"Second Series of Results of the Harmonic Analysis of Tidal Observations." Collected by G. H. Darwin, LL.D., F.R.S., Fellow of Trinity College and Plumian Professor in the University of Cambridge. Received January 18,—Read February 7, 1889.

A collection of results by Major Baird and myself has been already published in the 'Proceedings of the Royal Society,' No. 239, 1885; and the present paper brings together new results which I have been able to collect since the date of that paper. I begin with some remarks on the sources of information, and on the observations at each station. A table of the latitudes and longitudes of the places of observation is prefixed to those of the harmonic constants.

Dover.

In the Second Report of the Committee of the British Association on the "Tides of the English Channel and the North Sea" (1879), the following passage occurs :—

"The importance of an accurate knowledge of the tides at Dover in particular, in connection with those of the entire English Channel, being soon made evident to the Committee, as well as the great advantage which would ensue from the establishment of a self-registering tide-gauge at that place, the matter was brought by the Chairman under the notice of the Board of Trade; the request being further supported by the Lord Warden of the Cinque Ports, Earl Granville. The Board of Trade received the request most favourably, and consented to establish at their own expense a self-registering gauge, at a site some distance down the Admiralty Pier, where a tide-well had been made during the original construction of the pier; its connection with the water outside being at a level twelve feet below the low water of ordinary spring tides. The gauge, embracing Sir William Thomson's latest improvements, has been constructed and erected by Messrs. A. Legé and Co., under the direction of Mr. Edward Druce, C.E., the resident engineer in charge of the Admiralty Works at Dover. It will remain, of course, in the hands of, and under the control of the Board of Trade."

In 1886 another Committee of the British Association, appointed to consider the tides of Dover, exhibited to the meeting the tide-curves for Dover for the four years 1880–83, and it was stated that the Minister of Public Works of Belgium had presented to the Secretary of the Committee copies of the self-registered tide-curves for Ostend for several years. A comparison of the high and low waters at the two ports during one lunation is given in the Report of this Committee.

Mr. J. N. Shoolbred, the Secretary of both Committees, was instructed to intrust the curves to me, in order that they might be submitted to harmonic analysis. He afterwards was so good as to obtain from Mr. Druce the continuation of the Dover curves. As the reduction of the whole series of curves would have been very expensive, it was determined that only the curves for 1883-4-5 should be treated; these years were selected because there was reason to suppose that the curves were more accurate than the earlier ones.

To meet the expense of the reduction, Sir William Thomson obtained £50 from the Royal Society Grant, and this sum was afterwards handed to me. The amount would, however, have been altogether insufficient if Major Baird had not interested himself in the matter, and introduced me to Mr. E. Connor, of the Tidal Department of the Survey of India. Mr. Connor then generously offered to devote his spare time to the work, and undertook the superintendence of the native computers at Poona. The reductions of three years of Dover curves, and of the same three of Ostend curves, have been made with all the thoroughness and care of the Indian work. The computations themselves are now in my hands, and the curves have been returned to Mr. Shoolbred.

The tidal record was frequently interrupted at Dover, for there are 34 days wanting in 1883, 57 days in 1884, and 72 days in 1885. The gaps are only of a few days at a time, except from September 24 to October 26, 1885.

The zero of the Dover gauge is said to be 8·67 feet below the Ordnance datum, and therefore 11·33 feet above the "international datum," which is stated in the British Association Report (1879) on Levels to be 20·00 feet below English Ordnance datum.

The reduction of the tide curves shows that the mean sea level at Dover was, in 1883, 0·52 foot; in 1884, 0·46 foot; and in 1885, 0·21 foot above Ordnance datum.

The French Nivellement Général is 2·625 feet below Atlantic M.S.L., and 1·992 foot below Ordnance datum. Hence Atlantic M.S.L. is 0·633 foot above Ordnance datum. Thus Dover M.S.L. was, in 1883, 0·11 foot; in 1884, 0·17 foot; and in 1885, 0·42 foot below Atlantic M.S.L.

It appears from the Ostend curves that Ostend M.S.L. was, in 1883, 0·25 foot; in 1884, 0·37 foot; and in 1885, 0·21 foot above Ordnance datum, and therefore in 1883, 0·38 foot; in 1884, 0·26 foot; and in 1885, 0·42 foot below Atlantic M.S.L. Thus Ostend M.S.L. was below Dover M.S.L. by 0·27 foot in 1883; by 0·09 foot in 1884; and they were the same in 1885. By reference to the Atlantic M.S.L. we see that by far the larger part of these remarkable oscillations depends on Dover.

But it is nearly incredible that the sea at Dover should have been as much as $3\frac{3}{4}$ inches lower in 1885 than in 1883, and I do not believe that the numbers are accurate.

This opinion is confirmed by even a casual examination of the results of the harmonic analysis at Dover, the observations being obviously bad; for we may, I think, reject the supposition that both the tide and the mean sea level at Dover are actually far more irregular than at any other port.

In order to test the Dover results, I have found the mean error (according to the method of least squares) of the phases of the several tides from the three years tabulated. I have then rejected as worthless all those tides in which the mean error of phase amounts to 30°. By this criterion the tides S_1, S_4, S_6, S_8, K_2, J, Q, T, 2SM, and all the tides of long period are rejected, and many of those retained will be seen to be really very bad.

Thus the mean error of phase of M_2 is 7°·3, and of S_2, 9°·5. The physical meaning of this is, that it is an even chance that the principal lunar high water occurs within a specified 20 minutes of time, and that the principal solar high water occurs within a specified 25 minutes. With fairly good observations these periods should, from three years of observation, be about 4 or 5 minutes for the lunar tide, and 8 or 10 minutes for the solar tide. In the case of the tides at New York, tabulated below for three years, it is an even chance that lunar high water occurs within a specified $1\frac{1}{2}$ minutes, and solar high water within a specified $6\frac{1}{2}$ minutes.

The Ostend results were treated in the same way as the Dover ones, and compare very favourably with them, although not, I think, of the highest order of perfection.

It may thus be safely concluded that the observations at Dover have been very badly made.*

It is a pity that an expensive instrument should have been installed, and that its records for many years should be rendered valueless by the want of proper supervision.

I publish the results, however, for what they are worth.

The phases of the several tides are referred to Greenwich time.

Ostend.

I have no information as to the manner in which these observations were taken, but, as stated above, the curves were presented by the Minister of Public Works of Belgium. The Ostend M.S.L. was stated in considering the Dover curves. The zero of the tide gauge is 8·17 feet above the international datum. There were many interrup-

* Captain Wharton, R.N., is of opinion that the situation of Dover is such that the tides are likely to be irregular there. I cannot, however, believe that this affords a sufficient explanation of the irregularity of the results.—May 8, 1889.

tions in the working of the gauge, the gaps being 64 days in 1883, 64 days in 1884, and 14 days in 1885.

It has already been remarked that the Ostend observations were apparently well made, although, perhaps, not of the very highest perfection.

The results are referred to Ostend local time.

Heligoland.

The results for Heligoland are taken from Dr. Börgen's paper on the Tides of South Georgia and Kingua-Fjord,* where they are given incidentally as a means of testing a proposed method of reduction. The observations appear to have been made in 1882, and the reductions were, I believe, made by Dr. Börgen. The heights were given in centimetres, but have been reduced to feet.

Copenhagen, Nanortalik, Angmagsalik, Godthaab.

I owe these observations to Dr. Crone, of Copenhagen, by whom, I believe, the reductions were performed.

The observations at Nanortalik and Angmagsalik were made by a Danish Expedition between 1883 and 1885. At the latter station the observations were very short, and Dr. Crone has only attempted to determine the mean lunar interval of 4 h. 6 m., or κ of M_2.

The heights were given in centimetres, but have been reduced to feet.

The observations at Godthaab were made by the Danish Polar Expedition of 1882-3; they extended from July 16 to August 31, 1883.

Dr. Crone has written a paper entitled "Flux et Reflux de la Mer à Godthaab."

South Georgia and Kingua-Fjord.

These observations were made by the Arctic and Antarctic expeditions of the German Government. The observations in South Georgia were made with a self-registering tide-gauge, those at Kingua-Fjord by the officers of the ship. The observations were reduced by Dr. Börgen, of Wilhelmshaven, and further information will be found in the paper referred to above.

The gauge was erected in South Georgia in January, 1883, and was in operation until the end of April, when it was put out of order by heavy weather. The observations began again on 21st May, and continued until 2nd September, with breaks of only a few hours or of a day caused by ice. The means of the values derived from the two periods of observation are given below.

* 'Separat-Abdruck aus dem Deutschen Polarwerke.,' Asher, Berlin.

At Kingua-Fjord, the head of the expedition, Dr. Giese, charged M. Mühleisen with the duty of making the observations. The observations began on 22nd July at 6 A.M., and continued until 1st September, 8 P.M., a period of 41 days. The height of water was observed every two hours, and also every five minutes about high and low water. From these observations a continuous tide-curve was formed which was treated by harmonic analysis.

Dr. Börgen informs me that the values of κ for the diurnal tides K_1, O, P, as printed in his paper, require correction by 180°. This arose from the fact that the observations, as subjected to reduction, began at midnight. The correction has been made in the table below. The heights are given in metres by Dr. Börgen, but have been reduced to feet.

Kerguelen Island.

These results are from a letter of Dr. Börgen to me, dated July 22, 1887. He writes:—

"I have just finished the calculation of the tides at Kerguelen Island, Betsy Cove, where we had a self-registering tide-gauge put up by the officers of H.M.S. "Gazelle," when there for the purpose of observing the transit of Venus in 1874. The observations commence at noon November 16, 1874, and close at noon January 29, 1875. Some difficulties, which arose from choking up and partially destroying the pipe in which the float moved, caused two interruptions of five and nine days. From this cause, and because the weather in that region is rather boisterous (we noticed 450 hours out of a quarter of a year, or 2,160 hours, with a velocity of the wind higher than 15 metres per second), I am inclined to think the constants are not quite so satisfactory as they would have been in a calmer ocean."

The results have been reduced from centimetres to feet.

The Hudson Straits Stations.

The observations at these stations were taken under the supervision of Lieutenant Gordon, R.N. The length of observation at each station was short, and the results must be correspondingly uncertain. The dates at which the observations began are entered in the table below, together with the periods.

The obseıvations at Port Burwell were taken every two hours, and at all the other stations, besides the bi-hourly measures, observations were taken at intervals of five minutes about the times of high and low water. The reductions were made by Lieutenant Gordon, with the assistance of Professor Carpmael, of Toronto.

During the observations at Ashe Inlet, and at Stupart's Bay, the Straits were choked with ice, and this may have exercised some influence on the tides.

Governor's Island, New York Harbour.

In an appendix to the 'Report of the United States Coast Survey' for 1885, Professor Ferrel gives the results of harmonic analysis applied to tidal observations at this station. A map shows the sites of the tide-gauges at Governor's Island and at Sandy Hook.

Mr. Ferrel's treatment of the tide M_1 differs from that recommended in the Reports of the British Association, and his entry for M_1 is therefore here omitted.

In the preface to the previous collection of results a memorandum by Mr. Ferrel, about the phases of the tides, was quoted. In a footnote, added after the paper had been presented, I remarked that it was not easy to accept Mr. Ferrel's memorandum as conclusive of the identity of treatment of the American tides with the procedure recommended by the British Association. The same reason, which then caused me to feel this doubt, applies to the present series of results, and it will therefore be well to state the case somewhat more fully than was possible in the footnote referred to.

In the 'British Association Report for 1883' the equilibrium theory of tides is developed so that each tide is represented by a *positive* cosine. Now, there are two of the tides, viz., those initialled L and λ, in which the development naturally leads to a *negative* cosine, and if these terms are to appear as positive cosines, 180° must be added to the argument. It follows, therefore, that if Mr. Ferrel retains the cosines in the negative form, the angles κ for L and λ, as tabulated by him, must be augmented by 180°, in order to bring his results into accordance with ours. Now, it may be observed that in all the results tabulated by the U.S. Coast Survey, the tides L and λ are apparently in diametrically the opposite phase from that of all the other semi-diurnal tides.

That this is actually the case appears physically so improbable that I conjecture, even in the face of Mr. Ferrel's memorandum, that he uses a different convention as to the tides L and λ, and that to read his results in our notation his values of κ should be augmented by 180°. I here tabulate, however, the values as I find them.

Whilst speaking of this point, it is impossible not to refer to the very remarkable peculiarity of the tide K_2 in the results for Sandy Hook in the previous collection, and for Governor's Island here. It is obvious that all the semidiurnal tides of true astronomical origin should be nearly in the same phase, but here we have a single tide exactly inverted as compared with the rest. Is it possible that by some accidental change of sign 180° can have been erroneously imported into the result?

Singapore and Hongkong.

I have no information about these observations. The results were, however, kindly placed at my disposal for this collection by Mr. Roberts. They were given me in the form which was used before the publication of the Report of 1883 to the British Association, and I am responsible for the reduction to the standard form.

Mr. Roberts performed the reductions of the observations himself, and has published the tide tables for the two ports on behalf of the Governments of the two colonies. He proposes to write a paper on these tides, which will doubtless give the information which is here wanting.

Indian Stations.

Major Baird and Mr. Connor have sent me for publication the values of the constants at a large number of stations in India.

I have divided them into two groups. The first of these comprises stations for which results were published in the paper by Major Baird and myself in the 'Proceedings of the Royal Society.' Many years of observation are thus added to the previous ones, and the mean values of the constants given below include the values given in our paper of 1885. The station at Karachi is especially valuable for tidal theory, since we now have results for nearly a whole lunar cycle of nineteen years. The second group comprises a number of ports, for which the constants have been only hitherto published in the prefaces to the Indian Tide Tables.*

The constants for certain tides initialled 2N, MN, MK, 2MK are now given for the first time.† The first of these, 2N, is the elliptic semidiurnal tide of the second order. It appeared from the development of the equilibrium theory that it might be easily sensible, and the values now given prove that this is the case. The other three, MN, MK, 2MK, are shallow water tides arising from the interference of the principal lunar tide M_2, 1st, with the larger elliptic tide N, 2ndly, with the luni-solar diurnal tide K_1, and 3rdly, with the lunar diurnal tide O. The two latter of these, viz., MK and 2MK, also arise from the interference of M_4 with O, and from M_4 with K_1. The values appear to be all fairly consistent from year to year at the riverain stations, but at other places they are obviously quite without significance.

Mean Sea Levels.

In our previous paper we did not give the mean sea levels, as determined from each year of observation.

* Published by authority of the Government of India.

† See introduction to our previous paper on the "Results of Harmonic Analysis."

Major Baird has now caused to be sent the mean sea levels with reference to the zeros of the several tide-gauges. The reference of the zero of any gauge to a bench-mark ashore has principally a local interest. Full statements on this head are given in the prefaces to the Indian Tide Tables, but these are not reproduced.

The table of mean sea levels which follows immediately comprises all the stations in which more than a single year of observation has been reduced. The day of the month, prefixed to each series of results, denotes the first day of the year for which the mean sea level is given.

In the Fourth Report to the British Association on 'Harmonic Analysis' (1886), it is shown that the oscillations of mean sea level are far too large to be explained by the known astronomical inequality with a period of nearly nineteen years.

This is not a convenient occasion for the discussion of the present series of values, but I remark that 1882 was a year in which the whole Indian Ocean stood low, whilst 1885 was one in which it stood high.

If variation in the Sun's temperature is the cause of variation of sea level, we might expect to find a periodicity with a period of ten or eleven years. It is then worth noticing that at Karachi there is a minimum in 1872 and again in 1882.* The observations are clearly insufficient to do more than to raise the question.

[Captain Wharton has been good enough to give me Mr. Russell's results for mean sea level at Sydney, and it is interesting to note the very large oscillation of level, with a minimum simultaneous with that at Karachi.]†

* Spörer gives 1878·8 as the time of minimum sun-spots.
† May 8, 1889.

Height in feet of Mean Sea-level above Zero of Gauge.

Aden.
(March 3.)

1879–80	5·767
1880–1	·784
1881–2	·814
1882–3	·754
1883–4	·800
1884–5	·849
1885–6	·883
1886–7	·902

Karachi.
(May 1.)

1868–9	7·149
1869–70	·291
1870–1	·264
1871–2	·107
1872–3	·051
1873–4	·079
1874–5	·152
1875–6	·153
1876–7	·134
1877–8	·207
1878–9	·331
1879–80	·308
1880–1	·267
1881–2	·179
1882–3	·060
1883–4	·192
1884–5	·198
1885–6	·206

Bhavnagar.
(January 1.)

1886	22·799
1887	·710

Bombay.
(January 1.)

1878	10·265
1879	·184
1880	·187
1881	·248
1882	·194
1883	·257
1884	·256
1885	·304
1886	·267

Mormugão.
(March 16.)

1884–5	5·512
1885–6	·577
1886–7	·573

Karwar.
(March 1.)

1878–9	5·650
1879–80	·541
1880–1	·564
1881–2	·515
1882–3	·492

Beypore.
(December 1.)

1878–9	5·385
1879–80	·392
1880–1	·412
1881–2	·412
1882–3	·395
1883–4	·301

Cochin.
(January 25.)

1886–7	2·422
1887–8	·359

Galle.
(April 1.)

1884–5	2·656
1885–6	·700
1886–7	·679

Colombo.
(February 1.)

1884–5	2·208
1885–6	·261
1886–7	·304

Paumben.
(October 1.)

1878–9	2·666
1879–80	·707
1880–1	·759
1881–2	·705

Negapatam.
(December 6.)

1881–2	1·996
1882–3	2·048

(March 20.)

1885–6	1·811
1886–7	2·048
1887–8	2·047

Port Blair.
(April 19.)

1880–1	4·792
1881–2	·718
1882–3	·710
1883–4	·726
1884–5	·689
1885–6	·612
1886–7	·506

Moulmein.
(April 17.)

1880–1	8·453
1881–2	·659
1882–3	·658
1883–4	·737
1884–5	·146
1885–6	·388

Amherst.
(August 5.)

1880–1	13·591
1881–2	·974
1882–3	·701
1883–4	·757
1884–5	·588
1885–6	·311

Rangoon.
(March 1.)

1880–1	15·074
1881–2	14·980
1882–3	·953
1883–4	·925
1884–5	·739

Elephant Point, New Site.

(January 1.)

1884	....	16·314
1885	....	15·641
1886	....	·878
1887	....	·799

Chittagong.

(June 6.)

1886–7	....	8·251
1887–8	....	7·945

Kidderpore.

(March 22.)

1881–2	....	10·739
1882–3	....	·686
1883–4	....	·599
1884–5	....	·669
1885–6	....	·950

Diamond Harbour.

(April 4.)

1881–2	....	8·976
1882–3	....	9·011
1883–4	....	8·999
1884–5	....	·897
1885–6	....	·804

Dublat.

(April 22.)

1881–2	....	14·394
1882–3	....	·499
1883–4	....	·417
1884–5	....	·379
1885–6	....	·263

False Point.

(May 1.)

1881–2	....	7·552
1882–3	....	·597
1883–4	....	·593
1884–5	....	·492

Vizagapatam.

(February 3.)

1879–80	....	4·991
1880–1	....	·917
1881–2	....	·809
1882–3	....	·812
1883–4	....	·813
1884–5	....	·630

Cocanada.

(March 31.)

1886–7	....	5·488
1887–8	....	·212

Madras.

(February 1.)

1880–1	....	2·251
1881–2	....	·209
1882–3	....	·179
1883–4	....	·180
1884–5	....	·134
1885–6	....	·051

Sydney Harbour.

(January 1.)

1873	....	3·531
1874	....	·623
1875	....	·566
1876	....	·502
1877	....	·367
1878	....	·293
1879	....	·247
1880	....	·100
1881	....	2·550
1882	....	·507
1883	....	·563
1884	....	·579
1885	....	·453

Table of Latitudes and Longitudes.

	lat.		long.
European Stations.			
Dover	51° 7′ N.	....	1° 9′ E.
Ostend	51 14	....	2 55
Heligoland	54 48	....	7 50
Copenhagen	55 14	....	12 35
Greenland and Davis Straits.			
Angmagsalik	65 37 N.	....	37 15 W.
Nanortalik	60 8	....	45 16
Godthaab	64 12	....	51 44
Kingua Fjord	66 36	....	67 20
Hudson's Straits.			
Port Burwell	60 25 N.	....	64 46 W.
Ashe Inlet	62 33	....	70 35
Stupart's Bay	61 35	....	71 32
Nottingham Island	63 12	....	77 28
Port Laperrière	62 34	....	78 1

Southern Stations.					
Kerguelen Island, Betsy Cove	49	9 S.	....	70	12 E.
South Georgia	54	31	....	36	1 W.
U.S. Coast Survey.					
Governor's Island, New York Harbour	40	42 N.	....	74	1 W.
Straits Settlement and China.					
Singapore	1	17 N.	....	103	51 E.
Hong Kong	22	16	....	114	10
Old Indian Stations.					
Aden	12	47 N.	....	44	59 E.
Karachi	24	47	....	66	58
Bombay	18	55	....	72	50
Beypore	11	10	....	75	49
Negapatam	10	46	....	79	53
Madras	13	4	....	80	15
Vizagapatam	17	41	....	83	17
False Point	20	25	....	86	47
Dublat	21	38	....	88	6
Diamond Harbour	22	11	....	88	14
Kidderpore	22	32	....	88	22
Rangoon	16	46	....	96	12
Amherst	16	5	....	97	34
Moulmein	16	29	....	97	40
Port Blair	11	41	....	92	45
New Indian Stations.					
Bhavnagar	21	48 N.	....	72	9 E.
Mormugão	15	25	....	72	50
Cochin	9	58	....	76	15
Galle	6	1	....	80	13
Colombo	6	56	....	79	50
Cocanada	16	56	....	82	15
Chittagong	22	20	....	91	50
Akyab	20	8	....	92	57
Elephant Point, New Site	16	29	....	96	19

I.—Table of Harmonic Constants at various Ports.

Dover.

Commence 0 h., January 1.

Year	1883.	1884.	1885.	Mean.	Mean error of phase.
S_2 { H = κ =	2·42 17	2·09 22	1·70 39	2·066 26	9°·5
M_2 { H = κ =	7·54 328	7·43 329	6·64 344	7·202 334	7°·3
M_3 { H = κ =	0·05 35	0·05 41	0·005 57	0·036 45	9°
M_4 { H = κ =	0·84 214	0·84 218	0·55 240	0·743 224	11°
M_6 { H = κ =	0·219 89	0·20 93	0·10 101	0·172 94	5°·1
M_8 { H = κ =	0·08 1	0·08 1	0·06 349	0·069 357	5°·4
O { H = κ =	0·17 183	0·19 182	0·19 191	0·188 185	4°·3
K_1 { H = κ =	0·13 52	0·15 32	0·14 55	0·140 46	10°
P { H = κ =	0·07 31	0·05 3	0·03 26	0·050 20	12°
L { H = κ =	0·42 26	0·36 326	0·35 342	0·374 351	25°
N { H = κ =	1·54 321	1·45 309	1·07 324	1·357 318	6°·5
2N { H = κ =	0·24 279	0·28 278	0·18 273	0·233 276	2°·6
ν { H = κ =	0·43 280	0·34 305	0·40 278	0·390 288	12°
μ { H = κ =	0·38 35	0·43 62	0·41 93	0·407 64	24°
MS { H = κ =	0·53 270	0·48 276	0·34 311	0·452 286	18°

I.—Table of Harmonic Constants at various Ports.

Ostend.

Commence 0 h., January 1.

Year ……	1883.	1884.	1885.	Mean.	Mean error of phase.
S_1 {H =	0·056	0·092	0·053	0·067	15°
κ =	292	317	280	297	
S_2 {H =	1·638	2·030	1·720	1·796	4°·9
κ =	65	57	69	63	
M_2 {H =	5·858	6·004	5·889	5·917	0°·5
κ =	12	12	13	12	
M_3 {H =	0·016	0·013	0·031	0·020	13°
κ =	77	62	93	77	
M_4 {H =	0·342	0·383	0·367	0·364	1°·4
κ =	344	345	347	345	
M_6 {H =	0·213	0·256	0·228	0·232	1°·9
κ =	316	312	316	314	
M_8 {H =	0·090	0·117	0·111	0·106	3°·9
κ =	243	237	247	242	
O {H =	0·326	0·321	0·322	0·323	3°·4
κ =	174	169	177	173	
K_1 {H =	0·167	0·177	0·183	0·176	1°·2
κ =	354	352	355	354	
P {H =	0·105	0·050	0·081	0·079	9°·4
κ =	342	320	335	332	
Q {H =	0·088	0·135	0·117	0·113	6°·4
κ =	127	142	130	133	
L {H =	0·687	0·510	0·325	0·507	19°
κ =	35	79	48	54	
N {H =	0·945	1·172	0·876	0·998	6°·9
κ =	6	5	351	0	
ν {H =	0·336	0·468	0·239	0·348	21°
κ =	340	320	10	343	
MS {H =	0·233	0·245	0·223	0·234	5°·6
κ =	54	45	59	53	
2SM {H =	0·155	0·127	0·160	0·114	30°
κ =	291	359	298	316	
Mf {H =	0·177	0·210	0·134	0·174	28°
κ =	115	135	68	106	
Sa {H =	0·166	0·098	0·219	0·161	23°
κ =	205	255	207	222	

I.—Table of Harmonic Constants at various Ports.

Year	Heligoland, 1882.	Copenhagen.	Greenland.		Davis Straits.	
			Angmagsalik.	Nanortalik.	Godthaab, 16 July to 31 Aug., 1883.	Kinguafjord, 1883 (6 weeks).
S_2 { H =	0·79	0·089	....	1·24	1·54	2·67
S_2 { κ =	40	249	....	203	229	202
S_4 { H =	....	.....	....	....	....	Small
S_4 { κ =						
M_2 { H =	3·10	0·196	....	2·88	4·46	7·43
M_2 { κ =	333	277	119	161	193	159
M_4 { H =	....	.....	....	....	....	Small
M_4 { κ =						
O { H =	0·24	0·069	....	0·36	0·30	0·88
O { κ =	243	9	....	74	81	47
K_1 { H =	0·21	0·376	....	0·62	0·69	0·27
K_1 { κ =	35	23	....	114	127	32
K_2 { H =	0·17	0·016	....	....	0·43	0·76
K_2 { κ =	27	245	....	....	227	199
P { H =	0·09	0·011	....	....	0·23	0·84
P { κ =	53	.....	....	....	125	38
L { H =	0·46	0·022	....	....	0·13	0·16
L { κ =	342	48	....	....	291	167
N { H =	0·48	0·056	....	....	0·86	1·20
N { κ =	299	248	....	....	188	144

I.—Table of Harmonic Constants at various Ports.

Year	Hudson's Straits.					South Georgia, 1883 (Jan. to Sept. 2, except 3 weeks).	Kerguelen Island, Nov. 16, 1874, to Jan. 29, 1875.
	Port Burwell, 1885 (2 weeks).	Ashe Inlet, 1886 (month).	Stupart's Bay, 1886 (2 weeks).	Nottingham Island, 1886 (month).	Port Laperrière, 1886 (2 weeks).		
S_2 { H =	2·33	3·98	3·05	1·77	1·24	0·38	0·80
S_2 { κ =	305	296	289	321	316	236	52
S_4 { H =	....	....	....	....	....	0·004	
S_4 { κ =	....	....	....	....	....	39	
M_2 { H =	7·12	11·00	9·02	4·74	3·09	0·74	1·42
M_2 { κ =	263	234	227	260	257	213	9
M_4 { H =	....	....	....	....	....	0·01	0·03
M_4 { κ =	....	....	....	....	....	308	289
O { H =	0·19	0·21	0·31	0·25	0·04	0·33	0·22
O { κ =	157	349	6	17	126	18	292
K_1 { H =	0·48	0·52	0·47	0·22	0·14	0·17	0·14
K_1 { κ =	114	108	103	91	64	52	289
K_2 { H =	0·64	1·08	0·83	0·48	0·34	0·11	0·23
K_2 { κ =	305	296	289	321	316	233	49
P { H =	0·16	0·17	0·16	0·07	0·05	0·05	0·045
P { κ =	114	108	103	91	64	50	287
L { H =	....	....	....	....	....	0·04	0·045
L { κ =	....	....	....	....	....	209	50
N { H =	....	....	....	....	....	0·16	0·24
N { κ =	....	....	....	....	....	199	330

I.—Table of Harmonic Constants at various Ports.

Governor's Island, New York Harbour.

Year......		1876.	1877.	1878.	Mean.
S_1	H =	0·033	0·045	0·050	0·042
	κ =	242	223	238	234
S_2	H =	0·408	0·416	0·427	0·417
	κ =	255	256	261	257
S_3	H =	0·045	0·037	0·043	0·042
	κ =	99	87	87	91
S_4	H =	0·036	0·051	0·036	0·041
	κ =	71	61	80	70
M_2	H =	2·153	2·147	2·152	2·149
	κ =	231·8	230·5	230·6	231·0
M_3	H =	0·023	0·029	0·018	0·023
	κ =	210	206	189	202
M_4	H =	0·084	0·075	0·086	0·082
	κ =	334	329	328	330
M_6	H =	0·066	0·066	0·071	0·068
	κ =	90	85	82	86
O	H =	0·163	0·150	0·156	0·156
	κ =	109	100	101	103
K_1	H =	0·317	0·322	0·322	0·320
	κ =	106	106	106	106
*K_2	H =	0·129	0·118	0·114	0·120
	κ =	67	52	37	52
P	H =	0·107	0·115	0·093	0·105
	κ =	103	106	104	104
N	H =	0·461	0·482	0·497	0·480
	κ =	211	207	211	209
*L	H =	0·100	0·114	0·096	0·103
	κ =	64	67	52	61
ν	H =	.....	.....	0·155	
	κ =	.....	.....	203	

Year......		*Singapore.* October, 1882 (1 year).	*Hongkong.* 1883 (1 year).
S_1	H =	0·053	0·04
	κ =	211	101
S_2	H =	1·067	0·56
	κ =	348	292
M_2	H =	2·602	1·43
	κ =	300	266
M_4	H =	0·053	0·08
	κ =	264	320
M_6	H =	0·035	0·01
	κ =	43	113
O	H =	0·948	0·86
	κ =	53	248
K_1	H =	0·949	1·19
	κ =	100	297
K_2	H =	0·318	0·16
	κ =	345	289
P	H =	0·291	0·38
	κ =	93	285
J	H =	0·037	0·02
	κ =	115	233
Q	H =	0·190	0·14
	κ =	16	232
L	H =	0·197	0·04
	κ =	310	264
N	H =	0·452	0·26
	κ =	272	255
ν	H =	0·058	0·11
	κ =	226	290
μ	H =	0·051	0·07
	κ =	97	239
Sa	H =	0·308	0·435
	κ =	209	226
Ssa	H =	0·312	0·10
	κ =	234	90

* See remarks in preface on the phases in these cases.

II.—Table of Harmonic Constants at Old Indian Ports.

Aden.

Commence 0 h., March 3.

Year	1883–4.	1884–5.	1885–6.	1886–7.	Mean of 8 years.
S_1 H =	0·094	0·074	0·077	0·070	0·084
S_1 κ =	165	174	162	171	165
S_2 H =	0·702	0·700	0·692	0·700	0·698
S_2 κ =	245	245	245	247	247
S_4 H =	0·004	0·004	0·005	0·004	0·005
S_4 κ =	244	7	324	318	292
S_6 H =	0·006	0·006	0·005	0·006	0·005
S_6 κ =	185	188	221	214	202
S_8 H =	0·001	0·001	0·002	0·001	0·001
S_8 κ =	222	266	335	340	275
M_1 H =	0·066	0·084	0·015	0·036	0·048
M_1 κ =	31	36	58	97	38
M_2 H =	1·588	1·581	1·573	1·570	1·573
M_2 κ =	225	225	226	227	227
M_3 H =	0·019	0·014	0·021	0·019	0·018
M_3 κ =	205	212	226	219	212
M_4 H =	0·004	0·003	0·008	0·006	0·006
M_4 κ =	346	326	339	332	325
M_6 H =	0·006	0·005	0·003	0·005	0·005
M_6 κ =	358	317	14	350	345
M_8 H =	0·003	0·001	0·002	0·003	0·002
M_8 κ =	146	84	21	114	67
O H =	0·660	0·670	0·669	0·666	0·660
O κ =	38	37	37	37	38
K_1 H =	1·312	1·303	1·307	1·301	1·302
K_1 κ =	34	34	35	36	36
K_2 H =	0·215	0·206	0·195	0·213	0·204
K_2 κ =	234	234	246	244	242
P H =	0·384	0·399	0·409	0·391	0·392
P κ =	31	32	32	31	32
J H =	0·131	0·099	0·067	0·087	0·099
J κ =	39	57	45	28	47
Q H =	0·158	0·144	0·136	0·147	0·149
Q κ =	40	29	35	43	39
L H =	0·028	0·047	0·034	0·048	0·043
L κ =	194	224	197	229	221

II.—Table of Harmonic Constants at Old Indian Ports.

Aden.

Commence 0 h., March 3.

Year		1883–4.	1884-5.	1885–6.	1886–7.	Mean of 8 years.*
N	H =	0·423	0·434	0·444	0·428	0·430
	κ =	217	217	220	221	222
2N	H =	0·087	0·107	0·091	0·067	0·084
	κ =	188	177	199	194	192
λ	H =	0·015	0·037	0·033	.....	0·027 (7)
	κ =	135	259	201	.....	198
ν	H =	0·139	0·156	0·090	0·007	0·099
	κ =	254	214	180	235	223
μ	H =	0·081	0·083	0·080	0·056	0·075
	κ =	193	193	180	194	193
R	H =	.....	0·019	.....	.....	0·009 (3)
	κ =	.....	242	.....	.....	341
T	H =	.....	0·081	.....	0·027	0·052 (4)
	κ =	.....	275	.....	174	232
MS	H =	0·012	0·014	0·006	0·011	0·011
	κ =	138	131	173	146	153
2SM	H =	0·022	0·014	0·019	0·024	0·022
	κ =	107	108	109	109	108
MN	H =	0·044	0·036	0·065	0·031	0·043
	κ =	72	335	37	50	31
MK	H =	0·034	0·033	0·011	0·021	0·024
	κ =	338	43	136	268	289
2MK	H =	0·007	0·006	0·003	0·001	0·006
	κ =	309	282	322	106	5
Mm	H =	0·015	0·039	0·016	0·037	0·035
	κ =	58	53	1	70	20
Mf	H =	0·065	0·012	0·038	0·065	0·045
	κ =	16	36	14	10	25
MSf	H =	0·012	0·019	0·013	0·015	0·014
	κ =	231	265	189	110	225
Sa	H =	0·363	0·367	0·448	0·403	0·392
	κ =	346	356	3	11	358
Ssa	H =	0·114	0·102	0·183	0·166	0·118
	κ =	123	159	144	147	135

* Except where noted thus (4), where this represents the number of years.

II.—Table of Harmonic Constants at Old Indian Ports.

Karachi.

Commence 0 h., May 1.

Year	1883–4.	1884–5.	1885–6.	Mean of 18 years.*
S_1 { H =	0·074	0·055	0·072	0·079
κ =	171	183	174	161
S_2 { H =	0·952	0·963	0·950	0·949
κ =	324	323	322	322
S_4 { H =	0·010	0·011	0·010	0·010 (16)
κ =	25	44	43	18
S_6 { H =	0·006	0·005	0·006	0·007 (15)
κ =	280	324	316	298
S_8 { H =	0·002	0·001	0·001	0·001 (13)
κ =	288	240	194	213
M_1 { H =	0·081	0·042	0·037	0·045 (17)
κ =	31	111	134	41
M_2 { H =	2·566	2·546	2·552	2·513
κ =	294	294	293	294
M_3 { H =	0·029	0·027	0·036	0·038
κ =	347	349	337	332
M_4 { H =	0·033	0·029	0·029	0·025
κ =	16	21	15	15
M_6 { H =	0·050	0·045	0·053	0·049
κ =	206	206	199	209
M_8 { H =	0·005	0·001	0·005	0·005 (15)
κ =	196	322	267	266
O { H =	0·662	0·666	0·663	0·650
κ =	48	47	47	47
K_1 { H =	1·301	1·300	1·305	1·284
κ =	47	46	46	46
K_2 { H =	0·304	0·308	0·269	0·281
κ =	322	316	316	319
P { H =	0·392	0·395	0·407	0·383
κ =	48	46	45	46
J { H =	0·111	0·071	0 040	0·078
κ =	58	80	46	69
Q { H =	0·133	0·111	0·125	0·128
κ =	43	46	53	52
L { H =	0·053	0·076	0·075	0·078
κ =	285	316	281	298

* Except where noted thus (15), where this represents the number of years.

II.—Table of Harmonic Constants at Old Indian Ports.

Karachi.

Commence 0 h., May 1.

Year		1883-4.	1884-5.	1885-6.	Mean of 18 years.*
N	H =	0·588	0·596	0·623	0·600
	κ =	278	275	276	277
2N	H =	0·110	0·084	0·109	0·095 (5)
	κ =	241	231	238	247
λ	H =	0·006	0·065	0·066	0·042
	κ =	282	290	241	280
ν	H =	0·028	0·179	0·208	0·141
	κ =	331	320	288	283
μ	H =	0·064	0·041	0·084	0·062
	κ =	276	288	272	266
R	H =	.....	0·019	.....	0·029 (8)
	κ =	.....	312	.....	281
T	H =	.....	0·126	.....	0·075 (8)
	κ =	.....	321	.....	331
MS	H =	0·032	0·025	0·035	0·028 (17)
	κ =	336	339	345	313
2SM	H =	0·028	0·017	0·020	0·021 (13)
	κ =	91	113	125	120
MN	H =	0·040	0·067	0·099	0·069 (5)
	κ =	50	42	31	47
MK	H =	0·068	0·020	0·024	0·042 (5)
	κ =	105	154	358	65
2MK	H =	0·028	0·023	0·019	0·022 (5)
	κ =	23	7	352	15
Mm	H =	0·022	0·027	0·064	0·055 (15)
	κ =	39	119	1	86
Mf	H =	0·061	0·058	0·076	0·039 (15)
	κ =	341	34	122	334
MSf	H =	0·012	0·037	0·064	0·036 (15)
	κ =	138	197	336	258
Sa	H =	0·089	0·139	0·224	0·140 (15)
	κ =	39	44	106	76
Ssa	H =	0·189	0·137	0·109	0·137 (15)
	κ =	170	161	150	146

* Except where noted thus (15), where this represents the number of years.

II.—Table of Harmonic Constants at Old Indian Ports.

Bombay.

Commence 0 h., January 1.

Year	1883.	1884.	1885.	1886.	Mean of 9 years.
S_1 H =	0·057	0·059	0·053	0·059	0·069
κ =	165	173	168	186	178
S_2 H =	1·623	1·636	1·627	1·628	1·625
κ =	2	1	3	3	3
S_4 H =	0·003	0·007	0·010	0·011	0·010
κ =	5	359	325	252	287
S_6 H =	0·004	0·003	0·003	0·003	0·003
κ =	193	169	184	260	185
S_8 H =	0·001	0·003	0·002	0·002	0·002
κ =	54	124	106	108	107
M_1 H =	0·067	0·125	0·050	0·003	0·056
κ =	77	55	69	275	40
M_2 H =	4·037	4·071	4·072	4·041	4·043
κ =	329	328	330	330	330
M_3 H =	0·061	0·064	0·079	0·079	0·067
κ =	25	25	34	25	25
M_4 H =	0·134	0·126	0·121	0·140	0·127
κ =	326	320	327	324	323
M_6 H =	0·012	0·011	0·010	0·006	0·011
κ =	83	58	96	51	94
M_8 H =	0·007	0·008	0·007	0·005	0·005
κ =	351	357	24	352	355
O H =	0·663	0·676	0·682	0·657	0·658
κ =	48	48	48	48	48
K_1 H =	1·393	1·401	1·398	1·405	1·396
κ =	45	45	46	45	45
K_2 H =	0·383	0·435	0·415	0·364	0·405
κ =	355	351	346	352	352
P H =	0·391	0·416	0·415	0·404	0·404
κ =	45	44	43	44	43
J H =	0·109	0·143	0·099	0·048	0·094
κ =	40	52	86	90	70
Q H =	0·129	0·147	0·132	0·133	0·133
κ =	59	49	36	40	49
L H =	0·032	0·079	0·041	0·095	0·088
κ =	242	328	305	323	308

II.—Table of Harmonic Constants at Old Indian Ports.

Bombay.

Commence 0 h., January 1.

Year	1883.	1884.	1885.	1886.	Mean of 9 years.*
N { H =	0·988	0·978	0·995	1·001	0·997
N { κ =	314	312	313	312	313
2N { H =	0·110	0·142	0·153	0·182	0·151
2N { κ =	291	299	246	278	281
λ { H =	0·044	0·017	0·004	.....	0·028 (8)
λ { κ =	266	141	95	.....	210
ν { H =	0·276	0·145	0·052	0·210	0·186
ν { κ =	296	262	13	348	317
μ { H =	0·200	0·183	0·180	0·185	0·197
μ { κ =	294	308	295	317	306
R { H =	0·046	.....	0·029	.....	0·040 (4)
R { κ =	292	.....	227	.....	271
T { H =	0·120	.....	0·237	.....	0·175 (4)
T { κ =	52	.....	350	.....	22
MS { H =	0·157	0·137	0·135	0·137	0·135
MS { κ =	27	22	21	23	24
2SM { H =	0·036	0·049	0·046	0·029	0·038
2SM { κ =	116	113	100	98	106
MN { H =	0·124	0·070	0·130	0·096	0·112
MN { κ =	266	318	237	292	273
MK { H =	0·034	0·030	0·103	0·098	0·065
MK { κ =	215	75	131	181	154
2MK { H =	0·070	0·080	0·065	0·062	0·059
2MK { κ =	70	55	51	49	68
Mm { H =	0·063	0·034	0·026	0·045	0·050
Mm { κ =	94	23	64	284	26
Mf { H =	0·046	0·046	0·083	0·061	0·055
Mf { κ =	333	3	49	64	2
MSf { H =	0·044	0·053	0·052	0·036	0·038
MSf { κ =	190	187	268	198	220
Sa { H =	0·032	0·062	0·042	0·110	0·131
Sa { κ =	285	326	99	17	320
Ssa { H =	0·157	0·099	0·042	0·176	0·120
Ssa { κ =	186	209	221	148	212

* Except where noted thus (4), where this represents the number of years.

II.—Table of Harmonic Constants at Old Indian Ports.

Beypore.

Commence 0 h., December 1.

Year	1883–4.	Mean of 6 years.	Year	1883–4.	Mean of 6 years.*
S_1 H =	0·048	0·059	N H =	0·221	0·201
κ =	172	174	κ =	296	303
S_2 H =	0·350	0·333	2N H =	0·019	0·025
κ =	11	17	κ =	243	251
S_4 H =	0·007	0·005	λ H =	0·002	0·010
κ =	128	135	κ =	253	303
S_6 H =	0·009	0·006	ν H =	0·003	0·046
κ =	245	247	κ =	15	322
S_8 H =	0·003	0·001	μ H =	0·009	0·018
κ =	96	359	κ =	269	260
M_1 H =	0·055	0·033	R H =	0·013	0·019 (3)
κ =	61	71	κ =	126	130
M_2 H =	0·999	0·943	T H =	0·061	0·047 (3)
κ =	324	328	κ =	17	18
M_3 H =	0·008	0·010	MS H =	0·015	0·010
κ =	199	198	κ =	60	74
M_4 H =	0·027	0·021	2SM H =	0·004	0·005
κ =	23	38	κ =	1	306
M_6 H =	0·013	0·008	MN H =	0·016	0·033
κ =	106	133	κ =	38	350
M_8 H =	0·009	0·009	MK H =	0·003	0·014
κ =	158	148	κ =	335	51
O H =	0·362	0·344	2MK H =	0·004	0·010
κ =	56	57	κ =	133	71
K_1 H =	0·730	0·708	Mm H =	0·031	0·081
κ =	48	51	κ =	144	50
K_2 H =	0·105	0·084	Mf H =	0·054	0·068
κ =	0	9	κ =	158	46
P H =	0·230	0·198	MSf H =	0·037	0·038
κ =	51	53	κ =	202	214
J H =	0·073	0·049	Sa H =	0·308	0·309
κ =	34	58	κ =	301	311
Q H =	0·091	0·083	Ssa H =	0·113	0·166
κ =	62	66	κ =	208	205
L H =	0·028	0·027			
κ =	2	350			

* Except where noted thus (3), where this represents the number of years.

II.—Table of Harmonic Constants at Old Indian Ports.

Negapatam.

Commence 0 h., March 20.

Year		1885–6.	1886–7.	1887–8.	Mean of 5 years.
S_1	H =	0·040	0·021	0·055	0·042
	κ =	96	97	120	106
S_2	H =	0·284	0·261	0·249	0·268
	κ =	281	281	285	283
S_4	H =	0·006	0·006	0·004	0·005
	κ =	107	126	140	135
S_6	H =	0·001	0·001	0·002	0·001
	κ =	146	252	98	159
S_8	H =	0·001	0·001	0·000	0·001
	κ =	241	219	153	213
M_1	H =	0·017	0·016	0·008	0·010
	κ =	303	289	4	308
M_2	H =	0·739	0·706	0·654	0·708
	κ =	249	251	253	251
M_3	H =	0·004	0·002	0·004	0·003
	κ =	85	73	78	89
M_4	H =	0·017	0·021	0·031	0·022
	κ =	71	76	96	79
M_6	H =	0·011	0·010	0·009	0·011
	κ =	124	135	134	130
M_8	H =	0·004	0·003	0·001	0·003
	κ =	252	335	149	268
O	H =	0·087	0·087	0·088	0·089
	κ =	318	326	321	322
K_1	H =	0·224	0·216	0·210	0·220
	κ =	347	349	349	347
K_2	H =	0·078	0·097	0·091	0·084
	κ =	285	286	282	285
P	H =	0·080	0·075	0·074	0·079
	κ =	340	348	344	345
J	H =	0·019	0·014	0·008	0·013
	κ =	357	35	356	353
Q	H =	0·007	0·001	0·003	0·005
	κ =	284	310	34	270
L	H =	0·039	0·047	0·030	0·034
	κ =	265	219	272	263

II.—Table of Harmonic Constants at Old Indian Ports.

Negapatam.

Commence 0 h., March 20.

Year		1885–6.	1886–7.	1887–8.	Mean of 5 years.*
N	H =	0·168	0·151	0·157	0·158
	κ =	237	232	239	239
2N	H =	0·035	0·015	0·020	0·025
	κ =	219	183	214	210
λ	H =	0·016	0·031	.....	0·019 (4)
	κ =	307	324	.....	273
ν	H =	0·039	0·015	0·020	0·034
	κ =	209	273	279	239
μ	H =	0·016	0·015	0·014	0·017
	κ =	128	103	104	116
R	H =	.....	0·031	.....	0·031 (2)
	κ =	.....	300	.....	325
T	H =	.....	0·037	.....	0·044 (2)
	κ =	.....	243	.....	249
MS	H =	0·018	0·018	0·024	0·019
	κ =	86	107	111	99
2SM	H =	0·006	0·003	0·006	0·006
	κ =	198	230	208	203
MN	H =	0·024	0·048	0·022	0·028
	κ =	121	182	155	123
MK	H =	0·010	0·015	0·020	0·014
	κ =	69	144	195	149
2MK	H =	0·006	0·009	0·007	0·007
	κ =	335	336	336	337
Mm	H =	0·076	0·008	0·048	0·049
	κ =	318	347	352	335
Mf	H =	0·080	0·098	0·073	0·066
	κ =	354	5	351	1
MSf	H =	0·025	0·026	0·043	0·055
	κ =	82	51	15	33
Sa	H =	0·348	0·444	0·364	0·444
	κ =	249	230	228	234
Ssa	H =	0·300	0·328	0·377	0·344
	κ =	129	129	121	128

* Except where noted thus (2), where this represents the number of years.

II.—Table of Harmonic Constants at Old Indian Ports.

Madras.

Commence 0 h., February 1.

Year	1883–4.	1884–5.	1885–6.	Mean of 6 years.
S_1 H =	0·026	0·056	0·017	0·029
S_1 κ =	88	100	75	90
S_2 H =	0·436	0·450	0·415	0·437
S_2 κ =	280	280	290	280
S_4 H =	0·002	0·005	0·003	0·003
S_4 κ =	217	302	288	215
S_6 H =	0·001	0·001	0·001	0·001
S_6 κ =	56	63	66	87
S_8 H =	0·000	0·001	0·001	0·001
S_8 κ =	198	333	50	298
M_1 H =	0·003	0·038	0·018	0·014
M_1 κ =	41	283	269	342
M_2 H =	1·033	1·058	0·983	1·037
M_2 κ =	250	248	259	250
M_3 H =	0·004	0·003	0·003	0·004
M_3 κ =	57	8	0	42
M_4 H =	0·002	0·019	0·014	0·007
M_4 κ =	154	226	225	174
M_6 H =	0·006	0·008	0·006	0·008
M_6 κ =	160	165	204	165
M_8 H =	0·002	0·001	0·003	0·002
M_8 κ =	29	19	192	63
O H =	0·096	0·100	0·089	0·096
O κ =	331	322	333	327
K_1 H =	0·291	0·296	0·286	0·292
K_1 κ =	342	341	346	341
K_2 H =	0·116	0·086	0·118	0·109
K_2 κ =	268	269	305	280
P H =	0·091	0·104	0·090	0·096
P κ =	344	346	348	345
J H =	0·022	0·030	0·006	0·020
J κ =	318	346	323	324
Q H =	0·002	0·007	0·009	0·006
Q κ =	68	280	96	130
L H =	0·037	0·026	0·040	0·035
L κ =	287	359	299	311

II.—Table of Harmonic Constants at Old Indian Ports.

Madras.

Commence 0 h., February 1.

Year	1883–4.	1884–5.	1885–6.	Mean of 6 years.*
N { H =	0·229	0·265	0·193	0·234
N { κ =	244	238	250	243
2N { H =	0·044	0·061	0·032	0·042
2N { κ =	229	201	288	242
λ { H =	0·009	0·071	0·012	0·030
λ { κ =	216	73	222	295
ν { H =	0·079	0·145	0·050	0·068
ν { κ =	255	224	177	245
μ { H =	0·046	0·063	0·063	0·049
μ { κ =	190	195	170	182
R { H =	0·016	.....	0·053	0·028 (3)
R { κ =	358	.....	146	202
T { H =	0·019	.....	0·080	0·052 (3)
T { κ =	19	.....	225	167
MS { H =	0·002	0·015	0·010	0·006
MS { κ =	37	257	270	179
2SM { H =	0·018	0·021	0·009	0·019
2SM { κ =	233	257	236	225
MN { H =	0·040	0·102	0·021	0·044
MN { κ =	140	77	101	114
MK { H =	0·014	0·025	0·010	0·014
MK { κ =	291	10	85	57
2MK { H =	0·005	0·006	0·007	0·007
2MK { κ =	52	14	103	64
Mm { H =	0·027	0·017	0·056	0·040
Mm { κ =	285	0	336	83
Mf { H =	0·044	0·020	0·054	0·042
Mf { κ =	65	25	343	15
MSf { H =	0·023	0·026	0·035	0·023
MSf { κ =	30	128	334	51
Sa { H =	0·520	0·366	0·351	0·399
Sa { κ =	235	215	228	219
Ssa { H =	0·300	0·362	0·289	0·311
Ssa { κ =	139	137	140	133

* Except where noted thus (3), where this represents the number of years.

II.—Table of Harmonic Constants at Old Indian Ports.

Vizagapatam. Commence 0 h., February 3. — *False Point.* Commence 0 h., May 1.

		Vizagapatam 1883–4.	Vizagapatam 1884–5.	Vizagapatam Mean of 6 years.	False Point 1883–4.	False Point 1884–5.	False Point Mean of 4 years.
S_1	H =	0·037	0·044	0·048	0·006	0·008	0·011
	κ =	93	94	76	48	86	37
S_2	H =	0·640	0·625	0·648	0·993	1·000	1·007
	κ =	287	288	286	302	298	302
S_4	H =	0·004	0·003	0·005	0·009	0·006	0·008
	κ =	67	45	50	316	307	320
S_6	H =	0·001	0·001	0·001	0·003	0·005	0·004
	κ =	146	114	157	163	158	165
S_8	H =	0·001	0·000	0·001	0·004	0·005	0·004
	κ =	76	288	53	281	181	235
M_1	H =	0·007	0·016	0·012	0·014	0·009	0·010
	κ =	351	289	303	287	227	324
M_2	H =	1·464	1·462	1·469	2·267	2·237	2·251
	κ =	255	256	254	269	267	269
M_3	H =	0·007	0·009	0·006	0·012	0·016	0·014
	κ =	10	22	345	36	27	31
M_4	H =	0·013	0·004	0·013	0·035	0·029	0·035
	κ =	11	227	320	224	233	229
M_6	H =	0·004	0·007	0·005	0·014	0·004	0·010
	κ =	61	66	69	44	142	78
M_8	H =	0·005	0·004	0·004	0·006	0·004	0·004
	κ =	215	241	215	192	220	226
O	H =	0·138	0·129	0·139	0·176	0·172	0·176
	κ =	332	333	332	334	334	335
K_1	H =	0·355	0·358	0·358	0·413	0·406	0·409
	κ =	342	343	342	344	341	344
K_2	H =	0·181	0·163	0·192	0·289	0·292	0·273
	κ =	279	279	278	307	295	299
P	H =	0·116	0·109	0·101	0·127	0·132	0·137
	κ =	340	345	341	346	344	345
J	H =	0·026	0·024	0·025	0·031	0·020	0·026
	κ =	343	18	345	329	359	328
Q	H =	0·020	0·014	0·012	0·012	0·005	0·010
	κ =	348	338	331	312	187	287
L	H =	0·046	0·078	0·055	0·068	0·095	0·070
	κ =	281	256	259	266	286	265

II.—Table of Harmonic Constants at Old Indian Ports.

Year	*Vizagapatam.* Commence 0 h., February 3. 1883–4.	1884–5.	Mean of 6 years.*	*False Point.* Commence 0 h., May 1. 1883–4.	1884–5.	Mean of 4 years.*
N { H =	0·296	0·298	0·308	0·425	0·439	0·454
N { κ =	248	252	248	264	258	264
2N { H =	0·039	0·056	0·052	0·066	0·050	0·068
2N { κ =	244	218	233	238	240	249
λ { H =	0·012	0·039	0·023	0·019	0·066	0·053
λ { κ =	214	299	261	331	272	331
ν { H =	0·116	0·095	0·085	0·036	0·136	0·114
ν { κ =	257	223	213	305	301	273
μ { H =	0·028	0·036	0·028	0·069	0·042	0·065
μ { κ =	258	264	260	265	252	266
R { H =	.....	0·025	0·026 (3)	.....	0·014	0·024 (2)
R { κ =	.....	69	148	.....	284	250
T { H =	.....	0·036	0·046 (3)	.....	0·099	0·058 (2)
T { κ =	.....	282	269	.....	280	215
MS { H =	0·012	0·007	0·011	0·041	0·039	0·040
MS { κ =	28	283	356	266	261	269
2SM { H =	0·004	0·012	0·011	0·020	0·028	0·020
2SM { κ =	312	220	239	189	213	194
MN { H =	0·042	0·030	0·037	0·017	0·047	0·051
MN { κ =	30	59	37	0	27	21
MK { H =	0·022	0·022	0·018	0·027	0·015	0·026
MK { κ =	334	25	358	101	227	258
2MK { H =	0·010	0·015	0·012	0·010	0·010	0·010
2MK { κ =	323	327	329	346	1	340
Mm { H =	0·029	0·010	0·043	0·045	0·014	0·046
Mm { κ =	265	7	21	115	43	67
Mf { H =	0·082	0·073	0·054	0·067	0·099	0·075
Mf { κ =	47	32	14	13	32	29
MSf { H =	0·025	0·019	0·038	0·039	0·014	0·038
MSf { κ =	358	39	22	158	242	278
Sa { H =	0·612	0·694	0·694	0·841	0·888	0·829
Sa { κ =	195	182	184	172	162	166
Ssa { H =	0·364	0·350	0·340	0·282	0·260	0·279
Ssa { κ =	127	129	119	154	158	151

* Except where noted thus (2), where this represents the number of years.

II.—Table of Harmonic Constants at Old Indian Ports.

Dublat.

Commence 0 h., April 22.

Year	1883–4.	1884–5.	1885–6.	Mean of 5 years.
S_1 H =	0·040	0·047	0·047	0·046
S_1 κ =	142	124	131	124
S_2 H =	2·147	2·071	2·099	2·107
S_2 κ =	329	326	330	328
S_4 H =	0·017	0·015	0·011	0·016
S_4 κ =	201	255	237	223
S_6 H =	0·005	0·001	0·002	0·003
S_6 κ =	40	59	259	111
S_8 H =	0·003	0·002	0·009	0·005
S_8 κ =	88	58	130	101
M_1 H =	0·017	0·024	0·027	0·017
M_1 κ =	62	265	291	356
M_2 H =	4·594	4·626	4·603	4·608
M_2 κ =	290	290	294	291
M_3 H =	0·051	0·048	0·049	0·048
M_3 κ =	138	133	137	135
M_4 H =	0·081	0·086	0·081	0·088
M_4 κ =	149	149	160	149
M_6 H =	0·008	0·013	0·007	0 011
M_6 κ =	250	165	181	221
M_8 H =	0·012	0·006	0·009	0·010
M_8 κ =	279	302	298	294
O H =	0·186	0·183	0·196	0·189
O κ =	342	343	336	338
K_1 H =	0·503	0·490	0·493	0·494
K_1 κ =	352	350	354	352
K_2 H =	0·599	0·634	0·691	0·623
K_2 κ =	328	333	327	325
P H =	0·141	0·156	0·148	0·151
P κ =	347	350	350	347
J H =	0·022	0·053	0·033	0·031
J κ =	307	2	17	339
Q H =	0·013	0·012	0·010	0·011
Q κ =	11	312	58	353
L H =	0·210	0·170	0·245	0·192
L κ =	295	300	302	296

II.—Table of Harmonic Constants at Old Indian Ports.

Dublat.

Commence 0 h., April 22.

Year	1883–4.	1884–5.	1885–6.	Mean of 5 years.*
N { H =	0·820	0·875	0·882	0·894
N { κ =	285	283	287	285
2N { H =	0·096	0·200	0·147	0·155
2N { κ =	221	253	264	261
λ { H =	0·085	0·063	0·163	0·150
λ { κ =	261	277	325	299
ν { H =	0·142	0·276	0·328	0·242
ν { κ =	295	303	276	275
μ { H =	0·172	0·107	0·141	0·150
μ { κ =	14	355	10	10
R { H =	....	0·095	....	0·157 (2)
R { κ =	....	307	....	298
T { H =	....	0·175	....	0·156 (2)
T { κ =	....	61	....	0
MS { H =	0·067	0·074	0·077	0·074
MS { κ =	174	177	191	170
2SM { H =	0·053	0·058	0·044	0·060
2SM { κ =	193	198	196	202
MN { H =	0·172	0·050	0·198	0·120
MN { κ =	55	70	20	355
MK { H =	0·023	0·053	0·072	0·062
MK { κ =	353	142	192	225
2MK { H =	0·028	0·050	0·031	0·035
2MK { κ =	125	124	97	129
Mm { H =	0·060	0·027	0·020	0·037
Mm { κ =	75	43	171	89
Mf { H =	0·092	0·086	0·032	0·061
Mf { κ =	46	34	86	60
MSf { H =	0·050	0·027	0·042	0·049
MSf { κ =	128	234	26	292
Sa { H =	0·864	0·930	0·787	0·876
Sa { κ =	153	146	154	151
Ssa { H =	0·202	0·211	0·146	0·195
Ssa { κ =	134	162	137	141

* Except where noted thus (2), where this represents the number of years.

II.—Table of Harmonic Constants at Old Indian Ports.

Diamond Harbour.

Commence 0 h., April 4.

Year	1883–4.	1884–5.	1885–6.	Mean of 5-years.
S_1 { H =	0·093	0·092	0·101	0·091
κ =	150	161	163	155
S_2 { H =	2·252	2·202	2·199	2·231
κ =	26	26	26	26
S_4 { H =	0·132	0·123	0·123	0·123
κ =	330	329	326	327
S_6 { H =	0·015	0·013	0·006	0·012
κ =	268	270	233	254
S_8 { H =	0·004	0·007	0·002	0·004
κ =	241	286	175	282
M_1 { H =	0·022	0·052	0·032	0·029
κ =	145	203	277	163
M_2 { H =	5·177	5·135	5·154	5·164
κ =	344	345	345	344
M_3 { H =	0·061	0·062	0·058	0·050
κ =	245	237	225	230
M_4 { H =	0·752	0·753	0·765	0·752
κ =	246	249	250	247
M_6 { H –	0·163	0·141	0·144	0·150
κ =	106	112	110	108
M_8 { H =	0·060	0·053	0·053	0·058
κ =	344	349	354	347
O { H =	0·211	0·217	0·233	0·226
κ =	342	350	348	346
K_1 { H =	0·508	0·498	0·515	0·502
κ =	16	14	13	14
K_2 { H =	0·730	0·718	0·622	0·676
κ =	25	23	30	25
P { H =	0·173	0·184	0·171	0·176
κ =	9	12	11	10
J { H =	0·006	0·035	0·045	0·030
κ =	68	28	24	8
Q { H =	0·036	0·019	0·016	0·026
κ =	304	301	44	350
L { H =	0·201	0·280	0·276	0·256
κ =	335	344	8	350

II.—Table of Harmonic Constants at Old Indian Ports.

Diamond Harbour.

Commence 0 h., April 4.

Year	1883–4.	1884–5.	1885–6.	Mean of 5 years.
N { H =	0·898	0·945	1·030	0·955
N { κ =	336	336	347	340
2N { H =	0·212	0·167	0·147	0·148
2N { κ =	288	314	321	334
λ { H =	0·046	0·192	0·267	0·147
λ { κ =	22	357	358	354
ν { H =	0·204	0·387	0·203	0·280
ν { κ =	346	331	299	311
μ { H =	0·298	0·338	0·268	0·302
μ { κ =	90	82	85	85
R { H =	....	0·175	....	0·196 (2)
R { κ =	....	17	....	13
T { H =	....	0·317	....	0·198 (2)
T { κ =	....	86	....	71
MS { H =	0·702	0·728	0·709	0·706
MS { κ =	288	289	288	287
2SM { H =	0·058	0·069	0·074	0·070
2SM { κ =	274	271	290	275
MN { H =	0·100	0·085	0·116	0·118
MN { κ =	71	25	68	52
MK { H =	0·124	0·159	0·107	0·117
MK { κ =	249	279	301	281
2MK { H =	0·066	0·059	0·065	0·061
2MK { κ =	214	220	201	217
Mm { H =	0·156	0·145	0·078	0·117
Mm { κ =	26	17	3	10
Mf { H =	0·216	0·155	0·096	0·153
Mf { κ =	57	40	33	42
MSf { H =	0·453	0·424	0·483	0·452
MSf { κ =	41	36	29	34
Sa { H =	0·980	0·991	1·119	1·058
Sa { κ =	141	143	140	142
Ssa { H =	0·103	0·069	0·182	0·097
Ssa { κ =	92	150	262	129

* Except where noted thus (2), where this represents the number of years.

II.—Table of Harmonic Constants at Old Indian Ports.

Kidderpore.

Commence 0 h., March 22.

Year		1883–4.	1884–5.	1885–6.	1886–7.	Mean of 6 years.
S_1	N =	0·097	0·082	0·088	0·082	0·089
	κ =	193	200	205	197	197
S_2	H =	1·513	1·462	1·459	1·482	1·475
	κ =	103	104	102	98	102
S_4	H =	0·095	0·080	0·074	0·093	0·082
	κ =	124	118	117	108	117
S_6	H =	0·003	0·001	0·008	0·005	0·005
	κ =	59	194	340	41	325
S_8	H =	0·002	0·007	0·005	0·003	0·005
	κ =	227	235	285	297	278
M_1	H =	0·034	0·052	0·051	0·039	0·034
	κ =	178	260	335	355	240
M_2	H =	3·646	3·674	3·627	3·521	3·620
	κ =	58	60	60	58	59
M_3	H =	0·028	0·043	0·060	0·056	0·036
	κ =	350	344	333	315	334
M_4	H =	0·691	0·729	0·736	0·714	0·720
	κ =	36	40	42	40	39
M_6	H =	0·156	0·156	0·161	0·144	0·156
	κ =	310	325	331	324	321
M_8	H =	0·073	0·067	0·065	0·070	0·072
	κ =	268	273	284	277	274
O	H =	0·206	0·210	0·209	0·194	0·210
	κ =	16	23	23	23	21
K_1	H =	0·400	0·398	0·394	0·384	0·392
	κ =	55	55	57	54	55
K_2	H =	0·504	0·489	0·381	0·451	0·449
	κ =	103	98	95	96	97
P	H =	0·140	0·153	0·132	0·136	0·142
	κ =	49	51	40	40	46
J	H =	0·017	0·031	0·011	0·004	0·015
	κ =	317	50	82	274	349
Q	H =	0·036	0·034	0·016	0·011	0·029
	κ =	350	350	14	349	0
L	H =	0·222	0·151	0·221	0·210	0·196
	κ —	59	63	74	65	68

II.—Table of Harmonic Constants at Old Indian Ports.

Kidderpore.

Commence 0 h., March 22.

Year		1883–4.	1884–5.	1885–6.	1886–7.	Mean of 6 years.*
N	H =	0·628	0·662	0·675	0·649	0·648
	κ =	42	45	47	45	46
2N	H =	0·124	0·127	0·099	0·059	0·088
	κ =	355	34	8	37	34
λ	H =	0·091	0·055	0·098	.....	0·089 (5)
	κ =	44	73	134	.....	93
ν	H =	0·170	0·318	0·320	0·185	0·245
	κ =	62	44	13	3	18
μ	H =	0·294	0·220	0·206	0·203	0·235
	κ =	181	183	191	203	187
R	H =	.....	0·123	.....	.....	0·145 (2)
	κ =	.....	79	.....	.....	78
T	H =	.....	0·175	.....	0·127	0·150 (3)
	κ =	.....	184	.....	87	126
MS	H =	0·645	0·625	0·654	0·651	0·644
	κ =	82	85	85	82	83
2SM	H =	0·063	0·066	0·096	0·089	0·081
	κ =	15	13	17	17	11
MN	H =	0·108	0·105	0·043	0·146	0·103
	κ =	293	228	131	235	227
MK	H =	0·144	0·085	0·082	0·123	0·108
	κ =	39	61	26	21	31
2MK	H =	0·032	0·032	0·040	0·028	0·034
	κ =	296	324	301	262	311
Mm	H =	0·290	0·288	0·269	0·287	0·270
	κ =	22	12	18	353	4
Mf	H =	0·346	0·238	0·317	0·263	0·293
	κ =	54	54	34	19	40
MSf	H =	0·905	0·834	0·981	0·979	0·908
	κ =	47	43	40	41	41
Sa	H =	2·312	2·361	3·006	3·114	2·712
	κ =	150	162	161	163	158
Ssa	H =	0·714	0·651	1·307	1·092	0·901
	κ =	322	353	328	345	314

* Except where noted thus (5), where this represents the number of years.

II.—Table of Harmonic Constants at Old Indian Ports.

Rangoon.

Commence 0 h., March 1.

Year		1883–4.	1884–5.	1885–6.	Mean of 6 years.
S_1	H =	0·118	0·105	0·106	0·112
	κ =	130	129	139	133
S_2	H =	1·995	2·021	1·922	1·996
	κ =	170	172	172	171
S_4	H =	0·083	0·088	0·083	0·083
	κ =	257	265	261	260
S_6	H =	0·007	0·011	0·011	0·010
	κ =	58	32	48	47
S_8	H =	0·002	0·007	0·005	0·005
	κ =	115	97	133	117
M_1	H =	0·029	0·031	0·017	0·029
	κ =	126	52	144	145
M_2	H =	5·588	5·635	5·609	5·578
	κ =	131	132	133	132
M_3	H =	0·024	0·031	0·030	0·025
	κ =	151	70	15	128
M_4	H =	0·441	0·419	0·405	0·416
	κ =	169	171	175	170
M_6	H =	0·228	0·226	0·228	0·230
	κ =	87	89	92	88
M_8	H =	0·094	0·089	0·091	0·086
	κ =	95	99	109	99
O	H =	0·297	0·287	0·283	0·292
	κ =	33	31	32	30
K_1	H =	0·666	0·668	0·669	0·669
	κ =	37	38	37	36
K_2	H =	0·543	0·578	0·699	0·588
	κ =	163	173	190	172
P	H =	0·134	0·167	0·139	0·148
	κ =	49	55	57	55
J	H =	0·034	0·039	0·033	0·033
	κ =	38	90	135	60
Q	H =	0·045	0·036	0·021	0·030
	κ =	68	39	40	40
L	H =	0·426	0·444	0·283	0·396
	κ =	143	150	131	149

II.—Table of Harmonic Constants at Old Indian Ports.

Rangoon.

Commence 0 h., March 1.

Year	1883–4.	1884–5.	1885–6.	Mean of 6 years.*
N { H =	1·006	1·050	1·074	1·017
N { κ =	115	116	118	117
2N { H =	0·108	0·233	0·118	0·149
2N { κ =	82	74	125	97
λ { H =	0·203	0·320	0·228	0·254
λ { κ =	143	169	197	170
ν { H =	0·383	0·508	0·455	0·383
ν { κ =	138	109	98	107
μ { H =	0·478	0·506	0·566	0·515
μ { κ =	288	288	292	290
R { H =	0·096	.....	0·112	0·108 (3)
R { κ =	125	.....	45	79
T { H =	0·222	.....	0·289	0·267 (3)
T { κ =	183	.....	124	145
MS { H =	0·421	0·386	0·393	0·393
MS { κ =	213	214	218	212
2SM { H =	0·175	0·154	0·187	0·166
2SM { κ =	61	50	56	54
MN { H =	0·154	0·096	0·275	0·168
MN { κ =	36	31	11	26
MK { H =	0·118	0·099	0·166	0·140
MK { κ =	102	63	66	73
2MK { H =	0·124	0·116	0·121	0·119
2MK { κ =	56	61	49	55
Mm { H =	0·279	0·171	0·206	0·227
Mm { κ =	15	5	12	17
Mf { H =	0·228	0·270	0·171	0·216
Mf { κ =	46	29	37	36
MSf { H =	0·541	0·530	0·542	0·546
MSf { κ =	46	51	51	49
Sa { H =	1·405	1·201	1·184	1·375
Sa { κ =	157	146	150	151
Ssa { H =	0·174	0·071	0·228	0·142
Ssa { κ =	1	263	298	318

* Except where noted thus (3), where this represents the number of years.

II.—Table of Harmonic Constants at Old Indian Ports.

Amherst.

Commence 0 h., August 5.

Year	1883–4.	1884–5.	1885–6.	Mean of 6 years.
S_1 { H =	0·124	0·137	0·131	0·176
κ =	120	133	122	133
S_2 { H =	2·680	2·700	2·563	2·708
κ =	100	95	102	102
S_4 { H =	0·080	0·099	0·075	0·095
κ =	108	101	108	114
S_6 { H =	0·008	0·002	0·002	0·008
κ =	328	164	342	233
S_8 { H =	0·003	0·002	0·003	0·005
κ =	302	267	244	273
M_1 { H =	0·014	0·038	0·045	0·032
κ =	88	93	29	343
M_2 { H =	6·376	6·427	6·415	6·320
κ =	66	65	67	67
M_3 { H =	0·021	0·033	0·031	0·024
κ =	275	237	260	259
M_4 { H =	0·303	0·315	0·273	0·324
κ =	37	36	32	43
M_6 { H =	0·138	0·142	0·151	0·131
κ =	254	250	249	252
M_8 { H =	0·016	0·021	0·023	0·017
κ =	219	222	240	238
O { H =	0·339	0·335	0·310	0·323
κ =	345	347	349	343
K_1 { H =	0·714	0·702	0·738	0·709
κ =	3	1	4	4
K_2 { H =	0·883	0·973	0·752	0·987
κ =	101	96	111	96
P { H =	0·207	0·195	0·212	0·191
κ =	3	6	12	352
J { H =	0·022	0·028	0·045	0·053
κ =	11	59	73	41
Q { H =	0·018	0·020	0·035	0·039
κ =	11	7	347	342
L { H =	0·362	0·373	0·314	0·321
κ =	81	90	78	97

II.—Table of Harmonic Constants at Old Indian Ports.

Amherst.

Commence 0 h., August 5.

Year		1883–4.	1884–5.	1885–6.	Mean of 6 years.*
N	H =	1·230	1·194	1·312	1·284
	κ =	52	51	48	52
2N	H =	0·271	0·204	0·173	0·245
	κ =	23	72	61	34
λ	H =	0·185	0·178	0·216	0·246
	κ =	92	133	184	127
ν	H =	0·428	0·232	0·099	0·339
	κ =	49	25	55	50
μ	H =	0·274	0·202	0·326	0·285
	κ =	310	281	293	298
R	H =	0·033	.....	0·174	0·219 (3)
	κ =	347	.....	316	305
T	H =	0·074	.....	0·352	0·422 (3)
	κ =	284	.....	79	169
MS	H =	0·291	0·300	0·275	0·318
	κ =	73	66	64	75
2SM	H =	0·176	0·181	0·176	0·164
	κ =	5	13	328	3
MN	H =	0·271	0·198	0·035	0·214
	κ =	216	244	159	210
MK	H =	0·011	0·102	0·122	0·091
	κ =	280	302	348	335
2MK	H =	0·039	0·044	0·037	0·051
	κ =	309	320	313	315
Mm	H =	0·109	0·049	0·006	0·071 (5)
	κ =	342	4	290	2
Mf	H =	0·083	0·107	0·017	0·080 (5)
	κ =	328	34	213	327
Msf	H =	0·052	0·067	0·068	0·059 (5)
	κ =	134	69	306	58
Sa	H =	0·739	0·713	0·886	0·758 (5)
	κ =	149	147	107	136
Ssa	H =	0·161	0·119	0·154	0·149 (5)
	κ =	107	181	154	111

* Except where noted thus (3), where this represents the number of years.

II.—Table of Harmonic Constants at Old Indian Ports.

Moulmein.

Commence 0 h., April 17.

Year	1883–4.	1884–5.	1885–6.	Mean of 6 years.
S_1 H =	0·099	0·114	0·074	0·096
S_1 κ =	151	144	154	149
S_2 H =	1·349	1·364	1·364	1·361
S_2 κ =	149	150	151	149
S_4 H =	0·062	0·071	0·073	0·068
S_4 κ =	228	223	228	228
S_6 H =	0·005	0·007	0·007	0·006
S_6 κ =	261	246	222	213
S_8 H =	0·002	0·002	0·000	0·002
S_8 κ =	320	121	198	212
M_1 H =	0·029	0·019	0·026	0·022
M_1 κ =	145	122	71	125
M_2 H =	3·720	3·887	3·803	3·791
M_2 κ =	113	114	115	114
M_3 H =	0·020	0·019	0·028	0·024
M_3 κ =	165	117	42	159
M_4 H =	0·869	0·906	0·897	0·896
M_4 κ =	171	173	176	172
M_6 H =	0·093	0·077	0·084	0·094
M_6 κ =	197	208	218	204
M_8 H =	0·040	0·043	0·036	0·039
M_8 κ =	136	119	123	130
O H =	0·275	0·273	0·245	0·259
O κ =	51	55	54	51
K_1 H =	0·425	0·456	0·429	0·437
K_1 κ =	41	44	43	42
K_2 H =	0·371	0·275	0·309	0·327
K_2 κ =	164	158	159	158
P H =	0·119	0·145	0·116	0·130
P κ =	54	53	54	57
J H =	0·022	0·016	0·015	0·020
J κ =	22	63	72	80
Q H =	0·042	0·056	0·046	0·047
Q κ =	57	79	57	59
L H =	0·320	0·330	0·297	0·297
L κ =	136	123	144	137

II.—Table of Harmonic Constants at Old Indian Ports.

Moulmein.

Commence 0 h., April 17.

Year		1883–4.	1884–5.	1885–6.	Mean of 6 years.
N	H =	0·654	0·620	0·713	0·671
	κ =	95	92	99	99
2N	H =	0·120	0·082	0·120	0·093
	κ =	79	145	74	86
λ	H =	0·104	0·183	0·165	0·163
	κ =	107	153	170	154
ν	H =	0·173	0·435	0·331	0·273
	κ =	126	128	84	98
μ	H =	0·347	0·320	0·339	0·324
	κ =	274	260	279	271
R	H =	0·133	....	0·204	0·145 (3)
	κ =	79	....	72	73 (3)
T	H =	0·151	....	0·264	0·205 (3)
	κ =	174	....	100	128 (3)
MS	H =	0·685	0·714	0·715	0·708
	κ =	213	215	218	213
2SM	H =	0·123	0·155	0·118	0·128
	κ =	39	50	40	41
MN	H =	0·126	0·203	0·086	0·135
	κ =	30	36	4	19
MK	H =	0·197	0·162	0·133	0·164
	κ =	93	103	87	89
2MK	H =	0·111	0·099	0·111	0·112
	κ =	70	57	61	62
Mm	H =	0·407	0·344	0·369	0·367
	κ =	19	5	9	12
Mf	H =	0·377	0·217	0·371	0·328
	κ =	49	32	32	39
MSf	H =	1·091	1·050	1·063	1·089
	κ =	45	42	45	45
Sa	H =	2·519	2·032	2·128	2·330
	κ =	152	144	151	149
Ssa	H =	0·653	0·501	0·730	0·616
	κ =	298	268	288	286

* Except where noted thus (3), where this represents the number of years.

II.—Table of Harmonic Constants at Old Indian Ports.

Port Blair.

Commence 0 h., April 19.

Year		1883-4.	1884-5.	1885-6.	1886-7.	Mean of 7 years.
S_1	H =	0·015	0·051	0·006	0·024	0·023
	κ =	85	28	125	79	62
S_2	H =	0·975	0·963	0·933	0·953	0·961
	κ =	316	320	322	317	317
S_4	H =	0·004	0·004	0·004	0·002	0·003
	κ =	108	126	68	257	64
S_6	H =	0·003	0·001	0·002	0·003	0·002
	κ =	176	167	99	118	136
S_8	H =	0·001	0·000	0·002	0·002	0·001
	κ =	221	278	114	50	129
M	H =	0·004	0·028	0·032	0·017	0·016
	κ =	313	288	315	322	302
M_2	H =	2·013	2·029	1·951	1·986	2·006
	κ =	279	282	285	281	280
M_3	H =	0·009	0·005	0·004	0·007	0·007
	κ =	25	28	41	14	22
M_4	H =	0·013	0·017	0·016	0·008	0·011
	κ =	99	112	108	76	121
M_6	H =	0·007	0·002	0·008	0·006	0·004
	κ =	166	133	233	190	239
M_8	H =	0·001	0·001	0·002	0·002	0·002
	κ =	80	64	56	95	72
O	H =	0·159	0·155	0·162	0·152	0·158
	κ =	302	300	304	302	302
K_1	H =	0·393	0·417	0·397	0·397	0·399
	κ =	328	330	332	328	328
K_2	H =	0·277	0·179	0·233	0·234	0·253
	κ =	315	279	322	311	308
P	H =	0·132	0·176	0·129	0·131	0·138
	κ =	324.	319	327	326	325
J	H =	0·021	0·033	0·032	0·015	0·026
	κ =	297	305	348	330	322
Q	H =	0·011	0·022	0·020	0·014	0·020
	κ =	256	255	250	214	241
L	H =	0·093	0·049	0·087	0·083	0·074
	κ =	288	327	291	269	284

II.—Table of Harmonic Constants at Old Indian Ports.

Port Blair.

Commence 0 h., April 19.

Year		1883–4.	1884–5.	1885–6.	1886–7.	Mean of 7 years.*
N	H =	0·382	0·423	0·391	0·405	0·400
	κ =	272	274	277	273	274
2N	H =	0·044	0·094	0·066	0·070	0·066 (6)
	κ =	241	282	240	282	267
λ	H =	0·036	0·087	.....	.....	0·050 (5)
	κ =	216	176	.....	.....	247
ν	H =	0·020	0·179	0·139	0·100	0·115
	κ =	332	298	281	233	272
μ	H =	0·074	0·121	0·071	0·080	0·086
	κ =	315	280	312	285	296
R	H =	0·022	.....	.....	.....	0·021 (2)
	κ =	261	.....	.....	.....	293
T	H =	0·037	.....	0·112	.....	0·083 (3)
	κ =	355	.....	291	.....	319
MS	H =	0·004	0·007	0·006	0·003	0·007
	κ =	183	107	173	345	208
2SM	H =	0·017	0·022	0·021	0·030	0·023
	κ =	140	330	182	146	180
MN	H =	0·037	0·105	0·024	0·078	0·063 (6)
	κ =	166	97	124	138	131
MK	H =	0·025	0·026	0·025	0·021	0·021 (6)
	κ =	325	57	154	235	195
2MK	H =	0·003	0·004	0·005	0·005	0·005 (6)
	κ =	229	166	260	264	226
Mm	H =	0·010	0·001	0·034	0·023	0·016
	κ =	35	129	341	10	31
Mf	H =	0·053	0·036	0·048	0·025	0·048
	κ =	13	32	32	294	6
Msf	H =	0·014	0·018	0·036	0·027	0·020
	κ =	33	18	354	74	43
Sa	H =	0·218	0·165	0·255	0·048	0·185
	κ =	180	162	147	125	152
Ssa	H =	0·153	0·157	0·201	0·105	0·138
	κ =	177	176	181	237	186

* Except where noted thus (6), where this represents the number of years.

III.—Table of Harmonic Constants at New Indian Ports.

Bhavnagar.

Commence at 0 h., January 1.

Year	1886.	1887.	Mean of 2 years.	Year	1886.	1887.	Mean of 2 years.
S_1 H =	0·154	0·129	0·142	N H =	2·280	2·521	2·401
κ =	180	186	183	κ =	111	113	112
S_2 H =	3·376	3·414	3·395	2N H =	0·271	0·130	0·201
κ =	176	176	176	κ =	104	27	66
S_4 H =	0·102	0·126	0·114	λ H =	0·278	....	0·278
κ =	237	230	234	κ =	142	....	142
S_6 H =	0·027	0·025	0·026	ν H =	0·640	0·930	0·785
κ =	308	297	302	κ =	135	108	121
S_8 H =	0·009	0·007	0·008	μ H =	0·353	0·260	0·307
κ =	25	94	60	κ =	274	287	281
M_1 H =	0·066	0·126	0·096	R H =	....	....	.....
κ =	201	157	179	κ =	....	....	....
M_2 H =	10·534	10·724	10·629	T H =	....	0·277	0·277
κ =	135	135	135	κ =	....	247	247
M_3 H =	0·078	0·113	0·096	MS H =	0·638	0·683	0·661
κ =	317	328	323	κ =	195	197	196
M_4 H =	0·896	0·916	0·906	2SM H =	0·044	0·057	0·050
κ =	156	153	154	κ =	12	353	2
M_6 H =	0·228	0·219	0·224	MN H =	0·210	0·425	0·318
κ =	119	125	122	κ =	93	93	93
M_8 H =	0·015	0·021	0·018	MK H =	0·189	0·326	0·258
κ =	179	130	155	κ =	80	106	93
O H =	1·011	0·989	1·000	2MK H =	0·123	0·125	0·124
κ =	83	84	83	κ =	350	350	350
K_1 H =	2·257	2·323	2·290	Mm H =	0·107	0·133	0·120
κ =	92	91	91	κ =	6	39	23
K_2 H =	0·715	0·859	0·787	Mf H =	0·075	0·053	0·064
κ =	169	176	173	κ =	39	44	42
P H =	0·655	0·680	0·668	MSf H =	0·115	0·220	0·168
κ =	93	94	94	κ =	28	40	34
J H =	0·119	0·096	0·107	Sa H =	0·266	0·375	0·321
κ =	179	138	158	κ =	121	115	118
Q H =	0·178	0·207	0·193	Ssa H =	0·083	0·271	0·177
κ =	73	88	80	κ =	165	169	167
L H =	0·589	0·735	0·662				
κ =	166	150	158				

III.—Table of Harmonic Constants at New Indian Ports.

Mormugão.

Commence 0 h., March 16.

Year		1884–5.	1885–6.	1886–7.	Mean of 3 years.
S_1	H =	0·080	0·041	0·047	0·056
	κ =	157	177	172	169
S_2	H =	0·638	0·641	0·643	0·641
	κ =	337	332	331	333
S_4	H =	0·008	0·009	0·008	0·008
	κ =	109	100	89	99
S_6	H =	0·003	0·005	0·004	0·004
	κ =	120	110	127	119
S_8	H =	0·003	0·004	0·003	0·003
	κ =	95	24	31	50
M_1	H =	0·045	0·055	0·015	0·038
	κ =	98	98	43	80
M_2	H =	1·766	1·820	1·835	1·807
	κ =	305	300	299	302
M_3	H =	0·018	0·015	0·017	0·017
	κ =	308	299	296	301
M_4	H =	0·041	0·047	0·051	0·046
	κ =	21	6	6	11
M_6	H =	0·010	0·013	0·012	0·012
	κ =	261	245	254	253
M_8	H =	0·012	0·011	0·017	0·013
	κ =	24	20	16	20
O	H =	0·516	0·524	0·520	0·520
	κ =	53	50	48	50
K_1	H =	1·020	1·033	1·026	1·026
	κ =	48	46	45	46
K_2	H =	0·182	0·179	0·205	0·189
	κ =	324	331	324	327
P	H =	0·300	0·305	0·289	0·298
	κ =	49	43	42	45
J	H =	0·061	0·085	0·075	0·074
	κ =	43	43	71	52
Q	H –	0·099	0·119	0·111	0·110
	κ =	64	52	42	52
L	H =	0·030	0·053	0·039	0·041
	κ =	307	338	303	316

III.—Table of Harmonic Constants at New Indian Ports.

Mormugão.

Commence 0 h., March 16.

Year		1884–5.	1885–6.	1886–7.	Mean of 3 years.*
N	H =	0·427	0·438	0·427	0·431
	κ =	287	282	281	283
2N	H =	0·062	0·069	0·074	0·068
	κ =	239	263	239	247
λ	H =	0·011	0·014	.....	0·013
	κ =	323	103	.....	213
ν	H =	0·153	0·104	0·018	0·092
	κ =	278	254	233	255
μ	H =	0·062	0·042	0·058	0·054
	κ =	247	246	248	247
R	H =	.....	0·006	.....	0·006 (1)
	κ =	.....	138	.....	138
T	H =	.....	0·068	.....	0·068 (1)
	κ =	.....	278	.....	278
MS	H =	0·022	0·028	0·025	0·025
	κ =	60	67	44	57
2SM	H =	0·002	0·003	0·007	0·004
	κ =	201	138	70	137
MN	H =	0·045	0·057	0·022	0·041
	κ =	343	342	337	341
MK	H =	0·019	0·035	0·039	0·031
	κ =	335	54	108	46
2MK	H =	0·009	0·006	0·005	0·007
	κ =	351	30	92	37
Mm	H =	0·048	0·029	0·015	0·031
	κ =	75	359	286	0
Mf	H =	0·048	0·075	0·089	0·071
	κ =	14	14	11	13
MSf	H =	0·021	0·057	0·041	0·040
	κ =	151	279	354	261
Sa	H =	0·306	0·165	0·291	0·254
	κ =	307	333	328	323
Ssa	H =	0·075	0·055	0·133	0·088
	κ =	163	68	147	126

* Except where noted thus (1), where this represents the number of years.

III.—Table of Harmonic Constants at New Indian Ports.

Cochin.

Commence at 0 h., January 25.

Year		1886–7.	1887–8.	Mean.	Year		1886–7.	1887–8.	Mean.
S_1	H =	0·031	0·039	0·035	N	H =	0·153	0·175	0·164
	κ =	161	227	194		κ =	301	300	300
S_2	H =	0·256	0·270	0·263	2N	H =	0·014	0·022	0·018
	κ =	26	37	31		κ =	274	185	230
S_4	H =	0·006	0·008	0·007	λ	H =	0·013	....	0·013
	κ =	203	138	171		κ =	321	....	321
S_6	H =	0·007	0·005	0·006	ν	H =	0·033	0·053	0·043
	κ =	226	222	224		κ =	355	334	345
S_8	H =	0·002	0·002	0·002	μ	H =	0·009	0·032	0·021
	κ =	162	297	230		κ =	168	204	186
M_1	H =	0·010	0·008	0·009	R	H =	....	....	....
	κ =	5	87	46		κ =	....	....	....
M_2	H =	0·731	0·731	0·731	T	H =	....	0·058	0·058
	κ =	332	330	331		κ =	....	9	9
M_3	H =	0·005	0·004	0·005	MS	H =	0·020	0·018	0·019
	κ =	159	265	212		κ =	135	143	139
M_4	H =	0·028	0·025	0·027	2SM	H =	0·004	0·009	0·007
	κ =	76	64	70		κ =	324	129	226
M_6	H =	0·009	0·011	0·010	MN	H =	0·023	0·014	0·019
	κ =	95	80	88		κ =	102	65	83
M_8	H =	0·002	0·003	0·003	MK	H =	0·037	0·025	0·031
	κ =	287	12	330		κ =	131	138	135
O	H =	0·306	0·326	0·316	2MK	H =	0·017	0·021	0·019
	κ =	58	56	57		κ =	107	108	108
K_1	H =	0·586	0·602	0·594	Mm	H =	0·014	0·035	0·025
	κ =	51	53	52		κ =	50	112	81
K_2	H =	0·089	0·063	0·076	Mf	H =	0·070	0·072	0·071
	κ =	26	21	23		κ =	355	36	16
P	H =	0·163	0·175	0·169	MSf	H =	0·037	0·042	0·040
	κ =	52	43	48		κ =	293	311	302
J	H =	0·026	0·039	0·033	Sa	H =	0·309	0·418	0·364
	κ =	77	49	63		κ =	313	296	305
Q	H =	0·068	0·082	0·075	Ssa	H =	0·134	0·161	0·148
	κ =	60	62	61		κ =	154	161	157
L	H =	0·027	0·041	0·034					
	κ =	24	332	358					

III.—Table of Harmonic Constants at New Indian Ports.

Galle.

Commence 0 h., April 1.

Year		1884–5.	1885–6.	1886–7.	Mean of 3 years.
S_1	H =	0·011	0 012	0·031	0·018
	κ =	66	75	28	56
S_2	H =	0·357	0·357	0·370	0·361
	κ =	97	94	92	94
S_4	H =	0·002	0·004	0·002	0·003
	κ =	205	246	253	234
S_6	H =	0·001	0·000	0·004	0·002
	κ =	264	135	106	168
S_8	H =	0·001	0·001	0·001	0·001
	κ =	197	259	274	243
M_1	H =	0·010	0·008	0·004	0·007
	κ =	225	245	333	268
M_2	H =	0·526	0·525	0·530	0·527
	κ =	60	57	55	57
M_3	H =	0·014	0·012	0·014	0·013
	κ =	166	161	150	159
M_4	H =	0·009	0 011	0·013	0·011
	κ =	171	164	166	167
M_6	H =	0·004	0·003	0·003	0·003
	κ =	2	336	24	1
M_8	H =	0 002	0·002	0·001	0·002
	κ =	285	212	255	251
O	H =	0·044	0·052	0·046	0·047
	κ =	79	79	78	79
K_1	H =	0·165	0·165	0·168	0·166
	κ =	20	18	16	18
K_2	H =	0·093	0·089	0·154	0·112
	κ =	92	104	101	99
P	H =	0·053	0·049	0·037	0·046
	κ =	27	15	24	22
J	H =	0·010	0·006	0 012	0·009
	κ =	69	53	355	39
Q	H =	0·023	0·024	0·028	0·025
	κ =	89	96	95	93
L	H =	0·036	0·028	0·042	0·035
	κ =	67	7	80	51

III.—Table of Harmonic Constants at New Indian Ports.

Galle.

Commence 0 h., April 1.

Year	1884–5.	1885–6.	1886–7.	Mean of 3 years.*
N {H =	0·053	0·066	0·054	0·058
N {κ =	47	42	45	45
2N {H =	0·007	0·020	0·009	0·012
2N {κ =	209	66	149	141
λ {H =	0·018	0·012	.....	0·015 (2)
λ {κ =	101	18	.....	59
ν {H =	0·048	0·038	0·013	0·033
ν {κ =	67	16	351	25
μ {H =	0·025	0·025	0·026	0·025
μ {κ =	102	106	100	103
R {H =	.....	0·018	.....	0·018 (1)
R {κ =	.....	358	.....	358
T {H =	.....	0·041	.....	0·041 (1)
T {κ =	.....	59	.....	59
MS {H =	0·006	0·006	0·009	0·007
MS {κ =	313	241	238	264
2SM {H =	0·007	0·012	0·008	0·009
2SM {κ =	24	340	320	348
MN {H =	0·026	0·013	0·024	0·021
MN {κ =	165	229	189	194
MK {H =	0·005	0·008	0·005	0·006
MK {κ =	284	28	127	266
2MK {H =	0·002	0·001	0·003	0·002
2MK {κ =	135	96	82	104
Mm {H =	0·067	0·017	0·017	0·034
Mm {κ =	22	337	340	353
Mf {H =	0·020	0·027	0·066	0·038
Mf {κ =	12	39	339	10
MSf {H =	0·013	0·013	0·030	0·019
MSf {κ =	324	133	268	242
Sa {H =	0·377	0·287	0·346	0·337
Sa {κ =	314	330	312	319
Ssa {H =	0·097	0·089	0·142	0·109
Ssa {κ =	125	102	122	116

* Except where noted thus (2), where this represents the number of years.

III.—Table of Harmonic Constants at New Indian Ports.

Colombo.

Commence 0 h., February 1.

Year	1884–5.	1885–6.	1886–7.	Mean of 3 years.
S_1 H =	0·018	0·030	0·003	0·017
κ =	62	60	143	88
S_2 H =	0·362	0·389	0·404	0·385
κ =	100	101	90	97
S_4 H =	0·004	0·004	0·004	0·004
κ =	212	248	226	229
S_6 H =	0·002	0·002	0·002	0·002
κ =	189	214	144	182
S_8 H =	0·001	0·001	0·000	0·001
κ =	236	106	108	150
M_1 H =	0·008	0·013	0·006	0·009
κ =	57	192	289	179
M_2 H =	0·546	0·563	0·590	0·566
κ =	53	54	46	51
M_3 H =	0·015	0·015	0·014	0·015
κ =	169	166	161	166
M_4 H =	0·015	0·014	0·017	0·015
κ =	180	174	165	173
M_6 H =	0·002	0·003	0·005	0·003
κ =	76	63	346	42
M_8 H =	0·000	0·001	0·000	0·000
κ =	54	228	146	143
O H =	0·093	0·101	0·091	0·095
κ =	64	67	59	64
K_1 H =	0·237	0·231	0·239	0·236
κ =	36	36	29	34
K_2 H =	0·072	0·104	0·126	0·101
κ =	109	82	85	92
P H =	0·082	0·062	0·068	0·071
κ =	34	12	30	25
J H =	0·030	0·006	0·013	0·016
κ =	37	60	2	33
Q H =	0·029	0·027	0·031	0·029
κ =	81	88	82	84
L H =	0·028	0·018	0·038	0·028
κ =	54	46	64	55

III.—Table of Harmonic Constants at New Indian Ports.

Colombo.

Commence 0 h., February 1.

Year		1884–5.	1885–6.	1886–7.	Mean of 3 years.
N	H =	0·063	0·050	0·073	0·062
	κ =	29	47	30	35
2N	H =	0·011	0·012	0·008	0·010
	κ =	51	123	16	63
λ	H =	0·024	0·032	0·016	0·024
	κ =	59	56	16	44
ν	H =	0·023	0·014	0·011	0·016
	κ =	39	50	76	55
μ	H =	0·020	0·017	0·018	0·018
	κ =	106	97	122	108
R	H =	....	0·059	....	0·059 (1)
	κ =	....	340	....	340
T	H =	....	0·041	....	0·041 (1)
	κ =	....	353	....	353
MS	H =	0·005	0·008	0·009	0·007
	κ =	258	268	260	262
2SM	H =	0·008	0·005	0·008	0·007
	κ =	280	349	357	329
MN	H =	0·031	0·014	0·009	0·018
	κ =	252	256	262	257
MK	H =	0·004	0·002	0·007	0·004
	κ =	154	107	27	96
2MK	H =	0·005	0·002	0·005	0·004
	κ =	182	83	87	117
Mm	H =	0·043	0·035	0·040	0·039
	κ =	18	321	24	1 *
Mf	H =	0·033	0·064	0·049	0·049
	κ =	321	14	344	346
MSf	H =	0·014	0·012	0·026	0·017
	κ =	36	60	275	4
Sa	H =	0·328	0·267	0·323	0·306
	κ =	309	327	315	317
Ssa	H =	0·123	0·060	0·155	0·113
	κ =	128	83	122	111

* Except where noted thus (1), where this represents the number of years.

III.—Table of Harmonic Constants at New Indian Ports.

Cocanada.

Commence 0 h., March 31.

Year	1886–7.	1887–8.	Mean of 2 years.	Year	1886–7.	1887–8.	Mean of 2 years.*
S_1 { H =	0·036	0·037	0·037	N { H =	0·308	0·326	0·317
κ =	93	77	85	κ =	244	242	243
S_2 { H =	0·644	0·628	0·636	2N { H =	0·043	0·060	0·052
κ =	285	286	285	κ =	242	230	236
S_4 { H =	0·003	0·007	0·005	λ { H =	0·008	.....	0·008 (1)
κ =	126	147	136	κ =	83	.....	83
S_6 { H =	0·003	0·004	0·004	ν { H =	0·071	0·018	0·045
κ =	205	160	182	κ =	191	303	247
S_8 { H =	0·003	0·003	0·003	μ { H =	0·019	0·032	0·026
κ =	221	83	152	κ =	257	264	260
M_1 { H =	0·019	0·023	0·021	R { H =			
κ =	341	342	341	κ =			
M_2 { H =	1·486	1·545	1·516	T { H =	.....	0·064	0·064 (1)
κ =	252	252	252	κ =	.....	294	294
M_3 { H =	0·006	0·009	0·008	MS { H =	0·014	0·023	0·019
κ =	346	20	3	κ =	131	145	138
M_4 { H =	0·026	0·027	0·027	2SM { H =	0·015	0·018	0·017
κ =	109	106	107	κ =	215	181	198
M_6 { H =	0·014	0·016	0·015	MN { H =	0·031	0·041	0·036
κ =	98	101	99	κ =	120	135	128
M_8 { H =	0·002	0·002	0·002	MK { H =	0·024	0·024	0·024
κ =	66	295	1	κ =	296	16	336
O { H =	0·133	0·137	0·135	2MK { H =	0·011	0·010	0·011
κ =	333	332	333	κ =	326	318	322
K_1 { H =	0·347	0·352	0·350	Mm { H =	0·029	0·076	0·053
κ =	340	338	339	κ =	198	290	244
K_2 { H =	0·175	0·169	0·172	Mf { H =	0·078	0·095	0·087
κ =	286	284	285	κ =	55	196	126
P { H =	0·099	0·089	0·094	MSf { H =	0·033	0·023	0·028
κ =	344	343	344	κ =	19	125	72
J { H =	0·028	0·036	0·032	Sa { H =	0·853	0·671	0·762
κ =	338	336	337	κ =	200	199	199
Q { H =	0·017	0·008	0·013	Ssa { H =	0·403	0·522	0·463
κ =	36	21	28	κ =	109	99	104
L { H =	0·075	0·082	0·079				
κ =	272	235	254				

* Except where noted thus (1), where this represents the number of years.

III.—Table of Harmonic Constants at New Indian Ports.

	Chittagong. Commence 0 h., June 6.			*Akyab.* Com. 0 h., May 9.
Year	1886–7.	1887–8.	Mean of 2 years.	1887–8.
S_1 H =	0·060	0·056	0·058	0·042
S_1 κ =	120	127	123	84
S_2 H =	1·568	1·553	1·561	1·118
S_2 κ =	68	68	68	310
S_4 H =	0·049	0·053	0·051	0·006
S_4 κ =	55	63	59	209
S_6 H =	0·010	0·010	0·010	0·003
S_6 κ =	131	125	128	107
S_8 H =	0·002	0·002	0·002	0·003
S_8 κ =	217	147	182	113
M_1 H =	0·025	0·022	0·024	0·016
M_1 κ =	23	47	35	342
M_2 H =	4·428	4·440	4·434	2·540
M_2 κ =	35	35	35	280
M_3 H =	0·039	0·044	0·042	0·020
M_3 κ =	218	198	208	11
M_4 H =	0·421	0·395	0·408	0·006
M_4 κ =	342	344	343	290
M_6 H =	0·143	0·149	0·146	0·023
M_6 κ =	195	188	192	132
M_8 H =	0·035	0·034	0·035	0·006
M_8 κ =	127	112	119	143
O H =	0·295	0·289	0·292	0·183
O κ =	12	16	14	338
K_1 H =	0·582	0·576	0·579	0·443
K_1 κ =	22	20	21	344
K_2 H =	0·438	0·397	0·418	0·317
K_2 κ =	71	66	68	304
P H =	0·192	0·195	0·194	0·141
P κ =	26	31	29	347
J H =	0·053	0·027	0·040	0·021
J κ =	51	99	75	1
Q H =	0·016	0·025	0·021	0·002
Q κ =	328	359	343	169
L H =	0·425	0·399	0·412	0·103
L κ =	60	39	50	291

III.—Table of Harmonic Constants at New Indian Ports.

Year	*Chittagong.* Commence 0 h., June 6. 1886–7.	1887–8.	Mean of 2 years.*	*Akyab.* Com. 0 h., May 9. 1887–8.
N {H =	0·869	0·841	0·855	0·520
N {κ =	24	25	24	271
2N {H =	0·031	0·080	0·055	0·052
2N {κ =	19	294	337	250
λ {H =	0·207	.....	0·207 (1)	
λ {κ =	61	.....	61	
μ {H =	0·402	0·295	0 349	0·053
μ {κ =	24	2	13	202
ν {H =	0·268	0·276	0·272	0 017
ν {κ =	200	206	203	225
R {H =				
R {κ =				
T {H =	.....	0·139	0·139 (1)	
T {κ =	.....	246	246	
MS {H =	0·355	0·344	0·350	0·012
MS {κ =	18	24	21	313
2SM {H =	0 129	0·138	0·133	0·041
2SM {κ =	299	303	301	198
MN {H =	0·143	0·088	0·116	0·102
MN {κ =	246	275	261	106
MK {H =	0·131	0·102	0·117	0·016
MK {κ =	310	338	324	220
2MK {H =	0·049	0·043	0·046	0·012
2MK {κ =	263	263	263	28
Mm {H =	0·075	0·177	0·126	0·026
Mm {κ =	339	9	354	284
Mf {H =	0 181	0·173	0·177	0 081
Mf {κ =	40	343	12	289
MSf {H =	0·432	0·459	0·446	0·046
MSf {κ =	39	42	41	58
Sa {H =	1·666	1·435	1·551	0·950
Sa {κ =	137	132	134	146
Ssa {H =	0·178	0·105	0·142	0·252
Ssa {κ =	217	73	325	129

* Except where noted thus (1), where this represents the number of years.

III.—Table of Harmonic Constants at New Indian Ports.

Elephant Point (New Site).

Commence 0 h., January 1 of each year except for 1887–8 (June 12, 1887).

Year	1884.	1885.	1886.	1887.	1887–8.	Mean of 5 years.
S_1 H =	0·140	0·082	0·082	0·075	0·101	0·096
S_1 κ =	91	126	128	114	112	114
S_2 H =	2·384	2·397	2·365	2·366	2·395	2·381
S_2 κ =	140	140	140	140	140	140
S_4 H =	0·092	0·088	0·078	0·081	0·081	0·084
S_4 κ =	181	177	174	176	173	176
S_6 H =	0·013	0·007	0·010	0·011	0·008	0·010
S_6 κ =	294	262	296	272	258	277
S_8 H =	0·009	0·005	0·002	0·003	0·001	0·004
S_8 κ =	307	284	340	38	63	351
M_1 H =	0·039	0·009	0·015	0·039	0·038	0·028
M_1 κ =	26	125	55	64	73	69
M_2 H =	5·876	5·890	5·897	5·907	5·941	5·902
M_2 κ =	102	104	103	103	104	103
M_3 H =	0·021	0·026	0·027	0·040	0·031	0·029
M_3 κ =	15	337	323	305	286	325
M_4 H =	0·270	0·289	0·275	0·290	0·280	0·281
M_4 κ =	79	88	91	90	91	88
M_6 H =	0·252	0·241	0·239	0·242	0·246	0·244
M_6 κ =	339	338	338	332	334	336
M_8 H =	0·107	0·101	0·104	0·104	0·104	0·104
M_8 κ =	324	334	335	326	323	328
O H =	0·344	0·323	0·323	0·313	0·312	0·323
O κ =	6	8	7	5	6	6
K_1 H =	0·723	0·737	0·751	0·761	0·760	0·746
K_1 κ =	20	19	19	18	18	19
K_2 H =	0·980	0·716	0·589	0·710	0·763	0·752
K_2 κ =	120	135	136	144	147	137
P H =	0·162	0·189	0·195	0·223	0·195	0·193
P κ =	18	32	36	31	33	30
J H =	0·029	0·064	0·011	0·025	0·023	0·030
J κ =	77	103	107	61	89	87
Q H =	0·043	0·024	0·004	0·030	0·029	0·026
Q κ =	23	329	279	4	39	351
L H =	0·440	0·250	0·412	0·448	0·423	0·395
L κ =	117	132	139	126	120	127

III.—Table of Harmonic Constants at New Indian Ports.

Elephant Point (New Site).

Commence 0 h., January 1 of each year except for 1887–8 (June 12, 1887).

Year	1884.	1885.	1886.	1887.	1887–8.	Mean of 5 years.*
N { H =	0·961	1·052	1·145	1·207	1·188	1·111
N { κ =	90	86	86	88	91	88
2N { H =	0·281	0·205	0·102	0·105	0·197	0·178
2N { κ =	87	85	144	327	14	59
λ { H =	0·188	0·178	.....	.....	.....	0·183 (2)
λ { κ =	162	144	.....	.....	.....	153
ν { H =	0·132	0·137	0·346	0·416	0·313	0·269
ν { κ =	68	122	123	95	67	95
μ { H =	0·346	0·391	0·342	0·329	0·382	0·358
μ { κ =	273	293	288	302	302	292
R { H =	.....	0·077	.....	.....	.....	0·077 (1)
R { κ =	.....	104	.....	.....	.....	104
T { H =	.....	0·318	.....	0·142	.....	0·230 (2)
T { κ =	.....	93	.....	185	.....	139
MS { H =	0·310	0·296	0·292	0·277	0·281	0·291
MS { κ =	122	128	126	129	131	127
2SM { H =	0·163	0·112	0·131	0·134	0·138	0·136
2SM { κ =	42	35	35	39	40	38
MN { H =	0·235	0·198	0·126	0·199	0·196	0·191
MN { κ =	34	45	36	80	136	66
MK { H =	0·073	0·055	0·134	0·151	0·047	0·092
MK { κ =	66	344	3	36	47	27
2MK { H =	0·069	0·076	0·069	0·073	0·032	0·064
2MK { κ =	351	353	354	357	350	353
Mm { H =	0·120	0·120	0·075	0·056	0·107	0·096
Mm { κ =	349	7	0	347	351	355
Mf { H =	0·190	0·120	0·148	0·044	0·037	0·108
Mf { κ =	10	24	13	108	20	35
MSf { H =	0·226	0·245	0·199	0·221	0·170	0·212
MSf { κ =	56	53	27	37	30	41
Sa { H =	0·812	0·873	0·918	0·764	0·845	0·842
Sa { κ =	117	141	152	141	149	140
Ssa { H =	0·134	0·107	0·141	0·150	0·115	0·129
Ssa { κ =	204	219	122	89	114	150

* Except where noted thus (2), where this represents the number of years.