c.

[COPY.]

40, Russell-street, Melbourne,
1st October, 1853.

SIR,

I have the honor to state, that I am desired by His Excellency the Lieutenant Governor to communicate with you, relative to the Lighthouses for the Coast, and the Lightships now under consideration.

Being connected with the firm of H. R. Briggs and Co., of London, who are the Patentees and manufacturers of the article which is now in use on the whole coast of England, Scotland, and Ireland, and to consume which, in preference to sperm oil, the Trinity Board had their lamps altered, not only because it could be supplied at nearly half the value of sperm, but the light is visible at sea at least one mile farther; it being also patronized by almost, if not all, the Railway Companies in England, not only for its burning qualifications, but for its superiority over other oils for machinery and such like purposes, induces me to take this opportunity of bringing it before your notice.

I may remark, that Sturt's Light on Cape Willoughby was sent from England under my instructions. With regard to the machinery, I have with me estimates of the different Light-houses, according to their size and capabilities, which is only obtainable from one firm in London.

Should you deem it proper to take this into consideration, I shall be glad personally to explain my views more fully upon this important subject.

And have the honor to remain,

Your obedient servant,

(Signed) J. E. BRIGGS.

To J. L. Foster, Esq.,
Colonial Secretary.

APPENDIX C.

(1.)

Steamer *Tasmania*, Hobson's Bay,
13th October, 1853.

DEAR SIR,

In reference to your letter of the 12th instant, requesting my opinion as to the best method of lighting the coast of this Colony, I beg to suggest the following:—That a fixed light would be desirable on Cape Nelson, being much required by all vessels making for the Straits from the westward. The light on Cape Otway I consider quite sufficient to mark the immediate entrance of the Straits. A fixed light of the first class is very much required on Cape Schanck, to be seen in clear weather twenty-five miles. I would prefer it on that Cape to any other place near the entrance of this port, as all vessels from the eastward bound here make it their first land fall; with a light there, and the present light inside the Heads, such ships could hardly make any mistake in running for the entrance of this port during the night, ships from the westward being always able to see the present light before getting into danger, and the cross bearings of the light on Cape Schanck would at all times give them their distance from the Heads, which they could not find without it. I have heard a rumour of a light being placed on Point Lonsdale, which being low, and so near Shortland's Bluff, would probably cause confusion; and if the present light was raised, and replaced with a first class one, it would be seen further than one on Point Lonsdale, particularly with ships from the westward forced to take the Heads in heavy S.S.W. gales, which are usually accompanied by heavy squalls, and rain or hail. It would also be desirable to have a first class fixed light on the S.E. point of Wilson's Promontory, a road to which I think might be made from a small cove on the S.E. side of Waterloo Bay, where stores might be landed in almost any weather. Such a light would be invaluable to all vessels trading between this port and Sydney, or Port Albert. I would also recommend that a second class double fixed light, which would be visible ten miles, should be placed on Clonmel Island, at the entrance into Port Albert, which would not only be a great benefit to the vessels trading there, but to all ships coming from Sydney, or other places to the eastward, as from the great prevalence of westerly winds, they would wish to keep as close to that part of the coast as possible, and which they are at present afraid to do, in consequence of there not being a light near the shoals forming Port Albert Bar, and which extend between two and three miles off the land, several instances of loss have occurred there through the want of such a light. Lately, the schooner *Mary and Ellen*, bound from Sydney to this port, got on those shoals, and lost all her cargo, which was thrown overboard, and also caused the loss of the Pilot's boat, with her crew of five men; the *Clonmel* steamer was also lost there from the same cause, and the coast being very low, with strong tides, it is most dangerous of approach during the night, without the assistance of a light. An open erection of wood, between thirty and forty feet in height, would be sufficient to place the lanterns on, as there is no foundation for a building of stone or brick, nor is there any stone to be had nearer than the Promontory. I do not think that any light will be required near the entrance of Corner Inlet for many years, as while the present entrance to Port Albert remains open, I do not think there will be any considerable trade to Welshpool or its vicinity, as the road to that place is bad, and the country about it is not suitable for agricultural purposes. I believe good timber, and perhaps having a safer entrance than that into Port Albert, are its only recommendations, whereas the present port is the immediate outlet to a fine agricultural country, and a much better place for shipping stock, and other produce, than can ever be made at Welshpool, besides being one day's journey less for stock to travel to. A first class revolving light is also very necessary on Gabo Island, off Cape Howe.

Should the suggestions which I have given you be approved of and adopted, I should consider the coasts of Victoria to be quite sufficiently lighted for the guidance of any ship's master of ordinary ability in his profession.

Hoping the propositions I have given you may be found useful on so important a subject,

I have the honor to be,

Sir,

Your most obedient servant,

GODFREY V. BENTLEY.

To Captain Cole.

(2.)

Clarence Steamer,
20th October, 1853.

SIR,

In answer to your letter respecting lights on the coast, I beg to suggest that a light on Cape Schanck would be preferred to any other point, for vessels making Port Phillip Heads. Ships in rounding Cape Otway by keeping a respectful distance from the (Otway) shore, can see the present light at Shortland's Bluff, eighteen miles distant, the Schanck light would then be a cross-bearing. If the Shortland's Bluff lighthouse were raised higher, so as to be seen over the land, it would answer every purpose with the present low light now erecting. Too many lights are very apt to confuse the stranger, on making the port. Vessels from New South Wales, New Zealand, or Van Diemen's Land, always make for the Schanck, and it would be of great service to our Colonial trade in general. It would also be a harbor light for Western Port, which may soon become a large coal port.

I have the honor to be
Sir,
Your most obedient Servant,
JNO. SAUNDERS.

George W. Cole, Esq., M.L.C.
&c., &c., &c.

APPENDIX D.

D. B. 53. | 11, 969.

Colonial Secretary's Office,
Melbourne, 21st October, 1853.

SIR,

I have the honor to transmit herewith for your information, copies of two letters from the Honorable the Colonial Secretary, New South Wales, relating to the Lighthouse on Gabo Island; together with a copy of the instructions issued for the guidance of the Superintendent of such lighthouse, and his Assistants.

I have the honor to be,
Sir,
Your most obedient Servant,
(By Order) LEWIS GILLES,
Assistant Colonial Secretary.

The Chairman of the Committee of the Legislative Council,
on Lighthouses.

[COPY.]

NEW SOUTH WALES.

Colonial Secretary's Office,
Sydney, 25th August, 1853.

SIR,

With reference to my letter of the 15th ultimo, respecting the erection of a wooden lighthouse on Gabo Island; I do myself the honor to state for the information of His Excellency Lieutenant Governor La Trobe, that the following Estimate of the expense of maintaining the light has been approved by the Governor General,—

	£	s.	d.	
Light Keeper	130	0	0	per Annum.
Two Assistants, at 3s. 6d., per day each ...	127	15	0	,,
Oil for light	296	8	0	,,
Fuel for four fires	63	0	0	,,
Contingencies	50	0	0	,,
Hire of vessel for conveyance of stores... ...	200	0	0	,,
TOTAL	£867	3	0	

The Lighthouse Keeper in addition to the above salary, will receive a temporary increase at the rate of £100 per annum, and the Assistant Keepers 1s. 3d. per day, each, on their fixed pay.

2. The Lighthouse Keeper and Assistants have already been appointed, and are employed in fixing the framework, lantern, &c.; and I have the honor to add, that the Colonial Architect having reported that the lighthouse will be ready to be despatched in the beginning of next month, tenders have been called for, for a vessel to convey to the Island, all that may be requisite.

I have the honor to be,
Sir,
Your most obedient Servant,
(Signed) E. DEAS THOMSON.

The Honorable
The Colonial Secretary of Victoria,
Melbourne.

[COPY.]

NEW SOUTH WALES.

Colonial Secretary's Office,
Sydney, 7th October, 1853.

SIR,

With reference to my letter of the 25th August last, No. 53. | 58, I do myself the honor to inform you that the framework of the lighthouse for Gabo Island, with the lantern, &c., has been sent to the Island under the direction of a person who has contracted to erect the building.

2. I have the honor at the same time, to transmit for the information of His Excellency Lieutenant Governor La Trobe, the copy of the instructions which have been issued for the guidance of the Superintendent of the lighthouse, and his Assistants.

I have the honor to be,
Sir,
Your most obedient Servant,
(Signed) E. DEAS THOMSON.

The Honorable
The Colonial Secretary of Victoria,
Melbourne.

[COPY.]

Inclosure in letter of Colonial Secretary of New South Wales, to the Colonial Secretary of Victoria, dated 7th October, 1853.

INSTRUCTIONS FOR THE SUPERINTENDENT OF THE LIGHTHOUSE AT GABO ISLAND.

No. 1.—The lamps are always to be lit at sunset and extinguished at sunrise, throughout the year. During the winter months they are to be snuffed at eight and eleven P.M., and two A.M., and half-past four; and in the summer at nine P.M., twelve at night, and three A.M.

„ 2.—The Light Superintendent is to see the watches set, and is always to superintend the snuffing, and change of watch, and to see that the lanterns are cleaned daily, and everything about the lighthouse. In winter the wicks must be renewed every second day, and in the summer months every third day, at furthest.

„ 3.—The men are to be divided into watches corresponding with those used at sea, thus:—from six until eight P.M.; from eight till twelve; from twelve till four A.M.; and from thence until daylight.

„ 4.—Each man will take charge of all the cloths employed in cleaning the lanterns, daily, and will transfer them to the person succeeding him.

„ 5.—The Superintendent is to keep a journal of the proceedings of the light, and an accurate account of the daily expenditure of stores.

„ 6.—Whenever a dense fog should occur, he will cause a gong to be sounded every minute, whether by day or night.

„ 7.—He will send a Monthly Report to the Head of his Department of every circumstance connected with his charge, which he may consider of importance and proper to acquaint him with, whenever an opportunity occurs.

APPENDIX E.

Report on Construction of Lighthouses at present in existence and proposed in Victoria.

Gentlemen,

In accordance with your request to report on the subject of the proposed new Lighthouses at Point Lonsdale and Cape Bridgewater, I have the honor to forward the following statement in which I have described also the present lighthouses, feeling sure that the information would be useful to you, and knowing that no one but myself was in possession of it.

First Lighthouse at Cape Otway.

This lighthouse was completed in 1848; the tower built of cut masonry of most excellent freestone, obtained from a quarry on the coast line about four miles from the lighthouse. A foundation of solid rock was obtained by excavating about fourteen feet.

The tower is forty-five feet high, and the ground on which it stands 360 feet above the level of the sea; the centre of the light 412 feet above the level of the sea.

The lantern, lamps, and apparatus were imported from England.

The light is catoptric and revolving, having twenty-one lamps ranged on three faces of seven lamps to each; the lamps revolve once in two and a quarter minutes, so that a flash appears at every three-quarters of a minute. This light is still in excellent order, and, with some repairs to the burners of the lamps, will, I have no doubt, remain so for some years.

There are buildings erected about 500 yards from the lighthouse as quarters for the keepers. They are erected of stone, and contain—

Sitting-room, Bed-room, and Kitchen, } for Principal Keeper;
Two rooms for Assistant Keepers;
Store for provisions, oil, &c.

The situation of this lighthouse is very difficult of access, the route to it, after travelling forty-five miles from Geelong, lying eighty-two miles through dense forests, through which there is nothing but a slight bridle track, and over which no dray or wheel conveyance has ever passed.

The oil, provisions, &c., are sent to the lighthouse once a year, by vessel, which lands them (and this can only be done in calm weather, and with the wind off the shore) at the mouth of the Parker River, about five miles from the Cape; they are then conveyed by the bullock team (belonging to the Government) to the lighthouse.

This light, I believe, answers the purpose well, and I do not think that it would be advisable to make any alteration.

Lighthouse, Shortland's Bluff.

This is a sandstone building erected some years since. The stone is very weak and perishable, and on removing the old lantern and erecting the present one in 1851, it was considered necessary to erect a timber frame inside the tower to carry the new lantern.

The tower is 40 feet high, and the ground on which it stands, is 120 feet above the level of the sea; the centre of the light is therefore 166 feet above the level of the sea.

The lantern and lamps &c., were imported from England.

The light is a fixed catoptric of 24 burners, in three rings.

The light is in excellent order and I believe, answers the purpose well.

The quarters are erected of stone in connection with the tower, and consist of three rooms and a store.

Leading Light or Second Light, Shortlands Bluff.

This is now in course of erection the tower being just completed.

It is constructed of timber framing 60 feet high, about 1000 feet south of the present light on ground about 30 feet lower in level than that of the other lighthouse.

The lantern is now being fixed and has been made in Melbourne, it has five Argand lamps, with electro-plated parabolic reflectors.

Lighthouse, Gellibrand's Point.

This is a square tower of cut blue stone, 60 feet high, with the old lantern from Shortland's Bluff, consisting of six Argand lamps with small reflectors. This light has for some time been very imperfect, but I have lately had the reflectors electro-plated, and the light is so improved that I believe it is now considered ample for the purpose.

Proposed Lighthouse, Point Lonsdale.

The best light for this station I consider, would be a first class dioptric fixed light.

I have no doubt that there is stone of quality and in quantity suitable for the purpose, to be obtained within three and a half miles of the Point, and would recommend that a stone tower and keeper's quarters should be erected, and an order sent home for the lantern and lamps so that they would arrive soon after the tower was ready to receive them.

I estimate the total cost of tower, lantern, &c., and quarters at £7,500.

LIGHTHOUSE, CAPE BRIDGEWATER.

(Portland District.)

A similar light to that proposed for the last named station I consider would best suit for this locality.

Suitable stone could also be procured near the Cape, and I should recommend similar steps to be taken to carry out the work, which could be done at about the same cost as that named for Point Lonsdale.

JAMES BALMAIN,
Chief Architect.

8th November, 1853.

APPENDIX F.

REPORT UPON THE IRISH AND UNITED STATES LIGHTHOUSE SYSTEM.

Portland, November 18th, 1853.

SIR,

When I offered to communicate my views on the subject of Lighthouses to your Honorable Committee, my idea was, that if my proposal was accepted, I would be directed to proceed to Melbourne for the purpose, as it is much easier to explain matters on the spot, by having an opportunity to answer questions in conection with the subject, than to write a report of such a description as to meet the required end.

2. As I stated in my letter to the Honorable the Colonial Secretary, my experience in Lighthouses has been in Ireland; and my offer was, to give any information I possessed to aid the Committee in introducing such a measure, as will be as beneficial in its results to this Colony, as the Lighthouse system of Ireland is to that country.

3. If the Committee have before them the Irish Lighthouse Act, or the Parliamentary Papers explaining that system, I request you will cast this letter aside; but if, as I am led to suppose, by my offer being accepted, such is not the case, then I trust that this report may prove some assistance to them.

4. While a pupil to Mr. Halpin, the Engineer and Inspector of Lighthouses in Ireland, a part of my duty was to receive and examine the Lighthouse journals and philosophical registers, copies of which were sent monthly to the Office from each Lighthouse on the coast.

5. In these journals I have often read the remarks of the elder brethren of the Trinity Board, expressing their admiration of the order, arrangement, and construction and power of said Lights.

6. It was given in evidence before the Lighthouse Commission of 1845, that for the same number of burners, the expense of maintenance, &c., was—

	£	s.	d.	
In England	31	0	0	per annum
In Scotland	29	0	0	„
In Ireland	23	8	8	„

7. I adduce those facts in support of my statement, as to the "superior excellence and economy of the Irish Lights."

8. In order to explain that system, I will do so under the following heads, viz.:—1st, Lighthouse Law; 2nd, Management; 3rd, Position; 4th, Construction; 5th, Illumination.

LIGHTHOUSE LAW.

9. Provides that nine of the principal merchants of Dublin shall compose a Board, under the title of "The Corporation for Preserving and Improving the Port of Dublin," three of whom shall annually retire, or be re-elected, and that the Mayor, and two of the senior Aldermen, be *ex officio* members of the said Corporation.

10. This Corporation are empowered to hold control over *all* the Lighthouses, built, or to be erected on the coast of Ireland, as well as all lightships, beacons, and buoys on said coast.

11. Also to take or choose land for such erections, under (I think) ten acres; and in case of the owner objecting, valuators are to hold inquisition, and assess damages to be paid by said Corporation.

12. The Corporation were further empowered to have supervision over the whole extent of the river, quays, docks, and Bay of Dublin, from high water mark, for the purpose of preserving and improving same.

13. Also to collect tolls for quayage, or wharfage, ballasting, pilotage, and Lighthouses.

14. Also to raise money for the purposes of said Lighthouses and improvements, by

issuing debentures, called Ballast Office Debentures, bearing interest, and secured by mortgage on tolls, to be collected under the Act.

15. Also to appoint officers, and to proceed at law for any breach of said Act.

Management.

16. The law having placed in the hands of the Corporation, the Lighthouses, lightships, beacons, and buoys, on the coast of Ireland, as well as the wharfage, ballasting, and pilotage of vessels frequenting the port of Dublin, all of which departments were to a great extent connected with one another, the Corporation, while directing the departments as a whole, appointed the following officers to carry out their commands:—

1st, A Ballast Master, under whom was a pay clerk and five clerks, whose duty it was to keep and pay all the accounts passed by the Board, and to receive all tolls payable under the Act at Dublin.
2nd, A Secretary and Assistant Secretary.
3rd, An Engineer, and Inspector of Lighthouses and Harbor Works.
4th, An Inspector of Lightships.
5th, A Pilot Master. (A Lieutenant, R.N.)
6th, Two Harbor Masters.

17. The Corporation met two days in each week (Thursday and Friday) for the despatch of business, when the officers at the head of each department were in attendance to submit their reports, and receive the needful instructions.

18. All the accounts were paid without delay. The service, therefore, was not retarded by want of punctuality in payment of the accounts.

19. The whole management of the Lighthouses, beacons, and buoys, the appointment of the light keepers, along with all the various details of the service, were under the control of the Inspector General, and once every year he personally inspected every Lighthouse on the coast, in the Lighthouse Steam Tender, which was also used to supply oil and other stores required for Lighthouse consumption.

20. The Inspector went overland constantly to inspect the Lighthouses; and to this continual vigilance on his part, and the fact, that the men he appointed as light keepers, were mechanics from the Lighthouse Store Yard, whose character he was aware of from personal observation, may be attributed the principal excellence of the Irish Lighthouse management.

21. When a light keeper is appointed, he is sent to Tusker Rock Lighthouse to learn his duty, and continues there between one and three months; he is then placed where required, as assistant light keeper, until promoted by seniority, or the pleasure of the Inspector General, to the position of principal light keeper.

22. Some Lighthouses have more than two keepers, regulated by the requirements of the particular case, but in general there are only two keepers.

23. There is no stated time when the Inspector General visits each Lighthouse, nor does he give notice to the light keepers that such is his intention; the consequence is, that the whole Lighthouse department is always in review order to receive his visits.

24. The extensive nature of the engineer department rendered it advisable to establish a Lighthouse Store Yard, and accordingly ground on the river was walled in, enclosing on the sea side a basin with deep water.

25. Two patent graving slips, a Lighthouse store, landing wharf, smithies, &c., in fact, a complete dockyard was formed for the combined use of the steam dredges employed in deepening the harbor, mud floats, ballast lighters, light ships, pilot boats, and other vessels engaged in the Lighthouse and harbor department.

26. Within the wall was the official residence of the Inspector General, and there were daily employed foremen, shipwrights, smiths, braziers, &c., to the number of nearly one hundred men, in performing the various repairs, &c., connected with said departments.

27. All the supplies obtained, and works of any extent, were done by contract, and all the repairs were executed by day labor.

Position.

28. When any petition, memorial, or application for a Lighthouse, to be erected on any part of the coast was presented to the Corporation by the merchants and seafaring men acquainted with the coast at that particular place, the Inspector of Lighthouses was directed to report thereon, and upon his report the matter was decided.

Construction.

29. When the site of a Lighthouse was decided on, the Engineer was directed to make a survey of land required therefor, which was then legally conveyed to the Corporation, &c.

30. A design was then made, and the whole of the work was let by contract, except the lantern, which was put together at the Lighthouse Works, sent to the place by the steam tender, and fitted up by the artizans of the Corporation.

31. The Lighthouses are all stone, and in design are similar, though not identical.

32. There is an exception to this rule in the case of the Drogheda Lighthouses, which were first made of wood, and mounted on wheels, to run on a tramway, in consequence of the

bar being constantly moving sand, it was needful to change the position of the lights, which were erected to lead over the Bar.

33. A Lighthouse was also commenced on the Risk Bank in Dublin Bay, founded on iron screw piles, and was very nearly completed, when an unusually violent storm destroyed the structure before it was so braced together as to resist its effects. The cost of this building, exclusive of lantern and apparatus, was to be £5,100.

34. There is one, however, on that principle in Belfast Lough, which still answers the end for which it was constructed. The cost complete was £1,300.

Illumination.

35. There are two modes of illumination, viz., the Catoptric, and the Dioptric, or Fresnel's. The former is the plan upon which most of the second class lights are constructed, while the first class, or sea lights, are upon the latter principle, and according, in a great measure to the opinion of the Engineer either the one or the other is adopted.

36. The *materiêl* of combustion is sperm oil, which is supplied by public contract, delivered at the Lighthouse Store Yard, and sent to each Lighthouse in the steam tender already alluded to.

37. The radius of vision is, in a clear atmosphere, twenty-eight miles for lights of the first order.

38. The Light dues are collected at each port in Great Britain from every vessel before "clearing" therefrom; and by an arrangement between the Trinity House, the Commissioners of Northern Lights, and the Corporation for Preserving and Improving the Port of Dublin, the tolls collected by those Boards are settled every quarter.

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39. Having now stated the system adopted in Ireland, permit me to briefly allude to that followed in the United States.

40. The Lighthouses there are under the Auditor of State, and from the appearance and management of the principal Lighthouse on Lake Erie, and the reputed best light on the Atlantic seaboard, I am astonished how any country, ranking as the United States now does, can show such neglect in the construction and maintenance of so important a branch of the National service.

Visited 1851—52.

41. The Lighthouses I examined were filthy in the extreme, the towers were very badly designed and worse executed, and the lanterns were in every respect similar, the astragals were small (8″), and the glass was thin, dirty, and scratched over by apparently mischievous hands.

42. The keeper of one was an old sea Captain, who looked as if he attended more to the bottle than the lantern; and the "boy" who attended the other, told me the "old man" was bed ridden, and that he (the boy) attended to the light for him.

43. The light keepers are changed at each change in the political affairs of the Government; the appointments are therefore made, more with a view to obtain votes, than to faithfully perform the public service.

44. Notwithstanding this state of affairs, the radius of vision is twenty-seven miles; but this I entirely attribute to the great clearness of the atmosphere in America.

45. In the United States there is no charge for lights, buoys, or beacons, the whole cost thereof being borne by an annual grant from Congress for the purpose.

46. Ballast is obtained from private parties who make a living by supplying the vessels, at a charge which fluctuates with the demand. The wharves in the port of New York are principally private property, made at private expense.

47. Pilotage is performed on an excellent system, viz.: before men can become pilots they must be duly licensed, and ere such can take place, they must pass an examination which, if satisfactorily passed, they receive their license. At their own expense, they (generally seven in partnership), purchase a pilot boat, in which they cruise from fifty to one hundred miles off the port looking out for vessels, who pay them for their services according to a scale of charges, above which, (on pain of losing their license,) they are not permitted to go. The pilot boats of New York are on the same model as the yacht *America*, and their character, as good sea boats and fast sailers, has been well established; and from the principle upon which they act, of "No work, no pay," their vigilance is unsurpassed.

48. In Prussia there is only one charge for lights, beacons, buoys, &c., called Harbor Dues, amounting to about £10 for 200 tons—ships in ballast pay one-half the charge.

49. In France and Russia no light dues are paid.

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50. Having now explained the lighthouse systems of Ireland from my own experience, and of the United States from my observation, I feel that I would be wrong to advise the adoption of either plan in this Colony, until I had made such investigations with regard to the present system as I consider essential to enable me to form a correct opinion.

51. I beg leave, however, to say, that coincident with any improvements in the lighthouse system, there should be a Trigonometrical Coast survey of the Colony; and also, a marine or nautical survey of all banks, shoals, rocks, currents, and Islands thereon. The latter survey being

repeated every seven years, in order to meet the changes taking place in the coast and adjacent banks, &c.

I hope soon to be in Melbourne, when I will be very happy to explain any other matters connected with the subjects treated of in this Report, which a perusal of it may suggest to any of the members of your Honorable Committee.

I have the honor to be,
Sir,
Your most obedient humble servant,
ARTHUR S. ORMSBY,
Civil Engineer. (M.R.I.A.)

To the Chairman of the Lighthouse Committee of the
Legislative Council of Victoria.

BY AUTHORITY: JOHN FERRES, GOVERNMENT PRINTER, MELBOURNE.