

LIGHTHOUSES (COLONIES).

COPY of Capt. *Payfield's* Report on the necessity
of a Lighthouse on *Cape Pine, Newfoundland.*
STATEMENT of the Progress in the Construction of
a Lighthouse on *Barbadoes.*
STATEMENT of Measures taken with reference to
the Management of Lighthouses in the British
COLONIES.

(*Mr. Hume.*)

Ordered, by The House of Commons, to be Printed,
20 April 1849.

LIGHTHOUSES (COLONIES).

RETURN to an Address of the Honourable The House of Commons,
dated 21 February 1849 ;—for.

- “ COPY of the REPORT of Captain *Bayfield*, R. N., on the necessity of Erecting a LIGHTHOUSE on *Cape Pine, Newfoundland*; and STATEMENT of the Measures that have been adopted by the Government in consequence:”
- “ STATEMENT of the Progress made in the Erection of the LIGHTHOUSE on the Island of *Barbadoes*, for which the Assembly of *Barbadoes* has Voted Money, and for which, in the Miscellaneous Estimates of last Year, The House Voted the Sum of £. 2,000:”
- “ Also, STATEMENT of what Measures have been adopted respecting the Erection, Management and Superintendence of LIGHTHOUSES in the BRITISH COLONIES and POSSESSIONS.”

Admiralty, }
17 April 1849. }

Chas. R. D. Bethune,
Harbour Department,
18 April 1849.

Ordered, by The House of Commons, to be Printed, 20 April 1849.

—No. 1.—

COPY of the REPORT of Captain *Bayfield*, R. N., on the necessity of Erecting a LIGHTHOUSE on *Cape Pine, Newfoundland*; and STATEMENT of the Measures that have been adopted by the Government in consequence.

Surveying Vessel, *Gulnare*, at Sea,
26 August 1847.

Sir,

In pursuance of the directions of my Lords Commissioners of the Admiralty, conveyed to me in your letter of 31st March last, that I should take a convenient opportunity of visiting *Cape Pine*, for the purpose of determining on the best situation and proper height of a Lighthouse, which it is intended to construct on that headland,

I have now the honour to report as follows:—

1. On the 15th July I sailed from *Chetican*, leaving Commander *Orlebar*, with Mr. *Des Brisay*, in the pinnace and launch, to continue the survey of the west coast of *Cape Breton*, during my absence. On the 18th we made the land at *St. Shott's*, the scene of so many fatal shipwrecks; and taking a near view of that most dangerous shore as we ran close along it, arrived in *Trepassey Harbour* the same evening.

Having previously read over the voluminous correspondence respecting the proposed Lighthouse, I now availed myself of the local experience of Mr. *Simms*, the resident magistrate, and of Mr. *Sutton*, an intelligent inhabitant of *Trepassey*, and after a careful consideration of the whole subject, perceived, that before I could carry out the spirit of their Lordships' instructions, it would be necessary to ascertain, correctly, the position of *Cape Pine*, its distance from *Trepassey*, from which alone it is at all times accessible, and the exact configuration of the coast and hills; in short, to make a correct survey of the harbour and intervening coast, to *Capes Pine* and *Freels*, inclusive, there being no chart of this part of *Newfoundland* in existence, as far as I can learn, of sufficient scale or accuracy to show distinctly the position or nature of the site which I might select for the Lighthouse.

Accordingly, the survey was commenced on the following day, and with the zealous aid of Lieutenant *Hancock* and Mr. *Forbes*, completed on the 31st of July,

after much delay from the fog, and great labour; the impossibility of landing in the heavy swell upon the precipitous coast outside the harbour having rendered it necessary to proceed on foot over the barren moors to Cape Pine, and also to Cape Race, which I thought it useful to include in the survey, in readiness either for a beacon or lighthouse as may hereafter be determined.

2. Having thus put myself in possession of the necessary data on which to form an opinion, I selected the site for the Lighthouse on Cape Pine, which is shown in the accompanying copy* of our survey, and which I consider preferable to Cape Freels, the only other part near on which it could be placed with advantage, on account of its superior elevation and more favourable situation for guiding vessels into Trepassy Harbour.

3. The geographical and relative position of the Lighthouse, if placed on a site which I have recommended, will be as follows: latitude, $46^{\circ} 37' 12''$ north; longitude, $53^{\circ} 32' 27''$ west, if the first meridian of my surveys, viz. the Observation Bastion, Quebec, be considered to be in $71^{\circ} 13' 45''$ west; Halifax Tablet, in dock-yard, $63^{\circ} 35' 32''$ west, and the Chain Rock Battery, St. John's, Newfoundland, $52^{\circ} 41' 32''$ west.

The Lighthouse will stand 150 fathoms north of the true south extreme of the Cape. Cape Freels, the south extreme of the land to the westward, will bear from it south 74° west true, distant rather more than one mile; but the light, from its superior elevation, will be seen over that land to "Easter Head" of St. Shott's, and on a bearing several degrees to the northward of west true, a bearing which would lead a vessel just clear of St. Mary Cays, distant about 27 miles from the light.

To the eastward, Mistaken Point, the south extreme of the land, will bear north 88° east true, distant 16 miles.

This is the French Mistaken Point of the Admiralty chart (North American East Coast, No. III.); the English Mistaken Point is $2\frac{1}{4}$ miles nearer, but that is called "Freshwater Point" by the fishermen, and I strongly recommend the adoption of this latter name, and that the name of Mistaken Point be limited to the one which I have applied it to, rejecting the unmeaning distinction of French and English, which is constantly causing confusion. Point Powles ("The Poles" of the fishermen) will bear north $51\frac{1}{2}^{\circ}$ east true, distant nearly seven miles.

4. The foundation of the site is dry and rocky, and free from bushes; its elevation above the sea will be more exactly determined by Lieut. Binney, R. E.; but an approximate measurement by sextant angles, gave 246 feet, which is about 100 feet higher than the cliffs of clay-slate, which in perpendicular height range from 90 feet to 150 feet around the Cape, and are perfectly inaccessible.

5. The question as to whether a high or low light be preferable, has been much discussed; but in truth, the occasions in which it is possible to see, either over or under fogs, from a ship at sea, looking towards the land, are of too rare occurrence to justify the sacrifice of the obvious advantages of a high light.

The wrecks have most frequently occurred late in the year, when fogs are less frequent than at other seasons, and when the light would be useful in proportion to the distance from which it could be seen. In the summer months there is often not more than one day in a week free from fog, and then a heavy gun to be fired from the Lighthouse every hour during its continuance, would be of far more use than the light; and I strongly recommend it accordingly.

A bell or gong, in such a situation, would be useless, since it would seldom if ever be heard when the wind blew towards the shore, that is when it would be most wanted, for there is seldom or never any fog with the wind off the land.

6. With respect to the nature of the light to be placed on Cape Pine, I beg to submit, that it appears much more necessary to distinguish it from the revolving light on Cape Spear, distance only 75 miles, than from the fixed light on St. Pierre, distant 110 miles, more especially as to mistake Cape Spear for Cape Pine might, and probably would, be fatal, whilst to mistake the latter for St. Pierre would not be likely to be followed by such serious consequences.

I am

* A chart of the coast was sent to the Admiralty with this Report, but it has not been considered necessary to give it herewith.

I am therefore of opinion that the light on Cape Pine should be a fixed light, of the most powerful kind, recommended by Mr. Gordon. The "Catoptric System" of lighting, with its Argand lamps and reflectors, being more simple, less liable to derangement, and therefore better suited to a position so remote, and so far removed from either surveillance or assistance, whilst it is also less liable to suffer from the rapid and extreme changes of temperature which so frequently occur here.

7. The Lighthouse should not, I think, be less than 70 feet in height; but I can offer no opinion founded on experience respecting the comparative merits of iron and stone for its construction. If there be no objection to the former, on account of the great and sudden variations of temperature in Newfoundland, it would seem to be preferable, from possessing the advantages of being more expeditiously made, transported and erected.

If stone be adopted, it will require to be cased in wood, as has been found necessary in less exposed situations in the neighbouring colonies. The insinuation and subsequent expansion of water by freezing, soon destroys ordinarily good masonry in these countries, and could scarcely fail to do so on so exposed a situation as Cape Pine, where the change from driving rain, and a temperature of 40°, to an extremely dry air, and a temperature below zero, sometimes occurs in little more than 24 hours.

The clay-slate formation in the neighbourhood of the Cape affords no good building stone, certainly not for the outside facings, neither is there any large timber there; therefore, if either iron or stone be adopted, all the heavy materials will have to be brought from Great Britain or the neighbouring colonies.

Every thing required for the Lighthouse should, in the first instance, be taken to Trepassey, and thence transported to Cape Pine, a work of considerable difficulty, respecting which I beg leave to offer the following remarks:—

8. From Trepassey out to Cape Pine, and thence round the headland to St. Shotts, the precipitous clay-slate, in vertical strata, is nearly or entirely inaccessible. The only landing-place is at Arland's Cove, three-quarters of a mile to the westward of Cape Pine, and there I do not think it would be possible to land heavy materials above once in a fortnight, upon an average, during the summer months, when the prevailing south-west winds send in a constant swell upon the coast. In the spring, when northerly and easterly winds are frequent, and often of long continuance, with moderate weather, there would doubtless be less difficulty, and the months of May and June would possibly afford many opportunities for transporting the materials from Trepassey, if they were placed there in readiness during the preceding autumn.

The small fishing schooners and boats of the place, under the management of their experienced owners, would afford the readiest and best means of transport; and if, in addition, a steamer could be added, to tow the laden boats out to the Cove at once, when opportunity offered, and to bring them back again into shelter, on the approach of bad weather, or wind or swell, upon the coast, it would add greatly to the expedition and safety of the work. No other description of vessel could remain near Cape Pine without very great risk.

9. The communication by water being in the most favourable season precarious, and in winter impracticable, a road from Trepassey to the Lighthouse appears to me indispensable, and this appears to be the opinion also of Colonel Robe, the Commanding Engineer at St. John's. Lieutenant Binney, R. E., was sent to Trepassey whilst I was there, to communicate with me, to collect information on various points, and to survey the most accessible line for a road over the barren moors; to assist him in this latter duty I furnished him with the principal points and outline of our survey.

10. As there has been much difference of opinion as to which is the point on the south-east coast of Newfoundland on which it would be most beneficial to place a light, I beg leave to offer the following remarks upon that part of the subject:—

The principal use, and a most important one, of the light on Cape Pine, will be its tendency to prevent the numerous and fatal shipwrecks which are continually occurring in the vicinity, among the homeward-bound vessels from the Canadas

and other North American Colonies. The number of homeward-bound vessels wrecked in the neighbourhood of Cape Pine, has exceeded that of the outward-bound in the proportion of 10 to 1.

The frequent occurrence of these wrecks has been generally, and I think justly, attributed to an indraught of the current into St. Mary's Bay. The inconstancy of this current, and its varying strength and direction, only render it the more dangerous. It is certain that it frequently runs strongly round Capes Pine and Freels to the north-west, especially when southerly winds prevail, and to its effects may be added the heave of the long Atlantic swell, which so generally prevails in the same direction. But, whatever may be the cause, it is certain that vessels bound to the eastward are constantly coming in upon that part of the coast; for, within a single fortnight, while we were at Trepassey, two mail steamers and two merchant ships came close in, and were only saved from running ashore by the clearing away of the fog, and, in one case, by the hailing of the fishermen from the boats fishing just outside the breakers.

A second, and far from unimportant, use of the light on Cape Pine, will be the great assistance which it will afford to the numerous vessels (frequently amounting to more than 100 sail at a time) that take shelter in Trepassey Harbour, especially in the spring of the year, when they seek refuge from the ice, which is driven down upon the coast by north-east winds, but which, being turned off by Cape Race, leaves the entrance of the Bay and Harbour of Trepassey clear.

Lastly, this light will be of great use to the numerous vessels trading between St. John's, Newfoundland, and the various parts of the other North American Colonies and the United States.

Such will be, I conceive, the principal uses and advantages of a light on Cape Pine, which however do not apply in any great degree to vessels outward-bound from Great Britain or Ireland to the North American Colonies, since they, excepting when driven in by the ice in the spring, seldom come near Cape Pine, passing in general far to the southward.

11. A light on Cape Race would answer few or none of the uses which I have attributed to that on Cape Pine, but, on the other hand, to vessels outward-bound from Great Britain and Ireland, and especially to the Royal Mail Steamers, it would be far more valuable.

Thus it appears that a light on each of these headlands would possess distinct and important advantages; and it will probably, therefore, in the end be found necessary to light them both. This consideration induced me to survey the coast from Freshwater Point to Cape Race, and to include it in the accompanying chart,* on which I have pointed out the best site for a Lighthouse on the last-named headland also.

If ever it be determined to place a light on Cape Race, it will be absolutely necessary to distinguish it most obviously from the lights on Capes Spear and Pine. Two fixed lights, vertical, on the same tower, would, I think, do this effectually.

The Lighthouse, as well as the light, should be well distinguished, both in shape and colour, from the Lighthouse on Cape Pine, lest they should be mistaken the one for the other when indistinctly seen in foggy weather.

Finding the existing charts so erroneous as to endanger the safety of any vessel, above the size of a sloop of war, that might chance to visit Trepassey Harbour, I availed myself of the opportunity to make a complete survey of it, to prevent accidents to Her Majesty's ships.

I have, &c.

(signed)

Henry W. Bayfield, Captain,

Surveying the Gulf of St. Lawrence.

Captain W. A. B. Hamilton, &c. &c. &c.
Admiralty Office, London.

CAPE

* See Note in preceding page.

CAPE PINE LIGHTHOUSE.

PRECIS OF PROCEEDINGS.

- 1847 :
August - 26 -- Captain Bayfield, R.N., reports to the Admiralty, pointing out Cape Pine as the best situation for a Lighthouse on the south coast of Newfoundland (See Report).
- September 25 -- Copy of Captain Bayfield's Report forwarded to the Board of Ordnance, with a request that, as it may be found eventually, that a light on Cape Race will also be beneficial to vessels outward-bound, the Lighthouse on Cape Pine may be constructed of iron, of the height of 80 feet, with a view, eventually, to exhibit two lights vertically, one 20 feet above the ground and the other 60 feet above that, also requesting that a beacon of the same metal may be built on Cape Race, on a spot pointed out, of such form and dimensions as may afford, at a future time, a base for the construction of a Lighthouse.
- 1848 :
May - 15 -- Board of Ordnance, in reply states, that just before the receipt of the Admiralty letter, they received a communication from Mr. Alexander Gordon, C.E., who had already been employed in the construction of buildings of the required character (enclosing a copy of his letter); that they forwarded a copy of the Admiralty letter and of Mr. Gordon's to the Commanding Engineer at St. John's, Newfoundland, for his information in preparing the plans and estimate ordered by Government, and they now forward his reply, and a letter from the Inspector General of Fortifications, making some suggestions.
- June - 1 -- Admiralty states, in reply, that they agree with the suggestions of the Inspector-General, and urges (provided Mr. Gordon's plans be satisfactory), the benefit likely to arise from entrusting to him, at once, the execution of the whole undertaking; and pointing out that it would be expedient to employ Lieutenant Binney, R.E., during the summer, in levelling the site, and in tracing out the road from the landing-place, but remarking, that if a gun be used as a fog signal, the powder magazine should be a detached building.
- 1849 :
January - 11 -- Lieutenant Binney, R.E., states, that the authorities of St. John's expect the Home Government to provide the funds for erecting the Lighthouse, the colony promising to maintain it; but, as it appears that 2,000 £ only has been appropriated by the Treasury to that purpose, he proposes that the structure be made of wood.
- " - 15 -- Board of Ordnance enclose letter from Commanding Engineer, in which he states, that the Governor of the colony and the Committee of Lighthouses, considering that their means are not adequate to the expense which a gun, as a fog signal, would incur, and also considering the risk of having a powder magazine in the building, highly approve of the atmospheric screamer proposed by Mr. Gordon. Commanding Engineer of opinion, that a large bell struck quickly by a hammer worked by machinery, would be equal to the screamer, and not entail the expense of carbonic acid gas or steam, which would be necessary to work the latter.
- " - 22 Harbour Department, Admiralty, reports to the following effect:—
1. That the Lighthouse be fixed on the site selected at Cape Pine.
 2. That the tower be of iron, at least 50 feet high, on the plan of Mr. Alexander Gordon, C.E., and that it be constructed under the superintendence of the Board of Ordnance.
 3. That the light be on the simplest catoptric or reflecting principle, to revolve or flash once in three minutes, and to burn rape or seal oil.
 4. That the tower be furnished with a screaming apparatus, or a small gun, as a fog signal; if the latter, the powder magazine to be detached.
 5. The tower to be painted with broad red and white bands.
 6. That a conspicuous beacon be erected on Cape Race.
 7. That the tower and apparatus be sent out in a Government steamer, direct from the Thames, which should remain, until the whole is landed and conveyed to the top of the cliff.
 8. That an immediate decision be come to on the subject, so that the light may be exhibited before the winter.

Hydrographer

- 1849 :
- January - 26 -- Hydrographer remarks on the above, that a light is greatly wanted on the south coast of Newfoundland; that Cape Pine is the best spot for its position; that it should consist of two vertical and catoptric lights; that the funds should be provided, and that the lights should be shown before the winter.
- February 5 -- Hydrographer further reports, that as a modification of his Report of 26 January (the disposable funds not allowing of two lights, vertical, being adopted) he recommends that a single light be made use of, revolving once in 20 seconds, thus distinguishing it from the one on Cape Spear, which revolves once in a minute.
- " - 9 -- Copy of Report by Harbour Department, and of Hydrographer's two Reports sent to Board of Ordnance, stating that the Admiralty concur in the opinion of the Hydrographer, and drawing particular attention to the preference due to two vertical lights, yet as the cost of erecting a sufficient Lighthouse for the two lights, would, as shown by the Harbour Department, be considerably increased, as would be also the expense to the colony of maintaining them, and, as it is proposed that the work shall be carried out under the direction of the Ordnance, it would be advisable for that department, previous to applying to the Treasury for the additional sum required (over the 2,000 *l.* voted) to ascertain, from Her Majesty's Secretary of State for the Colonies, whether the colony would be prepared to maintain and keep up the necessary light.
- March - 5 Board of Ordnance requests more definite information on certain points.
- " - 14 -- Acquainted, in reply, that one Lighthouse on Cape Pine is all that will be required there, at an elevation of 50 or 60 feet from the ground, the light to be on the simplest catoptric or reflecting principle, to revolve three times in a minute, and that a beacon (which would cost about 300 *l.*) should be erected on Cape Race.

Admiralty, Harbour Department,
20 March 1849.

— No. 2. —

STATEMENT of the Progress made in the Erection of the LIGHTHOUSE on the Island of *Barbadoes*, for which the Assembly of *Barbadoes* has Voted Money, and for which, in the Miscellaneous Estimates of last Year, The House Voted the Sum of £.2,000.

THE accompanying letter, received from the Colonial Office, under date of the 29th March last, shows how the case stands with reference to the proposed construction of a Lighthouse on the Island of Barbadoes.

Sir,

Downing-street, 29 March 1849.

IN answer to the inquiry contained in your letter of the 21st instant, I am directed by Earl Grey to refer you to my letter of the 3d December 1847, containing an account of the further proceedings taken by the Legislature of Barbadoes in the construction of the proposed Lighthouses, since the date of the last Papers laid before Parliament on the subject, namely, the 19th July 1847.

The Commissioners of the Treasury approved of those proceedings, and were prepared to apply to Parliament for the means of defraying a moiety of the expenses of constructing the Lighthouse.

The objection, however, taken by the Lords Commissioners of the Admiralty, in Mr. Ward's letter of the 13th December 1847, to the tax imposed on the vessels of the Royal Mail Steam Packet Company by the Barbadoes Act, No. 908, induced Lord Grey to inform the Governor-in-Chief of the Windward Islands, that the Act would not be confirmed unless the tax was repealed.

This step not having been taken by the Colonial Legislature, nothing further has been done in the matter by the Home Government.

I am, &c.

Captain W. A. B. Hamilton. R.N.
&c. &c. &c.

(signed)

Herman Merivale.

—No. 3.—

STATEMENT of what Measures have been adopted respecting the Erection, Management and Superintendence of LIGHTHOUSES in the BRITISH COLONIES and POSSESSIONS.

A LIST of QUERIES has been prepared and printed, and copies have been sent to the Colonial Office, with a request that they may be transmitted to the Governors of the respective Colonies, with instructions that they will cause them to be filled up and returned, with a view of obtaining accurate information as to the present state and management of the existing lights, in order to arrange a system, whereby greater simplicity and economy may be combined with increased efficiency.

[Copy of Queries enclosed.]

Sir,

Admiralty, 10 February 1849.

THE Lords Commissioners of the Admiralty having had under consideration the subject of the Lights and Lighthouses in the Colonial Dependencies of Great Britain, and the great want that there is of additional lights at some very important points, are of opinion, that it would be highly desirable, as a first step, to endeavour to obtain accurate information as to the present state and management of the existing lights, in order to arrange a system whereby greater simplicity and economy may be combined with increased efficiency.

With this object in view, I am commanded by my Lords to inclose copies of some printed Queries which have been prepared, and to request that you will move Lord Grey to give directions that copies for each Lighthouse be transmitted to the Governors of the respective Colonies, with instructions that they will place them in the hands of those persons who may be most competent to answer them fully, and, when complete, transmit them to his Lordship, for the information of the Lords Commissioners of the Admiralty.

I have, &c.

Herman Merivale, Esq., &c. &c. &c.
Colonial Office

(signed) *H. G. Ward.*

COLONIAL AND EAST INDIAN LIGHTS.

QUERIES.

[N. B.—Let all bearings be magnetic, and state the variation of the Compass.]

[It is of importance that each of the accompanying Queries be answered, unless it has been already answered in the Return to an Address of the House of Commons respecting Colonial Lighthouses, dated 3d August 1846; and it is very desirable to add any other information on the subject which can be procured.]

N. B.—It is requested that in future all information respecting Lights, or the want of them, or any notice of change in them, may be sent to the Secretary of the Admiralty, endorsed “Harbour Department.”

QUERIES.

ANSWERS.

Locality, Construction, Characteristics, Range, &c.

1.—State the name and situation of the lighthouse or light-ship; its supposed latitude and longitude.

1.—

2.—Is it a coast light, leading light, harbour light, pier-head light, tide light, floating light, or temporary light for mail vessels? and is it public or private property?

2.—

3.—If more than one light is exhibited, state their relative position, as vertical, horizontal, triangular, &c.? whether there are two or more towers or lanterns; and if so, their distance apart and bearing from each other?

3.—

4.—Over what portion of the circle is the light visible? or between what bearings of the compass?

4.—

QUERIES.

ANSWERS.

5.—Height in feet of the light-tower from its base to the top? height of the centre of the light above high-water-mark? and what distance seen in clear weather, by the naked eye, at 15 feet above the water? 5.—

6.—Is the light in a round or square tower, or other building? in a screw pile or common pile building? How does it stand the sea and weather? What are the dimensions of the building, diameter of the lantern, &c.? Add a drawing of the light-tower and lantern, or light-vessel, on the scale of a quarter of an inch to a foot? 6.—

7.—Of what material is the light-tower built? How does it resist the wet? Is it painted, or coated with any other material? What the colour, or any peculiarity in the building? When first erected? or repaired or altered? If iron, how often does it require to be painted or coated? Are the walls single or double, with an air space between them? How is the tower ventilated? How kept dry in high latitudes? are stoves allowed for that purpose? 7.—

8.—If a leading light, state what rocks or shoals it is intended to lead clear of? and the bearing and distance of the light from them? 8.—

9.—If the colour of the light changes as a warning of danger, state the bearing on which the change occurs? the colour it changes from and to? and how near the line of change will lead to the danger? 9.—

10.—Is the light fixed? revolving? intermittent? flashing? coloured or not? if coloured, is it effected by the glass of the lantern, or by a shade to the burner? 10.—

11.—If a revolving light, state the time of the entire revolution of the machine? and the number of sides or faces lighted, so as to give the number of appearances in a minute? 11.—

12.—How often is the machine wound up? Are the revolutions regular and without jerks? Is chain or rope used to suspend the weight? Does the chain or rope break occasionally? What substitute is there in the event of accident to the chain or machinery? 12.—

13.—In a revolving or intermittent light, state the duration of the light on the seaman's eye? and the interval of darkness at the distance of 10 miles in clear weather? 13.—

14.—Is it a reflected or refracted light? What kind of reflectors or apparatus for directing or increasing the light? and for regulating the supply of oil? Also the focal distances of the reflectors or lenses? and number and kind of lamps or burners? 14.—

15.—At what time is the light lighted and extinguished? Is it lighted every night? Number of hours the light is exhibited during the year? 15.—

16.—Is there a convenient landing-place, and how far off? Is a boat attached to the station? or is there a life-boat near? 16.—

17.—State the horizontal distance of the foot of the tower from high and low-water marks at spring tides? If on piles, what depth there is at low-water spring tides? 17.—

18.—What effect has a heavy sea or surf on the tower itself on the glass of the lantern, or on the lights? Does the spray fly over the lantern? 18.—

19.—What is the size and thickness of the panes? Is the framing vertical or diagonal? Are there any protecting bars? Are there storm-panes, fitted with screws and pads, ready at hand in case of a pane being broken? 19.—

QUERIES.

ANSWERS.

20.—If a light-vessel, in what depth of water moored? what scope of cable? what description of moorings and anchors? and how often are the moorings sighted; what sort and size of cables? What her tonnage? How many men on board? Does she show as many balls by day as lights by night?

20.—

Internal Arrangements, Supplies, Maintenance of Light.

21.—By whom are the lamps and other apparatus made or supplied? Have the reflectors or lenses ever been displaced or otherwise injured? and what means were adopted to remedy the mischief?

21.—

22.—Number of light-keepers attached to the light? Are they resident, or how many are required to be so at a time? Is a regular watch kept? Any mode of summoning the keeper off guard by an alarm?

22.—

23.—What has been the training of the keepers? Have they any other occupation, and what? What salaries are they paid? and by whom appointed?

23.—

24.—Have they wives or children? Are they lodged in the tower or in a separate building? Are they supplied with books? What medical aid in case of emergency? What opportunities are there of attending public worship? If none, is the service read regularly on the Sundays by the principal light-keeper?

24.—

25.—Do they keep any journal of proceedings? and of expenditure of stores?

25.—

26.—Do they make any periodic report? and if so, how often, and to whom? Any notice taken therein of wrecks in the neighbourhood of each lighthouse? or of vessels that pass or are seen by day?

26.—

27.—Kind of oil used for the light? Price paid for it per gallon? Quantity consumed per hour? and during the year? and kept in reserve? Is the oil liable to congeal? and if so, how remedied? Is it kept in underground cellars? or where? and in what kind of vessels?

27.—

28.—Has rape seed or other vegetable oil been tried? and with what comparative result? If lighted by gas state where and what substance derived from, and the cost? In the event of the gas failing, what substitute is there at hand, and how soon could it be made available?

28.—

29.—In lights on rocks at sea, or in a vessel, from whence, and how often victualled? Where is water obtained? Can fuel be readily procured? What mode of communicating with the shore by signal? Are they furnished with Marryatt's code of signals?

29.—

30.—If a tide-light, at what time of tide, or depth of water, is it shown? and extinguished? What signal by day indicates the same depth as the light by night?

30.—

31.—Are the panes of glass of the lantern inside free from moisture or ice in all temperatures? are they single or double? Is the roof double with an air space between the plates to check rapid condensation?

31.—

32.—Are the panes of glass free from smoke and soot inside when the lamps have been burning all night? Is there any and what mode of complete ventilation?

32.—

33.—Are the panes of glass free from ice on the outside in case of rain, sleet or snow? or are there means provided for cleaning them?

33.—

34.—What is the greatest and what the least quantity of light-room stores kept at the lighthouse or light-ship? And can they be kept dry, and how? How many spare lamps, burners, &c.? spare lenses, refractors, reflectors and mirrors?

34.—

35.—How are the light-room stores supplied? and if from England, from whom? If by contract, is public notice given?

35.—

QUERIES.	ANSWERS.
36.—Is there a stock account kept? and how is it examined or audited?	36.—
37.—Do the keepers act under any regulations in regard to the performance of their duty, and especially as to keeping watch during the night? Give a copy of such regulations or instructions?	37.—
38.—If a light-vessel, has she ever broken adrift or been compelled to slip? Has she a spare anchor and cable on board? Is a spare light-vessel kept ready, and how soon could she be substituted for the other in case of need?	38.—

Government of the Establishment.

39.—Is there a Board of Management, if so, how composed?	39.—
40.—How often do they hold their meetings? Are their services gratuitous? if not, how remunerated?	40.—
41.—Are there any officers under the Board of Management besides the light-keepers, and what are their duties?	41.—
42.—Are the lighthouses visited to ascertain in what manner the light-keepers perform their duty, and how often? and to whom do such visitors report?	42.—
43.—Does any professional person visit the lighthouses to execute or superintend the repairs of the reflectors, or refracting lenses, and lamps, and to note the state in which they are kept?	43.—
44.—From what funds is the light maintained, and how are the funds collected and managed? Original cost of erection? Annual cost of maintenance and of repairs, distinguishing the charges for keepers, oil, &c.?	44.—
45.—Is there any provision for superannuation of old or disabled light-keepers, or for their widows and orphans?	45.—

Tidal and Weather Observations, Navigation, &c.

46.—Do fogs prevail on the coast? Are any signals established for foggy weather, as firing guns, ringing a bell, sounding a gong, a horn, &c.? and to what distance is it supposed that any of such signals can be heard? If by a gun, what the average annual number of rounds fired? and where is the powder magazine?	46.—
47.—Has the tower ever been struck by lightning? Is there any lightning rod attached to the building? Of what is the conductor made? Where does the lower end terminate, and how?	47.—
48.—Have they a barometer, a thermometer, a weathercock, a tide-gauge and a clock? What means of obtaining correct time? Any means of communicating the changes of the barometer to the public by signal?	48.—
49.—The greatest range of temperature during the 24 hours? and the lowest and highest temperature during the year?	49.—
50.—The greatest difference between the temperature outside and inside of lantern?	50.—
51.—Is a register kept of the wind, weather, barometer, of the rise and fall of the tide, and the time of high and low-water?	51.—
52.—If a light-vessel, do the watchman on board note the direction and rate of the flood and ebb streams, and the times of slack-water?	52.—
53.—What is the nearest distance to which large vessels can approach at low-water, and at high-water to the lighthouse or to the light-vessel? Is there any anchorage under the lighthouse, and on what bearing	53.—

QUERIES.

ANSWERS.

and distance off shore? Can pilots be had there or not? What is the rise of tide at springs and at neaps?

54.—Have wrecked sailors or other people in distress been relieved at the lighthouse or vessel? What means are there of affording relief in such cases? and are instructions for restoring drowned persons at hand? 54.—

As to whether more Lights are required.

55.—Is the light considered in the best position? Is it liable to be mistaken for any other? Is there a want of more lights or beacons in the neighbourhood, or on other parts of the coast? if so, state where? and if any wrecks have occurred from want of them? 55.—

56.—Has application for such been made to any department in England? If so, state when, to whom, and what answer? 56.—

57.—Could funds for, or a contribution towards, the original cost of building be found? or if built, could the Settlement keep it up? Is there material for building on the spot? and of what kind? and could competent artificers be found? 57.—

Harbour Department, Admiralty,
1 November 1848.

Date

Signature

