Public Works (1897) Department.

G.O., No. 2105-W

DATED 2 August 1897

[Despatch Abstract.]

Light Houses and light-Vessels off the Coast of Burma: Endt from the P.P. Mien forwarding a Copy of Report on — for 1896-97, received.

[P.W. 25. 5,000—30-11-98.]

Indexed.

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Presidency Port Office,

Madras, 24th July 1897.

From

The Presidency Port Office, Madras.

3001 W
22.10.96

To forwarded to the Secretary to Government

Public Works Department with reference

to G.O. Financial No. 791, dated

11th October 1895.

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

Commander R.I.M.,
Presy. Port Officer

× 1 Copy of Report on the Light Houses and Light Vessels in Burma for 1896-97.

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THIRTIETH ANNUAL

REPORT ON THE LIGHT-HOUSES AND LIGHT-VESSELS OFF THE COAST OF BURMA

FOR

The year 1896-97.

for 95-96 volume

RANGOON:

PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRINTING, BURMA.

1897.

[Price,—Re. 0-12-0.]

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RESOLUTION

ON THE

REPORT ON THE LIGHT-HOUSES AND LIGHT-VESSELS OFF THE COAST OF BURMA

FOR

The year 1896-97.

Extract from the Proceedings of the Government of Burma, in the Finance and Commerce Department,—No. H.-18., dated the 26th June 1897.

READ—

The report on the Burma Light-houses for 1896-97.

RESOLUTION.—The report shows that the light-houses and light-vessels were regularly inspected throughout the year by the Public Works Department, and the annual visits of the Superintendent were carried out from February to April.

2. The results of the inspections were on the whole satisfactory. The completion of the new light-vessel *Kalagauk* by rendering possible the relief of the light-vessels at the Spit, the Baragua flats and the Krishna shoal, will remove the inconvenience which has been experienced of late years owing to the want of a spare vessel.

3. The Lieutenant-Governor will be glad to receive separate and more detailed proposals for the improvement of the water-supply at Table Island. Steps should be taken during the current year by the Superintending Engineer, South-Western Circle, to improve the landing places at Table Island and Double Island, and to construct the landing jetty on the east of Alguada reef. Although the Lieutenant-Governor does not consider that a more powerful light is absolutely required on the Alguada reef, still as the machinery is very much worn and some action is necessary, there is no doubt that the opportunity should be taken to put up an improved lantern. Proposals should be separately made. The Superintendent of Light-houses is requested to submit, in consultation with the Superintending Engineer, South-Western Circle, a report showing which of the recommendations in Mr. Douglass' report of 1890 have been carried out, which have been definitely rejected, which are in course of being carried out, and which are still under consideration.

4. The circumstances under which the entertainment of an additional light-keeper was first proposed in 1895 were exceptional, and are unlikely to recur. In normal years the existing establishment is sufficient to provide relief in case of sickness, and Sir Frederic Fryer does not think that the entertainment of an additional man would be warranted by his casual employment in the Port Office.

5. Two deaths from beri beri are recorded, and the European light-keeper at Alguada reef succumbed to heart disease. Apart from these casualties the year was healthy.

6. The receipts from light dues amounted to Rs. 2,73,236 as compared with Rs. 2,77,142 in the previous year. There was a falling off in the collections at all the ports of the province except Bassein, while the receipts at Calcutta increased by nearly Rs. 5,000.

7. The expenditure on light-houses and light-vessels increased largely during the year. The difference was due to the construction and maintenance of the new light-vessel *Danidaw*. The expenditure on works was smaller than in the previous year, and there was a slight increase in the cost of stores obtained from Europe. The Lieutenant-Governor would be glad of an explanation of the high cost of oil and stores on the light-vessel *Kemmendine* (late *Krishna*).

8. Commander Black, R.I.M., went on furlough in September 1896 and was succeeded by Commander Barwick, R.I.M. The Lieutenant-Governor's acknowledgments are due to both officers for their good work in connection with the light-houses and light-vessels of the province. Sir Frederic Fryer is also pleased to endorse the Superintendent's commendation of Commander Beaumont for the trouble he has taken to increase the efficiency of the service. His draft code of regulations may be submitted for the orders of Government.

By order of the Lieutenant-Governor of Burma,

F. C. GATES,
Secretary.

THIRTIETH ANNUAL

REPORT ON THE LIGHT-HOUSES AND LIGHT-VESSELS OFF THE COAST OF BURMA

FOR

The year 1896-97.

From Commander F. M. BARWICK, R.I.M, Officiating Superintendent of Light-houses, to the Secretary to the Government of Burma,—No. 667-13L.H.G., dated the 19th May 1897.

I HAVE the honour to forward herewith the annual inspection report of the light-houses on the coast of Burma for the year ending the 31st March 1897.

2. The inspection of all the lights was carried out conjointly with the Superintending Engineer, South-Western Circle.

The R. I. M. S. *Dalhousie* has, as far as practicable, regularly visited all the light stations during the year.

4. Commander Beaumont, Commanding R. I M. S. *Dalhousie* and *ex-officio* Inspector of Light-houses, has taken great interest in the inspection of the light stations, and I am much indebted to him for many beneficial improvements that have been introduced at his suggestion. He has drawn up and submitted a draft code of rules and regulations setting forth—

(*a*) the management of the different lights;
(*b*) provisions, &c.;
(*c*) reliefs;
(*d*) leave rules; and
(*e*) discipline and other miscellaneous matter;

all of which, in my opinion, are urgently necessary, and I would solicit sanction to submit these rules to the Government for favourable consideration and adoption.

5. The discipline of the establishments and the order and cleanliness of the light-houses have been throughout the year well maintained, with the exception of the following three cases, namely:—

(*a*) Irregular nightly inspection of the Table Island light by Mr. Stanley.
(*b*) Neglect of lamp, lantern, and machinery of the light-ship *Danidaw* by the commander.
(*c*) The serang of Savage Island leaving the light-house without permission.

Punishments have been awarded in all these instances.

6. There is I fear on the part of the Public Works Department a want of appreciation of the necessity of maintaining better and safer landings at the light-houses.

They visit the light-houses in the very finest of weather and cannot conceive the risks and difficulties there are to communicate with the shore during the south-west monsoon as instances:—

(*a*) I refer to the proposed causeway from the existing pier to the east side of the reef at Alguada light-house which was first brought to notice in 1890 and its necessity has since continually been brought to notice without effect. A more striking incident of its necessity could not have been more apparent than it was on our (Superintendent of Light-houses, Superintending Engineer, South-Western Circle, and *ex-officio* Inspector of Light-houses) last inspection, a moderate sea was running on the northern side and there was a perfect calm on the east side.

(*b*) The improvements recommended to the Table Island and Double Island landings still remain incomplete. I would suggest that the Public Works Department be instructed to give this matter their special attention during the current year.

7. The water-supply at Table Island is a matter of consideration. In 1894-95 a tank 44 feet by 39 feet by 7 feet was built, the walls of which have now given way, and the tank was dry on the occasion of my inspection. The gardens were bare for the want of water and the cattle, including deer, were reported to be dying. I would suggest for the favourable consideration of the Lieutenant-Governor a proposal to dam off one of the valleys and thereby maintain a continuous supply of water.

8. All the lightning conductors have been tested and left in order.

9. The signalling practice between Alguada Reef light-house and Diamond Island, and between Oyster Island and Savage Island light-houses, have been satisfactorily and regularly maintained.

10. The anemometer has been dismantled at Table Island, but the daily readings are kept from calculations by the European light-keeper in charge and monthly returns submitted to the Meteorological Department.

11. The following deaths occurred during the year :—

Alguada Reef.—Mr. Sansome of heart-disease, one cook of beri-beri.

F. L. V. *Danidaw*.—One lamp-trimmer of beri-beri ; otherwise the health of all the crews has been good.

12. I would invite reference to my remarks on the machinery at Oyster Island light-house, also to the machinery at Alguada Reef light-house which has been in continual use since 1865 and now shows signs of wear-and-tear and there is no duplicate machinery to replace it.

I have carefully considered the views of Commander Wilson on Mr. Douglass's report in this matter, and although he says navigators have not complained against the power of the light, &c., he admits that a new and more powerful light would be appreciated. The time has now come to consider this matter and, in consideration of the present worn state of the machinery with which the Superintending Engineer, South-Western Circle, concurs, also that the order and the efficiency of the light is not what it should be for so important a location, I would suggest that steps be taken to renew the lamp upon the lines proposed by Mr. Douglass.

13. The proposal to place a red light on Amherst Point having received the approval of Government, estimates for lamp, structure, &c., are now under preparation.

14. In deference to the view expressed by Commander Black in his letter No. 6516-13L.H.G., dated the 29th December 1895, regarding the non-utility of an extra light-keeper, I beg to state that I am of opinion that an additional European light-keeper should be appointed, as on the recent death of Mr. Sansome much confusion in arranging the necessary reliefs and hardship was entailed on the light-keeper who was in town on leave due to him by turn ; moreover the entertainment of this additional man would have many advantages, he could be employed in the office in looking after the landing and shipment of light-house stores, provisions, supervise the cleaning of empty drums, and various other matters connected with the lights, which at present are entirely dependent upon my own personal supervision assisted by the Head Clerk.

He could also be placed under Mr. Reilly, the Public Works Department Supervisor of lights, to assist and make himself conversant with the parts of machinery that are brought in very frequently for repairs and thereby acquire a practical knowledge of light-house machinery.

Such a man at any time of a casualty in the light, or in the event of a European light-keeper proceeding on short or long leave permissible under the rules, would be on the spot to fill up a vacancy and would to a certain extent be well trained to enter on his duties.

I would therefore strongly solicit the favourable consideration of the Lieutenant-Governor on this important point.

TABLE ISLAND LIGHT-HOUSE.

Inspected on the 20th February 1897. The light has been exhibited throughout the year.

2. The light-house, lantern, lamp, and machinery are clean and in good order.

3. Checked the centring and the focus of the lamp and found it to be correct.

4. The distance of the visibility of the light has been frequently checked by the *ex-officio* Inspector of Light-houses in command of the R. I. M. S. *Dalhousie* and found to be correct.

5. The stock of oil, stores, provisions, water, &c., complete.

6. The dwelling and out-houses are clean and in good order and nothing is required beyond the ordinary annual petty repairs and such minor repairs as are noted in column 10 of Public Works Department statement. White-ants appear to have slightly attacked the beams in the European light-keeper's quarters. The light-keeper has been instructed to give this matter his attention and exterminate them from the building.

7. The gardens were bare for the want of water.

8. The tame cattle and poultry are doing well. There were nine milking cows and 60 fowls. The water-supply for the wild cattle is insufficient and a drought is feared. It would be advisable to have one of the valleys formed into a reservoir thereby maintaining an ample supply throughout the dry season.

9. The health of the crew has been good throughout the year.

10. The improvements to the south-west landing-place are not yet complete ; they should be carried out without any further delay.

REEF ISLAND LIGHT-HOUSE.

Inspected on the 25th February 1897. The light has been exhibited throughout the year.

2. The light-house, lantern, and lamp were all clean and in good order. Lamp level.

3. The dwelling and out-houses were clean and in good order, and nothing is required beyond the ordinary annual petty and such minor repairs as are noted in column 10 of Public Works Department statement.

4. Stock of oil, stores, provisions, and water complete.

5. The distance and arc of the visibility of the light have been frequently checked by the *ex-officio* Inspector of Light-houses.

6. The health of the establishment has been good throughout the year.

DOUBLE ISLAND LIGHT-HOUSE.

Inspected on the 26th February 1897. The light has been exhibited throughout the year.

2. The light-house, lantern, lamp, and machinery were all in good order.

In regard to the lamp the centring and focus of which is adjustable by a number of screws, fitted from time to time, has given trouble for a number of years and constitutes rather a serious defect, for by the slightest pressure against the lamp or any extra weight on the standard platform the position of the light is deranged, which must account for the one or two reports received that the light was burning dimly. This defect will be permanently adjusted by the Public Works Department during the next official year.

3. The dwelling and out-houses are clean and in good order as far as the light-keepers are able to keep them, but nothing appears to have been done to the repairs of the roof as recommended in 1894-95, and again last year 1895-96, and 1896-97 has again past and nothing done. A few minor repairs as noted in column 10 of the Public Works Department statement will be carried out.

4. Checked the centring and the focus of the lamp and found it to be incorrect.

5. Stock of oil, stores, provisions, and water complete.

6. The distance and arc of visibility of the light has been checked.

7. The health of the establishment throughout the year has been good.

8. Although frequent complaints have been made regarding the unsatisfactory landing-place at this island nothing during the past year seems to have been done, even on landing on this occasion with a slight swell coming into the basin the boat bumped heavily on the sharp edges of rock which should be removed, and the steps up the face of the rocks are not as convenient as they should be. Improvements could be easily effected at a very small cost.

OYSTER ISLAND LIGHT-HOUSE.

Inspected on the 29th March 1897. The light has been exhibited throughout the year.

2. The light-house, lantern, and lamp were clean and in good order.

The machinery still remains defective, which is a matter of serious consequence as when started for the first half hour or more the crank working the occulting apparatus has to be manually assisted over its centre. The cause appears to be the result of worn bearings, and efforts have been made from time to time to remedy the defect, but apparently without satisfactory results. It has been decided to replace the machinery with a new set which is in stock and the Officer Commanding the R. I. M. S. *Dalhousie* and *ex-officio* Inspector of Light-houses has been instructed to carry out the work on his next visit to this station during April 1897. The old set of machinery will be sent to Messrs. Chance Brothers to repair.

3. Checked the centring and the focus of the lamp and found it to be correct.

4. The distance and visibility of the light and the angle of the red sector was checked and found correct.

5. The stock of oil, stores, provisions, water, &c., complete.

6. The dwelling and out-houses were clean and in good order. A few minor repairs as detailed in Public Works Department statement will be carried out during the next year.

The pier and landing ladders are in good order and condition.

The garden does not flourish for the want of soil; arrangements will be made to send out a quantity of earth from Akyab during the fine weather of 1897-98, and the Superintending Engineer, South-Western Circle, will be asked to grant Rs. 500 for this purpose.

7. The health of the establishment has been fairly good throughout the year; no casualties however have occurred.

8. The present fuel-supply system does not constitute efficiency. They are dependent on wreckage being washed up on the beach and at times the supply is not sufficient and fuel has to be supplied from Rangoon which is unsatisfactory on account of its bulk and the inconvenience of landing it during rough weather. Arrangements will be made to supply this station with stoves for burning coal.

SAVAGE ISLAND LIGHT-HOUSE.

Inspected on the 30th March 1897. The light has been exhibited throughout the year.

2. The light-house, lantern, lamp, and machinery are all in good order.

3. Checked the centring and the focus of the lamp and found it to be correct. The machinery still showed the same jerky motion as reported in previous years, but otherwise, as before stated, it is in good order.

4. The dwelling and out-houses are clean and in good order and such petty repairs that are considered necessary are noted in column 10 of Public Works Department statement.

5. Stock of stores, provisions, oil, &c., complete.

6. The distance and arc of visibility of the light has been checked.

7. Several cases of fever occurred amongst the crew, otherwise the health of the crew has been good.

8. This station has been regularly visited by the Assistant Superintendent of Light-houses, Akyab.

ALGUADA REEF LIGHT-HOUSE.

Inspected on the 2nd April 1897. The light has been exhibited throughout the year.

2. The light-house, lamp, and lantern are clean and in order.

3. The machinery is much worn in certain places and steps should be taken to replace it. The following is an analysis of the wear-and-tear—

(i) The main bearings of the machine are worn down $\frac{1}{4}$-inch and require renewal. New bearings, six in number, should be made and fitted at an early date.

(ii) The two bush-bearings of the winding-shaft are worn $\frac{1}{8}$-inch larger in diameter and require renewal.

(iii) The tell-tale gear requires early repair.

(*a*) The driving worm which is turned on the end of one of the main shafts is worn-out and should be renewed. This can be done by turning the worm off, reducing the spindle end to $\frac{3}{4}$-inch in diameter, and fitting a worm on to the spindle end and securing it with a steel tapered pin.

(*b*) The worm-wheel which is geared into the worm is also much worn and should be replaced by one of the spare wheels in the light-house.

(*c*) A new bracket should also be fitted in place of the present one which is worn $\frac{1}{16}$-inch larger in diameter in the bearing.

(iv) The teeth of the pinion-wheel on the winding-shaft are worn about $\frac{3}{16}$-inch from their original thickness, but the wheel is still in sufficiently good condition as to require no renewal. The wear of this wheel should be noted and a new one fitted when considered necessary.

4. The distance of the visibility of the light has been checked and found correct.

5. The landing-pier, the dwelling-house thereon, and derrick gear are all in good order.

6. Stock of oil, stores, provisions, water, &c., complete.

7. There were two deaths at this station, namely, Mr. Sansome, senior light-keeper, from heart-disease, and one cook from beri-beri; otherwise the health of the establishment has been satisfactory.

8. The extension of the pier in a south-easterly direction has been frequently recommended and has now received administrative sanction and steps should be taken to put the work in hand during 1897-98. A few minor repairs as detailed in column 10 of Public Works Department statement will be carried out including the shifting of the cooking-stove from its present position inside the European quarters to a site outside.

DIAMOND ISLAND STATION.

Inspected the system of signalling between Diamond Island and Alguada Reef light-house on 2nd April 1897.

Mr. Skinner, the Telegraph Master, appeared to take great interest in this matter, and every thing appeared satisfactory with the exception that he has to walk a considerable distance to a place for reading the signals. The Superintending Engineer, South-Western Circle, has promised to erect a small observatory platform adjacent to the bungalow and flagstaff.

THE BARAGUA FLATS LIGHT-VESSEL "DANIDAW."

Inspected on the 3rd April 1897. The light has been exhibited regularly since the 3rd November 1896, on which date she was placed on this station.

2. The lamp, lantern, and machinery were in a very dirty state, otherwise as the whole plant is new, they may be considered in good order and condition.

3. The hull is in good order and condition. The bilges, store-room, &c., were much neglected and in a dirty state. A few minor repairs are necessary on the vessel's next visit to Rangoon.

4. Stock of oil, stores, provisions, water, &c., complete.

5. The distance of the visibility of the light has been checked and found correct.

6. There was one death from beri-beri, otherwise the health of the establishment has been good.

7 This light-vessel was built at the R. I. M. Dockyard, Calcutta, and completed at the middle of October 1896, at a total cost of Rs. 1,47,113-1-6, including the value of lantern sent out from England.

8. The chain-wheel of the windlass was broken on the 22nd March 1897 when heaving in the chain to sight the starboard anchor. The accident is partly due to a flaw in the casting. Steps have been taken to renew it.

9. The water-supply of this vessel is insufficient, consequently the allowance to the crew to keep themselves clean and in health inadequate. Steps will be taken to increase the water-supply by providing tanks to hold an additional 2,000 gallons.

THE KRISHNA SHOAL LIGHT-VESSEL "KEMMENDINE" (LATE "KRISHNA.")

Inspected on the 4th April 1897. The light has been exhibited throughout the year.

2. The lamp, lantern, and machinery were clean and in good order.

3. The hull is in fair condition, bilges, and store-rooms clean and in good order.

4. Stock of oil, stores, provisions, water, &c., complete.

5. The distance of the visibility of the light has been checked and found correct.

6. The health of the establishment has been good.

7. This vessel is to be transferred to the Spit on arrival of the new light vessel *Kalagauk* from Calcutta about the end of June next.

The *Kemmendine's* present light will be transferred to the *Kalagauk* and the old light now in the store godown transferred to the *Kemmendine.*

CHINA BUCKEER LIGHT-HOUSE.

Inspected on the 4th April 1897. The light has been exhibited throughout the year.

2. The light-house, lantern, lamp, and machinery were all clean and in good order.

3. Checked the centring and the focus of the lamp and found it to be correct.

4. The distance of the visibility of the light has been frequently checked by the *ex-officio* Inspector of Light-houses in command of the R. I. M. S. *Dalhousie.*

5. Stock of oil, stores, provisions, water, &c., complete.

6. Health of the establishment has been good.

7. Such petty repairs and alterations that are considered necessary are noted in the Public Works Department statement column 10.

THE SPIT LIGHT-VESSEL "MARTABAN."

Inspected on the 4th April 1897. The light has been exhibited throughout the year.

2. The lamp consists of two ships' masthead lamps which, as reported in last year's annual report, is unsatisfactory and a change will be effected on the arrival of the new Light-ship *Kalagauk* from Calcutta in June next.

3. The hull is in good order and condition, bilges and store-rooms clean and in order.

4. Stock of oil, stores, provisions, water, &c., complete.

5. This vessel is to be relieved by the *Kemmendine* about the end of June next, and will be stationed in Rangoon as a relieving vessel to the other light-vessels when they come up to Rangoon for their annual overhaul.

6. The health of the establishment has been good.

EASTERN GROVE LIGHT-HOUSE.

Converted into an occulting light on 9th May 1896.

Inspected on the 12th April 1897. The light has been exhibited throughout the year.

2. The light-house, lantern, lamp, and machinery were all clean and in good order.

3. Checked the centring and the focus of the lamp and found it to be correct.

4. The distance of the visibility of the light has been frequently checked by the *ex-officio* Inspector of Light-houses in command of the R. I. M. S. *Dalhousie.*

5. Stock of oil, stores, provisions, water, &c., complete.

6. The health of the crew has been good throughout the year.

7. Such petty repairs that are considered necessary are detailed in Public Works Department statement column 10.

TABLE A.

No.	Name of light.	Location.	Latitude N.	Longitude E.	Number and relative position of lights.	Colour of lights.	Fixed, flashing, intermitting, alternating, or revolving.	Interval of revolution or flash.	Miles visible in clear weather.	Arc of illumination (bearings are magnetic and from seaward).
			Degs. M. S.	Degs. M. S.						
1	Oyster Island	On the centre of Oyster Island, off the entrance to the Myôn river. It is 8¼ miles north-west, half-north from the Oyster reef (the site of the old light-house).	20 12 50	92 32 51*	1	White and red.	Occulting ...	Every 28 seconds, occults for two seconds.	17·3	The apparatus illuminates all round the horizon 345° of white light, 15° of red covering Oyster Reef between bearing of N. 54° W. and N 39° W.
2	Savage Island	On Island entrance to Akyab harbour ...	20 05 07	92 54 09	1	White ...	Fixed and flashing.	Every one minute.	16·8	247½° or from S. 45½° W. through S. and E. to N. 22½ W.
3	Alguada Reef	On the Alguada reef. The light-house lies south south-west 10⅝ miles from Diamond Island flag-staff.	15 42 14	94 12 35	1	do ...	Revolving ...	Attains its greatest brilliancy every minute.	18·2	All round the compass.
4	Baragua Flats light-vessel	Off south-east end of Baragua flats in 6 fathoms...	15 28 46	95 11 14	1	Red and white.	Group flashing	Every 45 seconds duration of flash 5 seconds.	12	ditto.
5	Krishna Shoal light-vessel	In 5½ fathoms, off the south-east side of the Krishna shoal.	15 37 26	95 37 32	1	White ...	do. ...	Half a minute	12·4	ditto.
6	Great Cocos Group or Table Island, Andaman Islands	On the south-west end of Table Island, 2 miles from Great Cocos Island.	14 11 30	93 21 15	1	do ...	Fixed ...	.....	20·3	All round the compass, except where screened by the Great Cocos or between the bearings from N. by W. ½ W. to N. by E., and by the Little Cocos between the bearings from N. N.-E. ¾ E. to N.-E. ½ N. nearly.
7	China Buckeer or Thôngwa	In 4 feet at low-water spring tides, on the edge of the flats extending off the entrance to the China Buckeer or Thôngwa river.	16 17 33	96 11 09	1	do ...	Fixed and flashing.	Every 1 minute.	14·0	From the bearings N.-E. by E. ¾ E. through N. and W. to S.-W. ½ S.
8	Spit Channel light (entrance Rangoon river).	In the Fair way, off the Spit of sand $2\frac{8\cdot5}{10}$ miles south, 53 east from Elephant Point obelisk.	16 26 53	96 22 5	1	do ...	Fixed ...	.....	5·0	All round the compass.
9	Eastern Grove (Rangoon river).	One-hundred yards below high-water mark on Grove Point, east side of entrance to river.	16 30 01	96 23 4	1	do ...	Occulting ...	Ten seconds ...	15·4	67° 30′ or between the bearings from N.-E., by N. to N.-W. by N.
10	Elephant Point light ...	On Elephant Point	16 29 03	96 19 50	Two, about E.-S.-E. by W.-N.-W. 1	do ...	do ...	.....	5 and 4	230° or from N. 45 E. through N. and W. to S.-W.
11	Double Island	On the island	15 53 30	97 35 36†	1	do ...	do ...	.....	19·0	165° or between the bearings from S. S.-E., through E. to N. ¾ W. An isolated strip of light shows from the Patch buoy eastward as far as Amherst Point.
12	Reef Island or Tavoy river	On the north-east point of new Reef Island, west entrance to Tavoy river.	13 36 40	98 13 0	1	do ...	do ...	.....	12·0	202½ or from N. 5½° E. through W. to S. 17° E.

* Great Trigonometrical Survey determinations, Madras Observatory being in 80° 14′ 15″ east.

† By navigating Lieutenant Jarrad, 1877.

TABLE A—concluded.

No.	Name of light.	Nature of construction, colour, or any peculiarity of light-house.	Height in feet of centre of lantern above high-water.	Height in feet of building from base to vane.	Character and order of illuminating apparatus.	Year lighted.	Remarks.
1	Oyster Islannd ...	Iron; lower alternate black and white bands, decreasing in diameter gradually and evenly from base to top.	130	141	Dioptric, first order	1885; altered 1892 ...	To render safe the northern and western approaches to Akyab harbour.
2	Savage Island	Sandstone masonry. The tower is round with red lantern.	118	70	ditto ...	1844, improved in 1871 and again in 1891.	To facilitate entering Akyab harbour.
3	Alguada Reef	Granite masonry; alternate black and white bands, 18 feet wide, black at base.	144	160	Catadioptric, first order.	1865	To keep vessels clear of the Alguada Reef. Vessels should not approach to within 3 miles of the light-house on a northerly bearing.
4	Baragua Flats light-vessel	Floating light-vessel, painted red. During the day two red balls are carried at main masthead.	48	...	Cataoptric ...	2nd November 1896 ...	"Baragua" marked on sides.
5	Krishna Shoal light-vessel	Floating light-vessel, painted red; during the day a red ball is shown from the main masthead.	50	...	ditto ...	27th September 1877, altered May 1893.	"Krishna" marked on sides. The light-vessel shows a blue light every half hour from 7 P.M. to 5 A.M. The eclipses are flash 1¾ seconds, eclipse 4 seconds, flash 1¾ seconds, eclipse 22½ seconds.
6	Great Cocos Group or Table Island, Andaman Islands.	Cast-iron circular tower, with alternate red and white bands.	195	91	Dioptric, first order	15th February 1867 ...	To facilitate the navigation of Preparis channel.
7	China Buckeer or Thôngwa	Iron-screw piles, painted red with white lantern ...	74	...	ditto ...	1868; removed to present position in 1876.	Land-fall light for Rangoon river.
8	Spit Channel light (entrance Rangoon river).	Floating light-vessel; she carries a light at the main masthead.	54	...	Two steamers' masthead lights, back to back.	1887	"Spit" marked on sides; temporary floating light-vessel to enable vessels to keep clear of the spit of sand, at the entrance to the western Spit channel.
9	Eastern Grove (Rangoon river).	Iron-screw piles, painted red with white lantern ...	93	105	Dioptric, third order.	1860; altered 1881, improved 1893; improved again 1896.	A faint light is visible between north-west by north and north-west by west, modern pressure lamp, Douglas's three-wick burners for heavy mineral oil.
10	Elephant Point light ...	Steamer's masthead light on posts ...	Western light 33 feet, eastern light 15 feet.	...	Steamers' masthead lights.	1890	Leading-lights north 60° west, 108 yards apart. To facilitate vessels clearing the Spit below Elephant Point, Electric Telegraph, to Rangoon.
11	Double Island ...	Masonry tower. The foundation and 14 feet of the tower is of rubble granite; remainder of the building is of Singapore brick with copings of cut stone.	164	75	Dioptric, first order	1865	Is a guide to vessels making for the port of Moulmein.
12	Reef Island or Tavoy river	Masonry tower, painted white	309	25	Dioptric, fifth order	1883	Intended for vessels approaching the port of Tavoy.

TABLE C.—*Statement of Months, Dates, and Names of Officers or Steamers that visited the Light-houses and Light-vessels off the Coast of Burma during the year 1896-97.*

Name of light-house or light-vessel.	Month and name of officer or steamer.											
	April 1896.	May 1896.	June 1896.	July 1896.	August 1896.	September 1896.	October 1896.	November 1896.	December 1896.	January 1897.	February 1897.	March 1897.
Light-vessel *Kemmendine* (late *Krishna*).	*Dalhousie*, 15th.	*Dalhousie*, 29th.	*Dalhousie*, 18th	...	*Dalhousie*, 9th and 28th.	...	*Dalhousie*, 17th.	*Dalhousie*, 7th and 17th.	*Dalhousie*, 16th.	...	...	*Dalhousie* 18th.
Light-vessel *Danidaw* ...	...	...	...	...	...	...	...	*Dalhousie*, 7th.	*Dalhousie*, 16th.	...	...	ditto.
Alguada Reef light-house ...	*Dalhousie*, 16th.	*Dalhousie*, 24th.	*Dalhousie*, 30th.	...	*Dalhousie*, 4th and 31st.	...	*Dalhousie*, 18th.	*Dalhousie*, 8th.	*Dalhousie*, 17th.	...	...	*Dalhousie*, 29th, with Supdt.
Table Island light-house ...	*Dalhousie*, 22nd.	*Dalhousie*, 22nd.	...	*Dalhousie*, 1st.	*Dalhousie*, 2nd.	*Dalhousie*, 1st.	*Dalhousie*, 24th.	*Dalhousie*, 9th.	*Dalhousie*, 22nd.	...	*Dalhousie*, 14th, *Dalhousie*, with Supdt., 20th.	...
Double Island light-house ...	*Dalhousie*, 2nd, with Supdt., *Dalhousie*, 25th.	*Dalhousie*, 19th.	...	*Dalhousie*, 7th and 28th.	*Dalhousie*, 26th.	...	*Dalhousie*, 28th.	...	*Dalhousie*, 25th.	...	*Dalhousie*, 1st, *Dalhousie*, 26th, with Supdt.	...
Savage Island light-house ...	Port Officer, Akyab, *Dalhousie*, 18th.	Port Officer, Akyab, *Dalhousie*, 26th.	Port Officer, Akyab, *Dalhousie*, 23rd.	Port Officer, Akyab.	Port Officer, Akyab, *Dalhousie*, 6th.	Port Officer, Akyab, *Dalhousie*, 5th.	Port Officer, Akyab, *Dalhuosie*, 20th.	Port Officer, Akyab, *Dalhousie*, 11th.	Port Officer, Akyab, *Dalhousie*, 18th.	Port Officer, Akyab.	Port Officer, Akyab.	Port Officer, Akyab, *Dalhousie*, 30th, with Supdt.
Reef Island light-house ...	*Dalhousie*, 1st, with Supdt., *Dalhousie*, 24th.	*Dalhousie*, 20th.	...	*Dalhousie*, 3rd and 29th.	*Dalhousie*, 27th.	...	*Dalhousie*, 27th.	...	*Dalhousie*, 24th.	...	*Dalhousie*, 25th, with Supdt.	...
Oyster Island light-house ...	*Dalhousie*, 19th.	*Dalhousie*, 26th.	*Dalhousie*, 24th.	...	*Dalhousie*, 7th.	*Dalhousie*, 4th.	*Dalhousie*, 22nd.	*Dalhousie*, 12th.	*Dalhousie*, 20th	...	...	*Dalhousie*, 5th.
Eastern Grove light-house ...	Boat, 9th...	Boat, 11th, 16th, and 25th.	Boat, 16th, and 30th.	Boat, 25th...	Boat, 6th ...	Boat, 5th and 11th.	Boat, 5th	...	Boat, 1st and 24th.	...	...	Boat, 8th and 15th.
China Buckeer light-house ...	Boat, 3rd and 29th.	...	...	Boat, 3rd ...	Boat, 28th	Boat, 1st and 29th.	...	Boat, 5th, *Myanoung*, 28th.	...	Boat, 27th	Boat, 10th...	Boat, 1st, 18th, and 30th.
Light-vessel *Martaban* ...	Weekly by *Alert*.				...	...	...	...	...	...	...	...

TABLE D.—*Comparative Statement showing the amount of Provincial and Imperial Light dues collected by the Rangoon Port Commissioners during the years 1896-97. and 1895-96.*

Description of light-dues.	1896-97.	1895-96.	Increase.	Decrease.	Remarks.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Burma Coast Light-dues ...	1,54,918 10 0	1,58,800 8 0	.....	3,881 14 0	
Little and Great Basses dues	9,085 13 11	11,809 12 1	.....	2,723 14 2	
Minicoy Light dues ...	1,801 4 1	2,388 0 9	.....	586 12 8	
Straits Light dues ...	1,495 5 6	2,519 14 0	.....	1,114 8 6	
Total ...	1,67,211 1 6	1,75,518 2 10	.....	8,307 1 4	

TABLE C.—*Statement of Months, Dates, and Names of Officers or Steamers that visited the Light-houses and Light-vessels off the Coast of Burma during the year 1896-97.*

Name of light-house or light-vessel.	Month and name of officer or steamer.											
	April 1896.	May 1896.	June 1896.	July 1896.	August 1896.	September 1896.	October 1896.	November 1896.	December 1896.	January 1897.	February 1897.	March 1897.
Light-vessel *Kemmendine* (late *Krishna*).	*Dalhousie*, 15th.	*Dalhousie*, 29th.	*Dalhousie*, 18th	...	*Dalhousie*, 9th and 28th.	...	*Dalhousie*, 17th.	*Dalhousie*, 7th and 17th.	*Dalhousie*, 16th.	...	...	*Dalhousie* 18th.
Light-vessel *Danidaw* ...	...	...	...	...	...	...	...	*Dalhousie*, 7th.	*Dalhousie*, 16th.	...	...	ditto.
Alguada Reef light-house ...	*Dalhousie*, 16th.	*Dalhousie*, 24th.	*Dalhousie*, 30th.	...	*Dalhousie*, 4th and 31st.	...	*Dalhousie*, 18th.	*Dalhousie*, 8th.	*Dalhousie*, 17th.	...	...	*Dalhousie*, 29th, with Supdt.
Table Island light-house ...	*Dalhousie*, 22nd.	*Dalhousie*, 22nd.	...	*Dalhousie*, 1st.	*Dalhousie*, 2nd.	*Dalhousie*, 1st.	*Dalhousie*, 24th.	*Dalhousie*, 9th.	*Dalhousie*, 22nd.	...	*Dalhousie*, 14th, *Dalhousie*, with Supdt., 20th.	...
Double Island light-house ...	*Dalhousie*, 2nd, with Supdt., *Dalhousie*, 25th.	*Dalhousie*, 19th.	...	*Dalhousie*, 7th and 28th.	*Dalhousie*, 26th.	...	*Dalhousie*, 28th.	...	*Dalhousie*, 25th.	...	*Dalhousie*, 1st, *Dalhousie*, 26th, with Supdt.	...
Savage Island light-house ...	Port Officer, Akyab, *Dalhousie*, 18th.	Port Officer, Akyab, *Dalhousie*, 26th.	Port Officer, Akyab, *Dalhousie*, 23rd.	Port Officer, Akyab.	Port Officer, Akyab, *Dalhousie*, 6th.	Port Officer, Akyab, *Dalhousie*, 5th.	Port Officer, Akyab, *Dalhuosie*, 20th.	Port Officer, Akyab, *Dalhousie*, 11th.	Port Officer, Akyab, *Dalhousie*, 18th.	Port Officer, Akyab.	Port Officer, Akyab.	Port Officer, Akyab, *Dalhousie*, 30th, with Supdt.
Reef Island light-house ...	*Dalhousie*, 1st, with Supdt., *Dalhousie*, 24th.	*Dalhousie*, 20th.	...	*Dalhousie*, 3rd and 29th.	*Dalhousie*, 27th.	...	*Dalhousie*, 27th.	...	*Dalhousie*, 24th.	...	*Dalhousie*, 25th, with Supdt.	...
Oyster Island light-house ...	*Dalhousie*, 19th.	*Dalhousie*, 26th.	*Dalhousie*, 24th.	...	*Dalhousie*, 7th.	*Dalhousie*, 4th.	*Dalhousie*, 22nd.	*Dalhousie*, 12th.	*Dalhousie*, 20th	...	...	*Dalhousie*, 5th.
Eastern Grove light-house ...	Boat, 9th...	Boat, 11th, 16th, and 25th.	Boat, 16th, and 30th.	Boat, 25th...	Boat, 6th ...	Boat, 5th and 11th.	Boat, 5th	...	Boat, 1st and 24th.	...	...	Boat, 8th and 15th.
China Buckeer light-house ...	Boat, 3rd and 29th.	...	...	Boat, 3rd ...	Boat, 28th	Boat, 1st and 29th.	...	Boat, 5th, *Myanaung*, 28th.	...	Boat, 27th	Boat, 10th...	Boat, 1st, 18th, and 30th.
Light-vessel *Martaban* ...	Weekly by *Alert*.				...	...	...	...	...	...	...	...

REPORT ON LIGHT-HOUSES AND LIGHT-VESSELS, BURMA, 1896-97. 13

TABLE D.—*Comparative Statement showing the amount of Provincial and Imperial Light dues collected by the Rangoon Port Commissioners during the years 1896-97 and 1895-96.*

Description of light-dues.	1896-97.	1895-96.	Increase.	Decrease.	Remarks.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Burma Coast Light-dues ...	1,54,918 10 0	1,58,800 8 0	.....	3,881 14 0	
Little and Great Basses dues	9,085 13 11	11,809 12 1	.....	2,723 14 2	
Minicoy Light dues ...	1,801 4 1	2,388 0 9	.....	586 12 8	
Straits Light dues ...	1,405 5 6	2,519 14 0	.....	1,114 8 6	
Total ...	1,67,211 1 6	1,75,518 2 10	.....	8,307 1 4	

TABLE E.—*Valuation of Light-house Stores received from the Director-General of Stores, London, during the year 1896-97.*

Name of steamer imported by.	Name of light-house received on account of.	Name of supplies and description of stores.	Value of each article.	Total of each.	Total cost at Rangoon at 1s. 1½d. exchange.
			£. s. d.	£. s. d.	Rs. A. P.
S. S. *Lancashire.*	Alguada Reef light-house.	40 gross 1¼ argand wicks, at 1s. 5d.	2 16 8		
		8 sets argand burners, at 11s.	4 8 0		
		2 gross argand chimneys ...	6 0 0		
		Packing	1 12 0		
		Share of freight ...	2 10 1½		
				17 6 9½	308 4 3
	Cocos Island light-house.	22 yards-wick each Nos. 1, 2, 3, and 4.	2 17 6		
		Packing	0 11 9		
		Share of freight ...	0 11 5¾		
				4 0 8¾	71 12 1
	Double Island light-house.	50 4-wick chimneys ...	5 12 6		
		Packing	0 12 6		
		Share of freight ...	0 12 4¾		
				6 17 4¾	122 2 1
	Reef Island light-house.	50 4th-order chimneys ...	5 12 6		
		Packing	0 12 6		
		Share of freight ...	0 12 4¾		
				6 17 4¾	122 2 2
	Eastern Grove light-house.	750 gallons mineral oil, at 1s. ¼d.	38 5 7½		
		Share of freight, &c. ...	2 7 10		
				40 13 5½	723 1 2
	Savage Island light-house.	2,500 gallons mineral oil at, 1s. ¼d.	127 12 1		
		Share of freight, &c. ...	7 18 3		
				135 10 4	2,409 2 11
	Oyster Island light-house.	2,500 gallons mineral oil at 1s. ¼d.	127 12 1		
		Share of freight, &c. ...	7 18 3		
				135 10 4	2,409 2 11
	Krishna light-vessel.	1,250 gallons mineral oil at 1s ¼d.	63 16 0½		
		Share of freight, &c. ...	3 19 1		
				67 15 1½	1,204 8 11
	Baragua light-vessel.	1,250 gallons mineral oil at 1s. ¼d.	63 16 0½		
		Share of freight, &c. ...	3 19 1		
				67 15 1½	1,204 8 11
		Total ...		482 6 8¼	8,574 13 5

TABLE F.—*Detailed statement showing the receipts from Light-dues and expenditure on Coast Lights in Burma during the year 1896-97.*

Receipts.	Amount.	Expenditure.	Amount.	Total.
BURMA COAST LIGHT-DUES.	Rs. A. P.	ALGUADA REEF.	Rs. A. P.	Rs.
		Establishment	7,307 10 4	
		Provisions	2,951 6 2	
		Oil	1,856 4 0	
		Stores and contingencies ...	1,989 6 3	
Provincial.		Public Works Department expenditure other than capital expenditure	1,021 0 0	
Rangoon ...	1,54,918 10 0	Total ...	.....	15,125 10 9
Moulmein ...	27,435 0 6			
Bassein ...	12,176 11 6	Capital expenditure during the year 1896-97.	6,127 0 0	
Akyab ...	12,257 2 6	Capital expenditure to end of the year 1896-97.	11,10,214 0 0	
Total ...	2,06,787 8 6	Interest at 4 per cent. on capital expenditure to date.	.....	44,409 0 0
Calcutta ...	65,492 7 0	GRAND TOTAL ...	.....	59,534 10 9
Chittagong ...	955 12 6			
GRAND TOTAL ...	2,73,235 12 0	OYSTER REEF (*a*).		
Refunds ...	1,783 8 0			
Net receipts ...	2,71,452 4 0	Establishment	.....	
		Provisions	.....	
		Oil	.....	
		Stores and contingencies ...	.....	
		Public Works Department expenditure other than capital.	.....	
		Total ...	.....	
		Capital expenditure during the year 1896-97.	.. ...	
		Capital expenditure to end of the year 1896-97.	7,01,833 0 0	
Other items credited to this head.		Interest at 4 per cent. on capital expenditure to date.	.....	28,073 0 0
Sale-proceeds of condemned stores.	756 5 3	GRAND TOTAL ...	.....	28,073 0 0
Fines and forfeitures of pay, &c.	69 12 4	KRISHNA SHOAL (*b*).		
Contribution by Port Commissioners towards floating light-vessel *Martaban.*	3,000 0 0	Establishment	.....	
		Provisions	.....	
		Oil	.....	
		Stores and contingencies ...	.....	
		Public Works Department expenditure other than capital	.....	
		Total ...	.....	
		Capital expenditure during the year 1896-97.	.....	
		Capital expenditure to end of the year 1896-97.	1,83,195 0 0	
		Interest at 4 per cent. on capital expenditure to date.	.....	7,328 0 0
		GRAND TOTAL ...	.....	7,328 0 0
		DOUBLE ISLAND.		
		Establishment	1,019 4 2	
		Provisions	1,126 12 10	
		Oil	1,436 14 0	
		Stores and contingencies ...	1,546 6 3	
		Public Works Department expenditure other than capital.	661 0 0	
		Total ...	.....	5,790 5 3

(*a*) This light-house was destroyed by a storm in May 1884.
(*b*) This light-house was destroyed by a storm in August 1877.

TABLE F.—*Detailed statement showing the receipts from Light-dues and expenditure on Coast Lights in Burma during the year 1896-97*—continued.

Receipts.	Amount.	Expenditure.	Amount.	Total.
			Rs. A. P.	Rs. A. P.
		DOUBLE ISLAND—concluded.	.....	...
		Capital expenditure during the year 1896-97.	16 0 0	
		Capital expenditure to end of the year 1896-97.	1,32,802 0 0	
		Interest at 4 per cent. on capital expenditure to date.	.....	5,312 0 0
		GRAND TOTAL ...	.....	11,102 5 3
		CHINA BUCKEER.		
		Establishment	1,981 12 11	
		Provisions	1,323 2 11	
		Oil	1,559 6 0	
		Stores and contingencies ...	1,577 11 0	
		Public Works Department expenditure other than capital.	669 0 0	
		Total ...	.....	7,111 0 10
		Capital expenditure during the year 1896-97.	824 0 0	
		Capital expenditure to end of the year 1896-97.	1,48,900 0 0	
		Interest at 4 per cent. on capital expenditure to date.	.....	5,956 0 0
		GRAND TOTAL ...	.....	13,067 0 10
		EASTERN GROVE.		
		Establishment	2,071 7 9	
		Provisions	962 3 2	
		Oil	162 6 8	
		Stores and contingencies ...	2,155 15 0	
		Public Works Department expenditure other than capital.	530 0 0	
		Total ...	.....	5,882 0 7
		Capital expenditure during the year 1896-97.	873 0 0	
		Capital expenditure to end of the year 1896-97.	60,891 0 0	
		Interest at 4 per cent. on capital expenditure to date.	.....	2,436 0 0
		GRAND TOTAL ...	.....	8,318 0 7
		TERRIBLES.		
		Establishment	.....	
		Provisions	.....	
		Oil	.....	
		Stores and contingencies ...	.....	
		Public Works Department expenditure other than capital.		
		Total ...	.....	
		Capital expenditure during the year 1896-97.	.....	
		Capital expenditure to end of the year 1896-97.	3,648 0 0	
		Interest at 4 per cent. on capital expenditure to date.	.....	146 0 0
		GRAND TOTAL ...	.....	146 0 0

TABLE F.—*Detailed statement showing the receipts from Light-dues and expenditure on Coast Lights in Burma during the year 1896-97*—continued.

Receipts.	Amount.	Expenditure.	Amount.	Total.
			Rs. A. P.	Rs. A. P.
		REEF ISLAND.		
		Establishment	880 0 0	
		Provisions	659 9 4	
		Oil	355 0 0	
		Stores and contingencies ...	1,463 7 1	
		Public Works Department expenditure other than capital.	389 0 0	
		Total ...	.....	3,747 0 5
		Capital expenditure during the year 1896-97.	28 0 0	
		Capital expenditure to end of the year 1896-97.	18,756 0 0	
		Interest at 4 per cent. on capital expenditure to date.	.....	750 0 0
		GRAND TOTAL ...	.....	4,497 0 5
		SAVAGE ISLAND.		
		Establishment	2,079 0 0	
		Provisions	1,098 9 3	
		Oil	448 6 9	
		Stores and contingencies ...	3,980 9 6	
		Public Works Department expenditure other than capital.	481 0 0	
		Total ...	.....	8,087 9 6
		Capital expenditure during the year 1896-97.	1,342 0 0	
		Capital expenditure to end of the year 1896-97.	96,909 0 0	
		Interest at 4 per cent. on capital expenditure to date.	.....	3,876 0 0
		GRAND TOTAL ...	...	11,963 9 6
		TABLE ISLAND.		
		Establishment	4,570 12 7	
		Provisions	2,013 14 2	
		Oil	1,416 10 0	
		Stores and contingencies ...	1,566 3 8	
		Public Works Department expenditure other than capital.	767 0 0	
		Total ...	.....	10,334 8 5
		Capital expenditure during the year 1896-97.	1,546 0 0	
		Capital expenditure to end of the year 1896-97.	1,33,180 0 0	
		Interest at 4 per cent. on capital expenditure to date.	.....	5,327 0 0
		GRAND TOTAL ...	.....	15,661 8 5
		OYSTER ISLAND.		
		Establishment	7,644 6 1	
		Provisions	2,364 5 1	
		Oil	421 8 9	
		Stores and contingencies ...	4,000 13 11	
		Public Works Department expenditure other than capital.	713 0 0	
		Total ...	.....	15,144 1 10

TABLE F.—*Detailed statement showing the receipts from Light-dues and expenditure on Coast Lights in Burma during the year 1896-97*—continued.

Receipts.	Amount.	Expenditure.	Amount.	Total.
			Rs. A. P.	Rs. A. P.
		OYSTER ISLAND—concluded.		
		Capital expenditure during the year 1896-97.	2,453 0 0	
		Capital expenditure to end of the year 1896-97.	2,72,839 0 0	
		Interest at 4 per cent. on capital expenditure to date.	.....	10,914 0 0
		GRAND TOTAL ...	.....	26,058 1 10
		F. L. V. "KEMMENDINE" LATE "KRISHNA."		
		Establishment	14,263 9 5	
		Provisions	3,352 8 0	
		Oil	246 10 4	
		Stores and contingencies ...	10,273 13 6	
		Expenditure other than capital ...	.....	
		Total ...	.....	28,136 9 3
		Capital expenditure during the year 1896-97.	.....	
		Capital expenditure to end of the year 1896-97.	1,32,101 0 0	
		Interest at 4 per cent. on capital expenditure to date.	.....	5,284 0 0
		GRAND TOTAL ...	.....	33,420 9 3
		F. L. V. "MARTABAN."		
		Establishment	2,188 0 0	
		Provisions	1,501 12 9	
		Oil	304 11 0	
		Stores and contingencies ...	282 7 4	
		Expenditure other than capital ...	.....	
		Total ...	.....	4,276 15 1
		Capital expenditure during the year 1896-97.	.....	
		Capital expenditure to end of the year 1896-97.	1,49,308 0 0	
		Interest at 4 per cent. on capital expenditure to date.	.....	5,972 0 0
		GRAND TOTAL ...	.....	10,248 15 1
		L. V. "COLOMBO." (*c*).		
		Capital expenditure to end of the year 1896-97.	83,387 0 0	
		Interest at 4 per cent. on capital expenditure to date.	.....	3,335 0 0
		GRAND TOTAL ...	.....	3,335 0 0
		F. L. V. "DANIDAW."		
		Establishment	5,365 6 4	
		Provisions	1,988 1 2	
		Oil	252 14 4	
		Stores and contingencies ...	5,127 10 9	
		Expenditure other than capital ...	.....	
		Total ...	.....	12,734 0 7

(*c*) Condemned in December 1893 and sold by auction.

TABLE F.—*Detailed statement showing the receipts from Light-dues and expenditure on Coast Lights in Burma during the year 1896-97*—concluded.

Receipts.	Amount.	Expenditure.	Amount.	Total.
			Rs. A. P.	Rs. A. P.
		F. L. V. "DANIDAW."—concluded.		
		Capital expenditure during the year 1896-97.	69,603 10 2	
		Capital expenditure to end of the year 1896-97.	1,46,652 1 10	
		Interest at 4 per cent. on capital expenditure to date.	.....	5,866 0 0
		GRAND TOTAL ...	.....	18,600 0 7
		L. V. "KALAGAUK." (Under construction at Kidderpore dockyard.)		
		Capital expenditure during the year 1896-97.	31,579 2 11	
		Capital expenditure to end of the year 1896-97.	73,057 7 8	
		Interest at 4 per cent. on capital expenditure to date.	.....	2,922 0 0
		GRAND TOTAL ...	.....	2,922 0 0

		Rs. A. P.
(1) Grand total, current expenditure ...		1,16,369 14 6
(2) Grand total, capital expenditure during the year 1896-97...		1,14,391 13 1
(3) Grand total, capital expenditure to end of the year 1896-97		34,47,670 9 6
(4) Grand total, interest at 4 per cent. on capital expenditure to date.		1,37,906 0 0
(5) Grand total, expenditure other than capital account ...		2,54,275 14 6
		Rs. A. P.
Note—Total (1) and (2) above		2,30,761 11 7
	Rs. A. P.	
Deduct (*a*) P. W. D. current expenditure	5,231 0 0	
(*b*) P. W. D. capital expenditnre	13,209 0 0	
Total		18,440 0 0
		2,12,321 11 7
Disbursements per Comptroller's books		2,03,746 14 2
		8,574 13 5*

* Will be adjusted by the Comptroller in his final account for March 1897.

RANGOON:
The 2nd June 1897.

F. BARWICK, COMMANDER, R. I. M.,
Offg. Superintendent of Lighthouses.

ANNUAL REPORT ON LIGHT-HOUSES ON THE BURMA COAST FOR THE YEAR 1896-97.

From M. P. Coode, Esq., Assistant to the Chief Engineer and Under Secretary to Government, Public Works Department, for Lower Burma, to the Superintendent of Light-Houses, Burma,—No. 5214-3C.I., dated the 18th May 1897.

With reference to your letter No. 45-13 L.H.G., dated the 2nd ultimo, I am directed to forward herewith for disposal the annual report by the Superintending Engineer, South-Western Circle, on light-houses on the Burma coast for 1896-97.

Inspection Report by R. E. Nelson, Esq., Superintending Engineer, South-Western Circle, on the Burma Light-houses for the year 1896-97.

In company with Captain Barwick, R.I.M., Superintendent of Light-houses, I inspected the various light-houses from the 20th to 27th February and 18th March to 4th April.

Attached to this report are statements giving a list of works undertaken and a list of requirements for the coming year. In addition to these statements it will be sufficient if I describe briefly the condition in which I found each light-house.

China Buckeer.

A special report by the Executive Engineer, Rangoon Division, on the bracing of this light-house is attached. The necessary orders have been issued. The greatest importance should be attached to keeping this bracing at all times in a thoroughly efficient condition. The rest of the structure was found to be in good condition and well looked after. The height from sand to platform was measured and found normal and no signs of foundation scouring. The absence of broken panes of glass prove that vibration of the structure has not been excessive.

The revolution of the light was tested by observation at sea and found to vary 3 to 4 seconds, which is allowable. The burner was in centre, level, and in focus. Certain parts of the machine are worn and require renewal. Considering that this machine has been running since 1868, it is in very good order. The lightning conductor was tested and found in good order.

Table Island.

The light-house has been recently painted throughout and is in good order. Before the next internal painting the iron-work must be scaled throughout. The outside was scaled in January 1896. The light is in good order and all the auxiliary and subsidiary buildings have been recently repaired and are in good order, except the cemetery, the fencing of which requires repair. The landing-place for north-east monsoon might be improved by some more blasting and this *must* be done next season. It will be an inexpensive job. Lightning conductor tested and in good order.

Reef Island.

Found everything in good order, except the lightning conductor, the earth resistance of which is still much too high. I have instructed Mr. Reilly, Sub-Engineer, to prepare an estimate for continuing the conductor down to the sea.

Double Island.

The various buildings in good order except that the roof of light-keepers' quarters leak very badly. An estimate is under preparation to remedy this. The centreing and focussing of the light is constantly getting out owing to the weakness of the pedestal supporting the platform. Four struts should be introduced to strengthen the platform. The landing-place might be very much improved at slight expense by blasting away a few rocks; this will be done in coming year. The high tree which is a land-mark is dead and must come down.

Oyster Island.

The iron light-house is in good order, so also are the keepers' quarters, both European and Native. The machinery is in bad order, much worn, and does not run uniformly. It should be replaced by the new duplicate set which is at the light-house and then sent Home to Chance Brothers to be thoroughly repaired. The landing jetty to be thoroughly scraped and painted with red lead as soon as possible.

Savage Island.

All buildings in good order. Focus of light correct, the machinery working well.

Alguada Reef.

All buildings in good order. The machinery of light is very much worn and the time has come, in my opinion, when we must replace this machinery and put up also an improved light in accordance with the recommendations of Mr. J. Douglass, of the Trinity House, made seven years ago. It will take a couple of years to get this done, and I think we should set about it at once. Mr. Douglass to be asked what sort of light he would now recommend.

The lee-walls of house on landing-platform to be strengthened and various other small items to be carried out. The new jib is a very satisfactory job. There seems no signs of denudation of the rock or of increase in the chasm. The landing-jetty on the east of the reef proposed as long ago as 1890 should, I think, be put in hand and finished as soon as possible. When I landed on this occasion there was a strongish north-east breeze blowing which caused a heavy swell and made the south-west landing somewhat dangerous to the boats, whereas, on the east side the sea was as calm as a millpond.

Eastern Grove.

Inspected on the 12th April. Structure and machinery in good order. A number of small items require attention and were noted.

From W. G. Newton, Esq., Executive Engineer, Rangoon Division, to the Superintending Engineer, South-Western Circle,—No. 1417-6C.—1, dated the 23rd March 1897.

With reference to your No. 2249, dated the 15th instant, I have the honour to state that I visited the China Buckeer light-house on Saturday, the 20th, and was there at the time of low water, 10-30 A.M.

Two sets of cross-ties between the outer piles are not provided with clamps at the points of intersection as the others are, and by constant rubbing together they are somewhat worn.

The clamps should be provided. The clips which hold the lower ends of this bracing have become loose and new ones should be provided. The new ones should be wide enough for two bolts instead of one as at present, that is, they should be 6 inches wide instead of 3 inches.

The piles are considerably corroded and the corrosion seems to have taken place most at and near the clips. Whether it is that the clips having become loose have worn the piles away or whether it is only from chemical action, I am unable to say, but there is no doubt of the fact. In one place the corrosion has extended quite $\frac{3}{8}$-inch into the pile. I was unable to ascertain how far down this corrosion extends, but the men say that the piles have become thin below water.

In fixing the new clips the piles can be cleaned and a regular joint made with the usual composition. This will prevent the clips moving and causing wear in the piles. This will so far be a remedy, but with regard to the lower part of the piles I do not see at present that anything can be done.

Your orders are awaited.

Annual Report of Light-houses along the Coast of Burma for the year ending 1896-97, Rangoon Division, Public Works Department.

Light-house.	Locality.	Description of light.	Description of light-house.	New works, additions, alterations, and improvements.	Special repairs.	Ordinary repairs.	Inspections.	Lightning-conductor.	New works and repairs ordered for 1897-98.
1	2	3	4	5	6	7	8	9	10
Eastern Grove ...	On Grove Point, east side of entrance to Rangoon river. Latitude, N. 16° 36'. Longitude, E. 96° 23'.	Dioptric, second order, white, occulting once every 10 seconds. Focal plane 93 feet above H. W. L. Visible between N. 34° E. and N. 34° W.	Braced iron-screw piled structure, painted red with white dome, built in 1860.	Light converted from a fixed second order to an occulting second order, having an occultation of six every minute, namely: 8 seconds light, and 2 seconds eclipse. Machine oil-feeders supplied. Designation board fixed. Damper gear for new light improved. Electric bell fitted. Tanks for storing heavy mineral oil received from England. Filter for pump provided. Clock with seconds dial and thermometer supplied.	Ladder casings renewed ... Feed valve studs renewed. Commemoration tablet fixed. Tops of water-tanks cemented.	All the painting and coal-tarring inside and outside completed. Decayed timbers renewed. All lamp gear and tools, &c., repaired whenever required.	7th April 1895, by the Superintending Engineer and Mr. Reilly. 5th to 10th May 1896, by Mr. Reilly 13th May 1896, by Mr. Reilly. 6th September 1896, by Mr. Reilly. 16th and 17th September 1896, by Mr. Reilly. 20th January 1897, by Mr. Reilly. 12th April 1897, by the Superintending Engineer and Mr. Reilly.	Copper rod terminating 3 feet above dome-end and lashed on to the first line of braces below gallery level. Tested on 12th April 1897 and found perfect.	The entrance ladder to be altered as has been done at China Buckeer, the packing case used a temporary locker to be removed, and shelves supplied, Cooking-range to be supplied. Missing rivets in corrugated-iron walling to be renewed. The pitching (stone) under the light house to be readjusted and heights from first floor-level taken and recorded as is done at China Buckeer. The decayed floor-planks in light-room to be renewed.
Double Island ...	On the north point of Double Island. Latitude, 15° 53'. Longitude, 97° 35'.	Dioptric, first order, white, fixed. Focal plane 164 feet above H. W. L. Visible from N. 8° W. through E. to S. 22° E. A sector of light shows from the Patch buoy eastward as far as Amherst Point. The light has reflecting prisms on the obscured part.	Round masonry tower, built in 1865. Foundations and 14 feet of tower built of rubble granite, the rest of Singapore cut stone with coping. Painted white with red dome.	New burners fitted to reservoir Steadying-stays to draft-pipe fixed. ... ... New draft pipe valve fitted.	Broken ladder repaired ... New door in native quarters fixed.	All painting, white and colour-washing, and coal-tarring, also repairs to plaster. Repairs to doors and windows completed. All burners, pumps, and tools repaired as required.	2nd April 1896, by the Superintending Engineer. 18th May 1896, by Mr. Reilly. 7th July 1896, by Mr. Reilly. 25th July 1896, by Mr. Reilly. 28th October 1896, by Mr. Reilly. 26th February 1897, by the Superintending Engineer and Mr. Reilly.	Five-eighths copper rod from base of new dome wind-vane to earth-plate buried a short distance from the light-house. Light standard connected with conductor. Tested on 26th February 1897. The joints in the conductor should be soldered and the weather-cock cleaned up, otherwise the conductor is in good order.	Corrugated-iron roof to be put over roof of European quarters. Drawing of light showing locality of conductor to be supplied. The paint from all beams in building to be removed. Boulders in dock to be blasted. High tree now inclining towards the building to be cut down. Decayed beam in kitchen to be renewed. Parapets to European and Native quarters as well as all subsidiary buildings to be removed. Gutters to European and Native quarters to be supplied. Split and other kinds of pins required for the pumps, &c., to be indented for from England and supplied.
Reef Island ...	On north-east point of Reef Island, west entrance to Tavoy river. Latitude, 13° 36'. Longitude, 98° 13'.	Dioptric, fifth order, white, fixed. Focal plane 300 feet above H. W. L. Visible from N. 6° E. through S. 17° E.	Square masonry tower, painted white with white dome.	Skids for water-tanks supplied Hand bailer's-eye lamp supplied. ... ... Drain-pipe from lantern supplied and fixed.	Bolts in quarters renewed. Road-way repaired.	All painting, white-washing, earth-oiling, and coal-tarring completed. All repairs to doors and windows completed. Burners and other gear repaired as required.	1st April 1896, by the Superintending Engineer. 20th May 1896, by Mr. Reilly. 3rd July 1896, by Mr Reilly. 29th July 1896, by Mr. Reilly. 25th October 1896, by Mr. Reilly. 25th February 1897, by the Superintending Engineer and Mr. Reilly.	Copper rod ⅝"-diameter projecting 6-feet above dome. Copper earth-plate 4'×3'×¼" placed in pit vertically below ground and connected with terminal by copper tape 1¼"×⅛". Tested on 25th February 1897. Continuity good, but the earth resistance much too high and can only be improved by taking a line of wire rope down the hill into the sea, which will be done.	Parapets to European and Native quarters as well as all subsidiary buildings to be removed. Gutters to European and Native quarters to be supplied. Split and other kinds of pins required for the pumps, &c., to be indented for from England and supplied. Eave-purlings of roof of light-house to be properly secured by W.I. clamps to hip-rafters. Missing bolts to be replaced. Water-tank skids to be placed on concrete blocks Masonry plinth to go round light-keepers' quarters. Earth-plate of conductor to be extended towards the sea.
Table Island ...	On the summit of south-west end of Table Island, 2 miles from Great Cocos Island. Latitude, 14° 11'. Longitude, 93° 21'.	Dioptric, first order, white, fixed. Focal plane 195 feet above H. W. L. Visible all round the compass, except between the bearings of N. 11° E. and N. 14° W. and from N. 28° E. to N. 37° E.	Round tower of cast-iron in segments, painted in alternate red and white bands; red at base with red dome.	Ventilation in cow-shed improved Four 400-gallon water-tanks supplied. ... ... Ventilation at base of light-house improved. Harness casks with fittings for storing meats supplied. Trinity burner to suit reservoir supplied. New copper draft-pipe with fittings supplied.	Couches repaired ... Focussing studs in lens renewed. Plane diagram renewed. Hobb's locks renewed. Jack-knife supplied.	All painting, white and colour-washing, earth and coal-tarring completed. Roof patched where leaking, plaster renewed where required. All burners, pumps, and other gear repaired when required.	22nd May 1896, by Mr. Reilly ... 1st July 1896, by Mr. Reilly. 2nd August 1896, by Mr. Reilly. 24th October 1896, by Mr. Reilly. 9th November 1896, by Mr. Reilly. 20th February 1897, by the Superintending Engineer and Mr. Reilly.	No conductor at this light-house, being of Iron. The continuity of building or light-house was tested and found perfect on 20th February 1897.	Sea-wall between reefs to be built up. Dock to be deepened and western slope of groyne to be made up of cement concrete in lieu of the dry rubble. Angle-iron for fire-places to be fixed. Fire-places to be re-done. Water-supply for cattle to be improved. Tank to be dug deeper, sides faced with stone, well to be deepened and a plank bridge to be thrown across the creek, separating the garden from the tank. Rails to be supplied to serve as spare beacons in north bay landing. Parts of the roof over cow-shed where corroded to be spliced with new corrugated-iron sheets. Inside of light-house to be scaled by light-house staff. Inlets to drain-pipes in roof of European quarters to be improved. Larger pipes, 6-inch diamter, to be inserted. Decayed uprights to cemetery railings to be renewed. Split and other kinds of pins required for the pumps, &c., to be indented for from England and supplied.
Alguada Reef ...	On the Alguada Reef, 10¼ miles S. S.-W. from Diamond Island. Latitude, 15° 42'. Longitude, 94° 12'.	Catadioptric, first order, white, revolving, attains its maximum intensity every minute. Focal plane 144 feet above H. W. L.	Granite tower, alternate black and white bands, 18 feet wide, black at base with white dome. Landing-stage 65 feet by 21 feet and foot-way 150 feet long, both on braced-iron piles. The former has a corrugated-iron room for use of the crew in fine weather.	Wrought-iron derrick fixed Goose-neck yard-arms for signalling fixed. ... ... Skirting iron round gallery fixed. Harness casks with mountings supplied. New funnel for cooking-range fixed. New set of lantern purdahs supplied. Skids for water-tanks supplied. Landing at north-east extended. Machine feeders supplied, also bottle and hand-squeezers supplied. New hen-coop supplied. Dome drain-pipes altered. New chafe rollers supplied and fixed.	Leaky water-tanks cemented; lift pump repaired; oil-tanks scraped, painted cemented and re-set with air space. Damage done by cyclone to bridges and electric bell repaired.	All painting and coal-tarring completed. All repairs to burners, wick-lifters, galleries, and other parts of the machinery, repaired when required.	15th to 25th April 1896, by Mr. Reilly 24th May 1896, by Mr. Reilly. 30th June 1895, by Mr. Reilly. 4th August 1896, by Mr. Reilly. 18th October 1896, by Mr. Reilly. 8th November 1896, by Mr. Reilly. 10th to 22nd December 1896, by Mr. Reilly. 2nd April 1897, Superintending Engineers and Mr. Reilly.	Conductor from dome to gallery, a copper rod from here to base of light-house, a copper wire which is attached to a copper rod leading into the sea. Tested on 2nd April 1897. The earth-plate appears to have carried away. It should be replaced by a coil of ½" copper rope, soldered to the end of the copper rope.	Cleat for leading block on platform to be fixed. Knees to be fixed to skids. Tanks to be properly secured against being washed away. More bolts to be put into walls of platform-room. Extra braces to be fixed in west side and one line of shelves to be provided in platform-room. Landings in the light-house to be made more secure. Two iron bedsteads to be supplied. Jetty extension towards the south-east to be constructed. Spare panes of lantern glass to be supplied. Iron-work of landing-stage to be scraped, scaled, and painted. It is not to be farred.
Oyster Island ...	Centre of Oyster Island, off entrance to Myôu river. Latitude, 20° 12'. Longitude, 92° 32'.	Dioptric, first order, white and red, occulting at intervals of 30 seconds. Focal plane 118 feet above H. W. L. Shows red from N. 39° W. to N. 54° W. over Oyster Reef, and white in other directions.	Tower of cast-iron in segments, founded on 16 cylinders, sunk 12 feet into the rock. Cement concrete within the foundations and in 40 feet of the tower with well and spiral staircase, built in 1890-91. Tower painted in black and white alternate bands, black at base with white dome. Landing-stage with T head on braced-iron piles.	Top-gallant mast added to flagstaff ... ... European light-keeper's quarters improved. Planking in centre of roadway of landing-stage fitted. Machine oil-feeders supplied. Harness casks with mountings supplied. New flame spreaders from England supplied. Broken pane of glass in lantern renewed. Electric call-bell fitted.	Leaky oil-tanks cemented Clasps and braces of jetty renewed where necessara.	All the painting, earth-oiling, and coal-tarring completed. All repairs to burners and other gear completed as required.	26th May 1896, by Mr. Reilly ... 24th June 1896, by Mr. Reilly. 7th August 1896, by Mr. Reilly. 22nd October 1896, by Mr. Reilly. 12th November 1896, by Mr. Reilly. 26th to 29th March 1897, Superintending Engineer and Mr. Reilly.	This is an iron light-house and has no conductor from top. It is connected to the earth-plate buried in the sand by a copper rod fixed at the base. Tested on 29th March 1897 and found in good order. The joint between copper rope and rod requires soldering.	New occulting clockwork to be fixed. Iron-work to be scaled, scraped, and painted only. Braces to have 1-inch diameter bolts at their intersection. Eave-purlins and common rafters of all buildings to be properly secured. The wire rope of the old light to be brought away and used for conductor at Reef Island. The topping of soil in garden to be removed and a layer of earth and manure 1 foot 6 inches supplied. Six panes of each kind of glass used to be indented for from England. Three oil-tanks at one time to be soldered at all joints and subjected to hydraulic pressure of 25-lbs. when completed. New set of lantern purdahs to be supplied. Two light wooden ladders for the lantern-room to be supplied. Cooking-ranges to be supplied. Burner No. 2 to be sent to England for thorough overhaul.

Annual Report of Light-houses along the Coast of Burma for the

Light-house.	Locality.	Description of light.	Description of light-house.	New works, additions, alterations, and improvements.
1	2	3	4	5
Savage Island ...	On Island at entrance to Akyab harbour. Latitude, 20° 05'. Longitude, 92° 54'.	Dioptric, first order, white, fixed, and flashing at one minute intervals. Focal plane 118 feet above H. W. L. Visible from S. 48° W. through S. and E. to N. 23° W.	Masonry round tower, painted white, with white dome. Built in 1854 and raised in 1891.	Teak-wood covers to masonry water-tanks fixed. Machine oil-feeders supplied. Canvas hose for drinking water supplied.
China Buckeer ...	On the edge of the flats extending off the entrance to the China Buckeer or Thôngwa river. Latitude, 16° 17'. Longitude, 96° 11'.	Dioptric, first order, white, fixed, and flashing at one minute interval. Focal plane 74 feet above H. W. L. From N. 65° E. through N. and W. to S. 39° W.	Braced-iron screw-piled structure, painted red with white dome. Built in 1868 and removed to its present position in 1876.	W. I. ladder from gallery to dome supplied. Draft-cap for all burners supplied. Two-200-gallon water-tanks supplied. Cooking-range supplied. Machine oil-feeders supplied. Lead weights counter in section, supplied. New lantern purdahs supplied. Yard-arm, goose-neck principle, fixed. Three diagonal and two cross-braces renewed.

G. B. C. P. O.—No. 2803, B. S., 29-6-97—230.

year ending 1896-97, Rangoon Division, Public Works Department—concluded.

Special repairs.	Ordinary repairs.	Inspections.	Lightning conductor.	New works and repairs ordered for 1897-98.
6	7	8	9	10
Tell-tale glass renewed; spring balance renewed; fire-places renewed.	All painting, white, colour-washing, coal-tarring, and plaster completed. All repairs to lamp and other gear completed when required.	26th May 1896, by Mr. Reilly ... 23rd June 1896, by Mr. Reilly. 6th August 1896, by Mr. Reilly. 20th October 1896, by Mr. Reilly. 11th November 1896, by Mr. Reilly. 30th March 1896, by Superintending Engineer and Mr. Reilly.	Copper wire-rope from earth-plate in water to copper rod terminal above dome-vane fixed on. All parts of balcony and treads connected. Tested on 30th March 1897 and found perfect.	Racks for storing spare panes of glass to be supplied. Girders under floor in light-house and kitchen to be opened out at their ends.
Ledge around bin completed. Machine glass door renewed. Wood-work of light-room door completed. Railings on weather-side fixed.	All painting and coal-tarring completed. New bushes and bars to pinions renewed. All burners, pumps, and other parts of machinery repaired when required.	7th September 1896, by Mr. Reilly. 26th to 29th November 1896, by Mr. Reilly. 29th January 1896, by Mr. Reilly. 20th March 1897, by Executive Engineer. 4th April 1897, by Superintending Engineer and Mr. Reilly.	Copper wire rope, ½-inch diameter, running up the piles and revetted on to the base of the dome earth-plate, 5 feet below water-level. Tested on 4th April 1897 and found perfect.	Braces above first landing to be secured by cotters. Shelf in almirah to be lowered to suit chimneys. Racks for storing spare glass to be provided. Set of mandrills for burner-tips to be supplied. Four diagonal braces below first floor level and all cotters to be renewed. Weight chain to be fixed in its original position. All worn-out bushes, pins, &c., to be renewed. The W. I. work to be scraped, scaled, and painted only. The bottom clasps to be made of 6" × ¾" W. I. with double bolts. The vertical ladders to be altered to the pattern of ordinary ships' gangway ladders.

W. G. NEWTON,
Executive Engineer, Rangoon division.

Annual Report of Light-houses along the Coast of Burma for the year ending 1896-97, Rangoon Division, Public Works Department—concluded.

Light-house.	Locality.	Description of light.	Description of light-house.	New works, additions, alterations, and improvements.	Special repairs.	Ordinary repairs.	Inspections.	Lightning conductor.	New works and repairs ordered for 1897-98.
1	2	3	4	5	6	7	8	9	10
Savage Island ...	On Island at entrance to Akyab harbour. Latitude, 20° 05'. Longitude, 92° 54'.	Dioptric, first order, white, fixed, and flashing at one minute intervals. Focal plane 118 feet above H. W. L. Visible from S. 42° W. through S. and E. to N. 25° W.	Masonry round tower, painted white, with white dome. Built in 1844 and raised in 1891.	Teak-wood covers to masonry water-tanks fitted ... Machine oil-feeders supplied. Canvas hose for drinking water supplied.	Tell-tale glass renewed; spring balance renewed; fire-places renewed.	All painting, white, colour-washing, coal-tarring, and plaster completed. All repairs to lamp and other gear completed when required.	26th May 1896, by Mr. Reilly ... 23rd June 1896, by Mr. Reilly. 6th August 1896, by Mr. Reilly. 20th October 1896, by Mr. Reilly. 11th November 1896, by Mr. Reilly. 30th March 1896, by Superintending Engineer and Mr. Reilly.	Copper wire-rope from earth-plate in water to copper rod terminal above dome-vane fixed on. All parts of balcony and treads connected. Tested on 30th March 1897 and found perfect.	Racks for storing spare panes of glass to be supplied. Girders under floor in light-house and kitchen to be opened out at their ends.
China Buckeer ...	On the edge of the flats extending off the entrance to the China Buckeer or Thôngwa river. Latitude, 16° 17'. Longitude, 96° 11'.	Dioptric, first order, white, fixed, and flashing at one minute interval. Focal plane 74 feet above H. W. L. From N. 65° E. through N. and W. to S. 39° W.	Braced-iron screw-piled structure, painted red with white dome. Built in 1868 and removed to its present position in 1876.	W. I. ladder from gallery to dome supplied ... Dust-cap for all burners supplied. Two-400-gallon water-tanks supplied. Cooking-range supplied. Machine oil-feeders supplied. Lead weights smaller in section, supplied. New lantern purdahs supplied. Yard-arm, goose-neck principle, fixed. Three diagonal and two cross-braces renewed.	Ledge around bin completed. Machine glass door renewed. Wood-work of light-room door completed Railings on weather-side fixed.	All painting and coal-tarring completed. New bushes and bars to pinions renewed. All burners, pumps, and other parts of machinery repaired when required.	7th September 1896, by Mr. Reilly. 26th to 29th November 1896, by Mr. Reilly. 29th January 1896, by Mr. Reilly. 20th March 1897, by Executive Engineer. 4th April 1897, by Superintending Engineer and Mr. Reilly.	Copper wire rope, ½-inch diameter, running up the piles and revetted on to the base of the dome earth-plate, 5 feet below water-level. Tested on 4th April 1897 and found perfect.	Braces above first landing to be secured by cotters. Shelf in almirah to be lowered to suit chimneys. Racks for storing spare glass to be provided. Four diagonal braces below first floor level and all cotters to be renewed. Weight chain to be fixed in its original position. All worn-out bushes, pins, &c., to be renewed. The W. I. work to be scraped, scaled, and painted only. The bottom clasps to be made of 6" × ⅜" W. I. with double bolts. The vertical ladders to be altered to the pattern of ordinary ships' gangway ladders.

W. G. NEWTON,
Executive Engineer, Rangoon division.

G. B. C. P. O.—No. 2803, B. S., 29-6-97—230.

THIRTIETH ANNUAL

REPORT ON THE LIGHT-HOUSES AND LIGHT-VESSELS OFF THE COAST OF BURMA

FOR

The year 1896-97.

RANGOON:

PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRINTING, BURMA.

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