and in brightness of the corona, as the sun slowly loses heat, and the actions of the photosphere become less fervent.

The candle of the sun is burning down, and so far as we can see, must at last reach the socket. Then will begin a total eclipse which will have no end:

"Dies illa
Solvet seclum in favilla."

"Results of the Harmonic Analysis of Tidal Observations."

By A. W. BAIRD, Major R.E., and G. H. DARWIN, F.R.S., Fellow of Trinity College and Plumian Professor in the University of Cambridge. Received March 19, 1885.

The harmonic analysis of continuous tidal records, inaugurated by a Committee of the British Association in 1868, has now been carried out at a considerable number of ports. Some of the earlier results were collected together in the Reports to the Association in 1872 and 1876, and in a paper by Sir W. Thomson and Captain Evans, read before the Association in 1878, but the largest mass of data is contained in the tide tables now being annually published for the Indian ports under the authority of Her Majesty's Secretary of State for India.

The Report of the last Committee of the British Association, published in the volume for the meeting at Southport in 1883, is entirely theoretical, and has been adopted in India as a manual of the method of harmonic analysis. It is there shown how the results of the analysis are to be presented in a form appropriate either for theoretical treatment or for mechanical prediction by the instrument of the Indian Government in London. It is also shown how the scattered results, referred to above, may be reduced to the form which has been adopted as a standard. Major Baird has collected the whole of the Indian results, and those contained in the Reports of 1872 and 1876, and, by the aid of his staff of computers at Poona, has reduced them to this standard form. The greater part of the annexed tables is the result of this work.

We must refer to the Report to the British Association for 1883 for an explanation of the method of harmonic analysis, but it will be well to give a few words of explanation.

Each one of the tides, into which the oscillation of sea-level is regarded as analysed, is expressed in the form—

$$\mathrm{fH}\cos(V+u-\kappa).$$

$V+u-\kappa$ is the argument of the tide, and increases uniformly with the time, so that this term represents a simple harmonic oscillation of the sea-level with semi-range f H.

It is supposed that u stands for the mean value, estimated over the year or period of observation, of a certain known function of the longitude of the moon's nodes, or in a few cases of the sun's perigee; f stands for a factor of augmentation or diminution of the range of tide due to the variability of the obliquity of the equator to the lunar orbit, and a mean value for f estimated over the year or period of observation is adopted. Tables for computing u and f for each tide are given in the Report.*

V is a known linear function of the local mean time, of the mean longitudes of the sun, of the moon, and of the lunar perigee, and it increases uniformly with the time; the rate of its increase, measured say in degrees per mean solar hour, is called the speed of the tide.

The numerical operation of harmonic analysis gives us H and κ, which are constants peculiar to the port of observation. As the tide tables are principally for the use of British sailors, H is expressed in feet and decimals of a foot, and κ is an angle less than 360°. The argumen $V+u-\kappa$ is such that if the equilibrium theory of tides were true, with a water-covered globe, then κ would be zero; and κ divided by the speed is the time elapsing after any theoretical equilibrium high-water until the next actual high-water; we may call κ the "lag" of the tide. If the equilibrium theory were true, H would have a value which may be computed from the formulæ given in the Report.

If tidal observations were perfectly accurate, and if the tides were undisturbed by the weather, H and κ would be absolute constants for each tide and for each port, whatever periods are submitted to analysis; and in proportion as they are found to be constant so is the analysis satisfactory.

A knowledge of H and κ is necessary and sufficient to determine the height of water, as due to the particular tide, at any time, past or future.

The letters† γ, σ, η, ϖ have been appropriated to the earth's angular velocity of rotation, and to the mean motions of the moon, of the sun, and of the lunar perigee respectively. Hence the rate of increase of V or the speed of tide, is expressible by these symbols. For practical convenience an initial has been adopted to indicate each one of the tides; and we here reproduce Schedule A of the Report containing the arbitrarily chosen initial letters, the speed, and a descriptive name for most of the tides.

The tides involving γ in the speed are approximately diurnal, those containing 2γ are approximately semi-diurnal, and those containing 3γ, 4γ, &c., are approximately ter-diurnal, quater-diurnal, and so on. Those whose speed does not involve γ are called tides of long period, since the quickest of them has a period of a fortnight.

* In the case of the results for the English ports below it is Greenwich mean time.

† The initials of γῆ, σελήνη, ἥλιος, and perigee.

Schedule of Notation.

Initials.	Speed.	Name of Tide.
M_1 M_2 M_3 &c.	$\gamma-\sigma-\varpi$, and $\gamma-\sigma+\varpi$ $2(\gamma-\sigma)$ $3(\gamma-\sigma)$ &c.	Principal lunar series.
K_2	2γ	Luni-solar semi-diurnal.
N	$2\gamma-3\sigma+\varpi$	Larger lunar elliptic.
L	$2\gamma-\sigma-\varpi$ and $2\gamma-\sigma+\varpi$	Smaller lunar elliptic.
	$2\gamma+\sigma-\varpi$	Luni-solar elliptic semi-diurnal.
2N	$2\gamma-4\sigma+2\varpi$	Lunar elliptic, second order.
ν	$2\gamma-3\sigma-\varpi+2\eta$	Larger lunar evectional.
λ	$2\gamma-\sigma+\varpi-2\eta$	Smaller lunar evectional.
O	$\gamma-2\sigma$	Lunar diurnal.
OO	$\gamma+2\sigma$	
K_1	γ	Luni-solar diurnal.
Q	$\gamma-3\sigma+\varpi$	Larger lunar elliptic diurnal.
	$\gamma-\sigma-\varpi$ included in M_1	Smaller lunar elliptic diurnal.
J	$\gamma+\sigma-\varpi$	Luni-solar elliptic diurnal.
	$\gamma-4\sigma+2\varpi$	Lunar elliptic diurnal, second order.
	$\gamma-3\sigma-\varpi+2\eta$	Larger lunar evectional diurnal.
S_1 S_2 S_3 &c.	$\gamma-\eta$ $2(\gamma-\eta)$ $3(\gamma-\eta)$ &c.	Principal solar series.

Schedule of Notation—*continued.*

Initials.	Speed.	Name of Tide.
T	$2\gamma-3\eta$	Larger solar elliptic.
R	$2\gamma-\eta$	Smaller solar elliptic.
P	$\gamma-2\eta$	Solar diurnal.
Mm	$\sigma-\varpi$	Lunar monthly.
Mf	2σ	Lunar fortnightly.
Sa	η	Solar annual.
Ssa	2η	Solar semi-annual.
MSf	$2(\sigma-\eta)$	Luni-solar synodic fortnightly.
MS	$4\gamma-2\sigma-2\eta$	Compound tides.
μ or 2MS	$2\gamma-4\sigma+2\eta$	Compound tides.
2SM	$2\gamma+2\sigma-4\eta$	Compound tides.
MK	$3\gamma-2\sigma$	Compound tides.
2MK	$3\gamma-4\sigma$	Compound tides.
MN	$4\gamma-5\sigma+\varpi$	Compound tides.

The operations of the computers give the values of κ in degrees and two places of decimals of a degree, but as the values of κ are in no case so consistent from year to year as to present variations of less than a degree, the tables have been abridged by the entry merely of the nearest degree. The values of κ are printed in a different type from those of H, and the degree mark ° has been omitted.

In the case of the ports of Toulon and Brest the results in the Report of the Committee of the British Association were given in centimetres, but they have been reduced to feet for the sake of uniformity.

At the head of the table for each port the epoch, or instant, at which the analysed observations begin is noted; at every port (excepting

Kathiwadar) the epoch is 0h. of (old) astronomical time, or civil noon, of the day specified.

In Table I is given the latitude and longitude of the several ports.

In Table II the values are given of H and κ for each year or period analysed for the ports specified at the head; these are the values deduced from the results of 1872, 1876, 1878, and from those of the Indian Survey.

The initial of the tide is shown in the margin.

The last column for each port gives the mean of the values for the years under observation. An inspection of the numbers from which the mean is derived shows the degree of consistency between the numbers obtained in the several years. The number of results is hardly sufficient to make it worth while to deduce a probable error for H and κ; moreover, it would be a somewhat arduous task to do so.

Table III is a summary of Table II, giving only the mean values, together with the number of years from which the mean is derived, and this is of much value for the theoretical discussion of the tides.

Table IV gives Mr. Ferrel's results from the Reports to the United States Coast Survey.

The tables give altogether results for 43 ports, and for 137 periods of observation and analysis.

*[We have to thank Mr. Edward Roberts, the importance of whose work in this subject is well known, for having reduced the results given in the paper of 1878, viz., those for Freemantle, Mauritius, E. Falkland, Malta, Marseilles, and Toulon. In several of these the heights were stated in centimetres, but they are now reduced to feet and decimals.

Professor Ferrel has carried out an harmonic analysis at several ports for the United States Coast Survey. The process adopted by him does not appear to be identical with the method of the British Association, and there seemed to be room for doubt as to whether the results were truly comparable with ours. In answer to an inquiry on this point, addressed to the United States Coast Survey, Mr. Ferrel kindly sent a memorandum to the Superintendent, Mr. Hilgard, which has been forwarded for our information. The memorandum, dated Washington, April 27th, 1885, runs as follows :—

"The results of harmonic analyses of tide observations of the United States Coast and Geodetic Survey are found in Report of the British Association for 1872, and the Reports of the Coast and Geodetic Survey of 1878, App. No. 11; 1882, App. No. 17; 1883, App. No. 9. The results for Governor's Island have not yet been printed.

* This paragraph and the corresponding portion of the tables were added on May 15, 1885, subsequently to the presentation of the paper. These results of 1878 are only given in Table III, and not also in Table II.

"Those in the Report of the B.A. are by Sir W. Thomson. In those of the Coast and Geodetic Survey the A's (amplitude) correspond with Sir W. Thomson's R's, but the ϵ's (epochs) differ from his by 90° in the diurnal components. These corrections of his epochs I introduced into my 'Tidal Researches' in 1874, p. 44, § 28.*

"From a reference to Schedule I, Tides of Penobscot Bay, Professor Darwin with reason concludes that I have not applied this correction in the diurnal component of the κ-tides. This arises from the omission by oversight of a footnote to Schedule I, as follows:—

"'For λ^1 read $\lambda^1-\frac{1}{2}\pi$ in the diurnal component of the K-tide.'

"The corrections have, in all cases, been applied according to this note.

"In my 'Tidal Researches' of 1874 I have given formulæ for the correction of both the amplitudes and epochs depending upon the position of the moon's node. These corrections reduce them to what they would have been if the moon had moved in the ecliptic. By a reverse method these amplitudes and epochs can be reduced back to any year for which practical application of the results is required. In the discussion of tides in Penobscot Bay I have also given small tables, Tables III—VI inclusive, to facilitate these corrections, and reductions depending upon the lunar node. The double signs, however, of Tables III, V, and VI, got reversed somehow in copying and printing; but the signs have been used correctly in the reductions, even in those of the Report in which the signs are given erroneously, which shows that they were at first correct, and that the error was introduced in copying.

"These nodal corrections have in all cases been applied to the results, so that in these corrected results the irregularity of long period depending upon the moon's node is eliminated, and the amplitudes and epochs are the same from year to year, except so far as they are affected by small irregularities from abnormal disturbances not completely eliminated. An exception to this, however, is the case of the St. Thomas tides, in which the reductions were not carried so far, and these small nodal corrections were not applied to these small tides. The amplitudes and epochs are those simply belonging to the years of observations. . . . It is certainly desirable to have an international uniform notation.

"I should have stated sooner that in Table II, column C, 90° have

* [Notwithstanding this assurance I venture to think that Mr. Ferrel must be mistaken. For example, at Sandy Hook, it looks as though it were certain that K_2, L, λ have been reduced according to one rule, and the rest of the semi-diurnal tides according to another; for the phases differ by about 180°. Compare again O, K_1, P with J and Q at Penobscot Bay.—G. H. D., August 12, 1885.]

[It may be noticed that κ of S_1 for San Diego differs by 180° in the U.S. reduction from the value in the B.A. reduction. I have no evidence as to which is correct.—G. H. D., October, 1885.]

always been deducted before using it in the reductions in the case of the diurnal component of the K-tides."

We give below the results above referred to by Mr. Ferrel. We may remark, however, that the heights have been abridged by the omission of a place of decimals, and the epochs by the omission of the decimals of a degree. We have not, however, given quite all the results of the United States Coast Survey. Mr. Ferrel's treatment of M_1 is not identical with ours, and it is omitted; also there is no place vacant for some of the smaller overtides in our schedules. The reader especially interested in these tides is therefore advised to refer also to the original sources. The results for St. Thomas are derived from a letter dated March 10th, 1885, addressed by Mr. Ferrel to the superintendent, and kindly communicated to us.

From the correspondence it appears that the American results should be comparable with the others, or at least that the difference should be insignificant. As remarked, however, in a footnote on the preceding page, this conclusion is open to doubt. We have thought it best, therefore, to keep these results in a table separate from the others.]

Table I.

Indian Tide Tables.

	lat.		long.
Aden	12° 47′ N.	....	44° 59′ E.
Karachi	24 47	....	66 58
Okha Point and Beyt Harbour, Gulf of Cutch	22 28	....	69 7
Kathiwadar or Shial Bet, S. coast of Kattywar	20 58	....	71 36
Bombay; Apollo Bunder	18 55	....	72 50
Karwar	14 48	....	74 6
Beypore, 7 miles S. of Calicut	11 10	....	75 49
Paumben Pass, island of Ramesweram	9 16	....	79 11
Negapatam	10 46	....	79 53
Madras	13 4	....	80 15
Vizagapatam	17 41	....	83 17
False Point	20 25	....	86 47
Dublat, Saugor Island, River Hooghly	21 38	....	88 6
Diamond Harbour, River Hooghly	22 11	....	88 14
Kidderpore, River Hooghly	22 32	....	88 22
Elephant Point	16 29	....	96 19
Rangoon	16 46	....	96 12
Amherst	16 5	....	97 34
Moulmein	16 29	....	97 40
Port Blair, Ross Island	11 41	....	92 45

British Association Reports.

N.B.—*Results for English ports are referred to Greenwich mean time.*

	lat.		long.
Fort Point, California	37 40 N.	....	122 15 W.
San Diego, California	32 42	....	117 13
Port Leopold, Arctic Archipelago	74 —	....	91 —
Beechey Island, Erebus Bay, Arctic Archip...	74 43	....	91 54
Cat Island, Gulf of Mexico	30 23	....	89 0
Toulon	43 7	....	5 56 E.
Brest	48 23	....	4 30 W.
Ramsgate	51 18	....	1 21 E.
West Hartlepool	54 41	....	1 12 W.
Portland Breakwater	50 30	....	2 24
Liverpool	53 24	....	3 0
Helbre Island .... about	53 24	.. about	3 0
Freemantle, West Australia	32 3 S.	....	115 45 E.
Mauritius, Port Louis	20 9	....	57 11
East Falkland, Port Louis, Berkeley Sound	51 29	....	58 0 W.
Malta	35 55 N.	....	14 30 E.
Marseilles	43 18	....	5 23

United States Coast Survey Reports.

	lat.			long.	
Penobscot Bay, Pulpit Cove, Maine........	44	9 N.	....	68	53 W.
Port Townsend, Puget Sound, Washington Territory............................	48	8	....	122	48
Astoria, Columbia River, Oregon...........	46	11	....	123	50
San Diego Bay, California................	32	43	....	117	10
St. Thomas, West Indies..................	18	20	....	64	56
Sandy Hook................................	40	27	....	74	1

Table II.

Aden.

Commence 0 h., March 3.

Year	1879–80.	1880–1.	1881-2.	1882-3.	Mean.
S_1 { H =	0·073	0·117	0·093	0·077	0·090
κ =	168	151	161	166	162
S_2 { H =	0·693	0·693	0·704	0·699	0·697
κ =	248	252	246	247	248
S_4 { H =	0·006	0·005	0·006	0·005	0·006
κ =	263	257	275	290	271
S_6 { H =	0·005	0·004	0·004	0·004	0·004
κ =	218	191	210	185	201
S_8 { H =	0·001	0·001	0·001	0·001	0·001
κ =	212	238	325	261	259
M_1 { H =	0·033	0·052	0·053	0·048	0·047
κ =	30	12	355	45	21
M_2 { H =	1·578	1·558	1·569	1·567	1·568
κ =	228	232	228	227	229
M_3 { H =	0·019	0·020	0·018	0·016	0·018
κ =	220	215	201	202	209
M_4 { H =	0·011	0·006	0·007	0·003	0·007
κ =	322	334	318	281	314
M_6 { H =	0·006	0·004	0·004	0·007	0·005
κ =	343	280	26	355	341
M_8 { H =	0·003	0·001	0·004	0·002	0·003
κ =	87	49	333	65	43
O { H =	0·657	0·658	0·646	0·651	0·653
κ =	38	40	38	38	38
K_1 { H =	1·295	1·297	1·299	1·305	1·299
κ =	36	38	36	36	36
K_2 { H =	0·218	0·197	0·188	0·202	0·201
κ =	245	244	242	246	244
P { H =	0·389	0·375	0·389	0·399	0·388
κ =	31	35	33	31	33
J { H =	0·118	0·110	0·083	0·100	0·103
κ =	49	70	53	35	52

Table II.

Aden.

Commence 0 h., March 3.

Year	1879–80.	1880–1.	1881–2.	1882–3.	Mean.
Q { H =	0·174	0·157	0·134	0·139	0·151
Q { κ =	40	38	42	48	42
L { H =	0·023	0·063	0·033	0·065	0·046
L { κ =	259	230	209	223	230
N { H =	0·443	0·436	0·421	0·409	0·427
N { κ =	223	230	224	222	225
λ { H =	0·018	0·020	0·038	0·026	0·026
λ { κ =	123	301	210	155	197
ν { H =	0·157	0·132	0·059	0·048	0·099
ν { κ =	241	200	170	293	226
μ { H =	0·086	0·082	0·072	0·058	0·075
μ { κ =	192	204	182	204	196
R { H =	....	0·006	....	0·003	0·005
R { κ =	....	64	....	356	30
T { H =	....	0·057	....	0·042	0·050
T { κ =	....	286	....	194	240
MS { H =	0·007	0·020	0·009	0·011	0·012
MS { κ =	136	167	166	167	159
2SM { H =	0·022	0·021	0·021	0·026	0·023
2SM { κ =	106	101	114	114	109
Mm { H =	0·035	0·076	0·025	0·033	0·042
Mm { κ =	5	348	324	18	354
Mf { H =	0·052	0·039	0·045	0·044	0·045
Mf { κ =	14	30	26	53	31
MSf { H =	0·014	0·015	0·016	0·010	0·014
MSf { κ =	40	295	98	209	341
Sa { H =	0·404	0·402	0·353	0·399	0·390
Sa { κ =	3	358	2	347	357
Ssa { H =	0·110	0·109	0·093	0·069	0·095
Ssa { κ =	94	161	151	99	126

Table II.

Karachi.

Commence 0 h., May 1.

Year		1868–9.	1869–70.	1870–1.	1871-2.	1872–3.	1873–4.
S_1	H =	0·072	0·071	0·075	0·083	0·108	0·083
	κ =	177	188	162	158	147	155
S_2	H =	0·932	0·943	0·923	0·951	0·952	0·943
	κ =	323	324	324	322	322	321
S_4	H =	......	......	0·014	0·013	0·008	0·010
	κ =	......	......	356	5	0	326
S_6	H =	......	......	......	0·004	0·012	0·004
	κ =	......	......	......	293	295	312
S_8	H =	......	......	......	......	......	0·000
	κ =	......	......	......	......	......	27
M_1	H =	0·013	......	0·030	0·063	0·040	0·038
	κ =	336	......	78	23	359	46
M_2	H =	2·511	2·447	2·450	2·492	2·476	2·471
	κ =	294	295	295	294	294	293
M_3	H =	0·042	0·037	0·048	0·048	0·037	0·030
	κ =	333	333	322	332	316	330
M_4	H =	0·016	0·027	0·024	0·029	0·020	0·022
	κ =	44	27	28	23	28	9
M_6	H =	0·040	0·046	0·044	0·045	0·046	0·048
	κ =	222	210	218	203	214	208
M_8	H =	......	......	......	0·006	0·006	0·003
	κ =	......	......	......	249	266	155
O	H =	0·662	0·645	0·629	0·636	0·632	0·645
	κ =	47	50	48	47	46	46
K_1	H =	1·278	1·257	1·255	1·279	1·275	1·269
	κ =	47	47	48	46	46	46
K_2	H =	0·299	0·273	0·260	0·293	0·292	0·274
	κ =	329	315	313	321	321	315
P	H =	0·376	0·385	0·375	0·360	0·368	0·393
	κ =	46	50	45	48	47	48
J	H =	0·091	0·046	0·070	0·107	0·104	0·059
	κ =	79	64	38	61	82	157

Table II.

Karachi.

Commence 0 h., May 1.

Year		1868–9.	1869–70.	1870–1.	1871–2.	1872–3.	1873–4.
Q	H =	0·129	0·120	0·138	0·146	0·129	0·119
	κ =	46	61	54	50	52	63
L	H =	0·079	0·047	0·089	0·043	0·137	0·084
	κ =	298	321	294	356	263	284
N	H =	0·604	0·587	0·572	0·650	0·605	0·587
	κ =	279	281	279	280	275	278
λ	H =	0·059	0·037	0·043	0·084	0·076	0·041
	κ =	335	270	209	207	12	259
ν	H =	0·190	0·081	0·080	0·143	0·191	0·116
	κ =	254	223	343	284	300	238
μ	H =	0·066	0·032	0·070	0·062	0·055	0·055
	κ =	267	224	300	254	270	232
R	H =	......	0·035	......	0·027	......	0·021
	κ =	......	271	......	221	......	228
T	H =	......	0·111	......	0·058	......	0·012
	κ =	......	320	......	22	......	233
MS	H =	0·017	0·024	0·031	0·020	......	0·023
	κ =	215	180	324	358	......	307
2SM	H =	......	......	......	......	......	0·007
	κ =	......	......	......	......	......	128
Mm	H =	0·069	0·040	0·031	......	......	0·055
	κ =	248	175	116	......	......	56
Mf	H =	0·053	0·078	0·037	......	......	0·012
	κ =	318	311	259	......	......	223
MSf	H =	0·009	0·074	0·057	......	......	0·042
	κ =	328	19	159	......	......	44
Sa	H =	0·115	0·179	0·162	......	......	0·250
	κ =	44	80	107	......	......	95
Ssa	H =	0·198	0·059	0·062	......	......	0·211
	κ =	82	117	70	......	.....	162

Table II.

Karachi.

Commence 0 h., May 1.

Year	1874–5.	1875–6.	1876–7.	1877–8.	1878–9.	1879–80.
S_1 H =	0·076	0·079	0·087	0·088	0·044	0·086
κ =	153	150	157	181	167	161
S_2 H =	0·949	0·953	0·936	0·961	0·922	0·957
κ =	320	320	318	321	324	325
S_4 H =	0·008	0·008	0·012	0·010	0·009	0·008
κ =	6	353	17	23	29	63
S_6 H =	0·007	0·009	0·006	0·005	0·008	0·006
κ =	309	295	259	275	291	325
S_8 H =	0·003	0·002	0·001	0·002	0·001	0·002
κ =	266	283	207	254	126	223
M_1 H =	0·055	0·081	0·015	0·013	0·035	0·060
κ =	66	36	353	76	54	14
M_2 H =	2·517	2·550	2·474	2·468	2·521	2·555
κ =	292	291	291	291	296	296
M_3 H =	0·026	0·037	0·037	0·055	0·048	0·042
κ =	336	345	343	327	328	320
M_4 H =	0·020	0·025	0·019	0·024	0·031	0·027
κ =	8	15	353	16	2	7
M_6 H =	0·056	0·055	0·049	0·053	0·051	0·055
κ =	212	206	207	196	215	220
M_8 H =	0·006	0·006	0·006	0·006	0·004	0·003
κ =	196	297	281	252	269	20
O H =	0·647	0·649	0·646	0·654	0·677	0·654
κ =	46	46	45	46	49	47
K_1 H =	1·292	1·296	1·263	1·278	1·314	1·301
κ =	46	46	44	45	48	48
K_2 H =	0·247	0·261	0·276	0·260	0·240	0·284
κ =	316	321	318	314	329	325
P H =	0·386	0·367	0·368	0·423	0·440	0·396
κ =	46	45	49	43	44	45
J H =	0·088	0·104	0·077	0·025	0·084	0·102
κ =	35	50	71	88	66	64

Table II.

Karachi.

Commence 0 h., May 1.

Year		1874–5.	1875–6.	1876–7.	1877–8.	1878–9.	1879–80.
Q	H =	0·123	0·136	0·124	0·110	0·150	0·154
	κ =	58	46	35	48	47	50
L	H =	0·088	0·042	0·085	0·099	0·054	0·066
	κ =	280	302	306	305	263	312
N	H =	0·560	0·602	0·606	0·556	0·667	0·597
	κ =	276	274	273	273	274	280
λ	H =	0·022	0·009	0·040	0·082	0·063	0·019
	κ =	181	95	300	236	184	35
ν	H =	0·023	0·154	0·207	0·218	0·127	0·089
	κ =	320	317	285	236	211	332
μ	H =	0·056	0·070	0·068	0·113	0·041	0·077
	κ =	274	260	280	217	297	249
R	H =	......	......	0·008	......	0·069	......
	κ =	......	......	308	......	273	......
T	H =	......	......	0·122	......	0·059	......
	κ =	......	......	344	......	315	......
MS	H =	0·021	0·031	0·034	0·030	0·033	0·031
	κ =	304	315	313	326	351	337
2SM	H =	0·018	0·025	0·012	0·026	0·019	0·018
	κ =	150	98	115	63	167	158
Mm	H =	0·064	0·067	0·097	0·124	......	0·040
	κ =	24	103	42	49	......	26
Mf	H =	0·038	0·010	0·032	0·047	......	0·030
	κ =	41	24	1	30	......	328
MSf	H =	0·040	0·015	0·045	0·038	......	0·030
	κ =	333	186	195	314	......	318
Sa	H =	0·149	0·086	0·197	0·170	......	0·042
	κ =	56	76	80	120	......	86
Ssa	H =	0·172	0·173	0·145	0·087	......	0·165
	κ =	157	167	164	70	......	171

Table II.

(*a*) *Karachi*. (*b*) *Okha*. (*c*) *Kathiwadar*.

(*a*) Com. 0h., May 1. (*b*) Com. 0 h., Apr. 16. (*c*) Com. 12 h., Oct. 31.

	(*a*)	(*a*)	(*a*)	(*a*)	(*b*)	(*c*)
Year	1880–1.	1881–2.	1882–3.	Mean.	1874–5.	1881–2.
S_1 H =	0·135	0·076	0·066	0·082	0·074	0·134
S_1 κ =	64	174	172	158	150	201
S_2 H =	0·969	0·960	0·962	0·948	1·222	1·207
S_2 κ =	324	324	324	322	14	81
S_4 H =	0·006	0·012	0·008	0·010	0·013	0·029
S_4 κ =	31	12	35	14	117	273
S_6 H =	0·006	0·008	0·006	0·007	0·003	0·013
S_6 κ =	292	314	287	295	21	42
S_8 H =	0·001	0·000	0·001	0·001	0·001	0·002
S_8 κ =	11	124	162	204	220	264
M_1 H =	0·059	0·048	0·062	0·044	0·051	0·057
M_1 κ =	319	39	61	30	43	35
M_2 H =	2·536	2·541	2·558	2·504	3·820	2·970
M_2 κ =	295	294	294	294	347	55
M_3 H =	0·039	0·034	0·030	0·039	0·030	0·020
M_3 κ =	319	327	336	330	21	152
M_4 H =	0·026	0·027	0·023	0·024	0·136	0·220
M_4 κ =	2	17	359	14	107	178
M_6 H =	0·052	0·049	0·044	0·049	0·007	0·139
M_6 κ =	209	207	204	210	270	137
M_8 H =	0·002	0·009	0·002	0·005	0·011	0·002
M_8 κ =	341	257	262	267	96	199
O H =	0·632	0·654	0·645	0·647	0·693	0·720
O κ =	46	46	47	47	57	66
K_1 H =	1·246	1·295	1·310	1·281	1·414	1·611
K_1 κ =	47	47	47	46	53	66
K_2 H =	0·415	0·269	0·234	0·278	0·328	0·324
K_2 κ =	322	317	321	320	17	79
P H =	0·266	0·396	0·396	0·380	0·384	0·436
P κ =	49	46	44	46	50	71
J H =	0·066	0·063	0·099	0·079	0·107	0·175
J κ =	106	53	38	70	81	107

Table II.

(*a*) *Karachi.* (*b*) *Okha.* (*c*) *Kathiwadar.*

(*a*) Com. 0. h., May 1. (*b*) Com. 0 h., April 16. (*c*) Com. 12 h., Oct. 31.

	(*a*)	(*a*)	(*a*)	(*a*)	(*b*)	(*c*)
Year	1880–1.	1881–2.	1882–3.	Mean.	1874–5.	1881–2.
Q $H =$	0·104	0·124	0·132	0·129	0·137	0·152
Q $\kappa =$	51	64	61	52	59	68
L $H =$	0·123	0·096	0·076	0·081	0·221	0·079
L $\kappa =$	310	291	293	299	23	261
N $H =$	0·581	0·631	0·594	0·600	0·781	0·755
N $\kappa =$	276	279	280	277	322	34
λ $H =$	0·020	0·029	0·001	0·042	0·073	0·043
λ $\kappa =$	313	275	236	282	23	107
ν $H =$	0·169	0·211	0·125	0·142	0·164	0·131
ν $\kappa =$	314	264	236	277	8	15
μ $H =$	0·037	0·081	0·039	0·061	0·203	0·286
μ $\kappa =$	283	267	270	263	182	343
R $H =$	0·040	......	0·009	0·030		
R $\kappa =$	317	......	315	276		
T $H =$	0·094	......	0·021	0·068		
T $\kappa =$	330	......	41	332		
MS $H =$	0·028	0·030	0·024	0·027	0·064	0·159
MS $\kappa =$	317	327	328	307	111	215
2SM $H =$	0·031	0·030	0·021	0·021	0·044	0·029
2SM $\kappa =$	120	121	115	123	292	154
Mm $H =$	0·036	0·055	0·040	0·060	0·066	0·052
Mm $\kappa =$	131	72	94	95	311	8
Mf $H =$	0·020	0·034	0·006	0·033	0·050	0·027
Mf $\kappa =$	71	254	128	316	44	103
MSf $H =$	0·018	0·043	0·023	0·036	0·141	0·040
MSf $\kappa =$	302	131	148	266	250	153
Sa $H =$	0·102	0·100	0·099	0·138	0·162	0·236
Sa $\kappa =$	102	50	51	79	3	133
Ssa $H =$	0·139	0·116	0·098	0·135	0·121	0·109
Ssa $\kappa =$	192	164	194	142	145	156

Table II.

Bombay.

Commence 0 h., January 1.

Year	1878.	1879.	1880.	1881.	1882.	Mean.
S_1 H =	0·075	0·083	0·088	0·074	0·072	0·078
S_1 κ =	187	184	182	179	179	182
S_2 H =	1·614	1·634	1·627	1·618	1·616	1·622
S_2 κ =	3	2	4	3	4	3
S_4 H =	0·018	0·013	0·013	0·011	0·006	0·012
S_4 κ =	257	235	239	315	233	256
S_6 H =	0·002	0·004	0·004	0·005	0·002	0·003
S_6 κ =	195	179	140	160	182	171
S_8 H =	0·002	0·002	0·001	0·002	0·000	0·001
S_8 κ =	86	196	151	69	72	115
M_1 H =	0·024	0·036	0·086	0·065	0·045	0·051
M_1 κ =	46	105	51	19	26	49
M_2 H =	3·991	4·041	4·065	4·058	4·014	4·034
M_2 κ =	330	329	330	331	330	330
M_3 H =	0·074	0·067	0·068	0·055	0·060	0·065
M_3 κ =	32	28	25	11	21	23
M_4 H =	0·119	0·129	0·120	0·126	0·124	0·124
M_4 κ =	320	327	314	324	328	322
M_6 H =	0·014	0·015	0·002	0·017	0·008	0·011
M_6 κ =	130	110	79	113	124	111
M_8 H =	0·003	0·004	0·002	0·004	0·005	0·004
M_8 κ =	316	347	313	13	46	351
O H =	0·643	0·650	0·663	0·647	0·645	0·650
O κ =	48	48	48	48	49	48
K_1 H =	1·384	1·391	1·393	1·398	1·398	1·393
K_1 κ =	46	45	45	45	45	45
K_2 H =	0·412	0·394	0·427	0·431	0·388	0·410
K_2 κ =	349	353	355	353	351	352
P H =	0·404	0·400	0·406	0·403	0·396	0·402
P κ =	42	43	44	42	41	42
J H =	0·043	0·083	0·128	0·122	0·067	0·089
J κ =	89	48	62	88	74	72

Table II.

Bombay.

Commence 0 h., January 1.

Year		1878.	1879.	1880.	1881.	1882.	Mean.
Q	H =	0·122	0·138	0·159	0·183	0·101	0·131
	κ =	47	60	55	46	50	52
L	H =	0·122	0·054	0·128	0·094	0·143	0·108
	κ =	299	348	325	306	298	316
N	H =	1·024	1·036	0·991	0·974	0·988	1·003
	κ =	312	315	316	315	312	314
λ	H =	0·051	0·023	0·030	0·013	0·043	0·032
	κ =	284	254	157	203	277	235
ν	H =	0·288	0·245	0·078	0·121	0·261	0·199
	κ =	319	283	269	9	336	315
μ	H =	0·231	0·189	0·214	0·182	0·212	0·206
	κ =	313	294	314	301	318	308
R	H =	......	0·046	......	0·037	......	0·042
	κ =	......	301	......	265	......	283
T	H =	......	0·086	......	0·256	......	0·171
	κ =	......	46	......	2	......	24
MS	H =	0·122	0·138	0·126	0·125	0·134	0·129
	κ =	17	30	23	25	25	24
2SM	H =	0·039	0·025	0·048	0·036	0·033	0·036
	κ =	91	125	112	109	94	106
Mm	H =	0·058	0·049	0·042	0·047	0·085	0·056
	κ =	315	355	86	56	36	26
Mf	H =	0·068	0·054	0·054	0·029	0·052	0·051
	κ =	346	7	1	250	47	346
MSf	H =	0·056	0·016	0·042	0·019	0·023	0·031
	κ =	198	287	184	334	136	228
Sa	H =	0·254	0·137	0·173	0·188	0·179	0·186
	κ =	117	330	313	317	355	358
Ssa	H =	0·068	0·124	0·071	0·201	0·145	0·122
	κ =	304	223	162	232	218	228

Table II.

Karwar.

Commence 0 h., March 1.

Year		1878–9.	1879–80.	1880–1.	1881–2.	1882–3.	Mean.
S_1	H =	0·067	0·075	0·055	0·052	0·035	0·057
	κ =	159	149	156	165	167	159
S_2	H =	0·631	0·629	0·621	0·616	0·625	0·624
	κ =	335	336	334	333	335	335
S_4	H =	0·007	0·007	0·016	0·011	0·011	0·010
	κ =	115	87	94	110	92	100
S_6	H =	0·002	0·007	0·004	0·006	0·006	0·005
	κ =	32	58	82	51	39	52
S_8	H =	0·002	0·002	0·000	0·002	0·004	0·002
	κ =	344	295	297	283	303	304
M_1	H =	0·019	0·017	0·049	0·045	0·036	0·033
	κ =	70	45	29	10	48	41
M_2	H =	1·724	1·733	1·757	1·754	1·741	1·742
	κ =	303	303	301	301	301	302
M_3	H =	0·012	0·014	0·018	0·012	0·012	0·014
	κ =	280	286	275	264	261	273
M_4	H =	0·045	0·059	0·054	0·059	0·060	0·055
	κ =	28	22	11	16	7	17
M_6	H =	0·013	0·010	0·013	0·011	0·009	0·011
	κ =	289	283	277	284	287	284
M_8	H =	0·001	0·003	0·004	0·002	0·002	0·002
	κ =	210	51	9	58	215	109
O	H =	0·496	0·498	0·505	0·494	0·493	0·497
	κ =	50	50	49	48	49	49
K_1	H =	1·001	0·996	1·010	1·008	1·006	1·004
	κ =	47	47	45	44	45	45
K_2	H =	0·175	0·174	0·164	0·175	0·180	0·174
	κ =	330	329	327	333	330	330
P	H =	0·269	0·274	0·282	0·287	0·274	0·277
	κ =	41	43	43	41	40	42
J	H =	0·046	0·078	0·087	0·064	0·065	0·068
	κ =	51	55	71	67	42	57

Table II.

Karwar.

Commence 0 h., March 1.

Year		1878–9.	1879–80.	1880–1.	1881–2.	1882–3.	Mean.
Q	H =	0·111	0·133	0·130	0·101	0·097	0·114
	κ =	57	62	54	58	63	59
L	H =	0·093	0·041	0·059	0·038	0·050	0·056
	κ =	326	325	318	292	324	317
N	H =	0·416	0·426	0·413	0·400	0·397	0·410
	κ =	282	284	282	281	279	282
λ	H =	0·022	0·004	0·032	0·021	0·021	0·020
	κ =	244	122	29	341	268	273
ν	H =	0·077	0·136	0·122	0·057	0·047	0·088
	κ =	340	297	261	232	338	294
μ	H =	0·033	0·057	0·046	0·051	0·033	0·044
	κ =	283	245	260	244	284	263
R	H =	......	0·006	......	0·009	......	0·008
	κ =	......	61	......	230	......	145
T	H =	......	0·046	......	0·075	......	0·061
	κ =	......	9	......	300	......	155
MS	H =	0·022	0·028	0·021	0·029	0·028	0·026
	κ =	80	75	61	60	60	67
2SM	H =	0·012	0·004	0·004	0·007	0·009	0·007
	κ =	31	353	15	106	351	315
Mm	H =	0·046	0·061	0·048	0·043	0·126	0·065
	κ =	351	14	100	0	32	27
Mf	H =	0·051	0·058	0·034	0·038	0·027	0·042
	κ =	345	1	346	14	37	5
MSf	H =	0·029	0·023	0·021	0·009	0·030	0·022
	κ =	214	268	222	89	27	164
Sa	H =	0·170	0·344	0·491	0·383	0·373	0·352
	κ =	322	307	303	303	317	310
Ssa	H =	0·045	0·083	0·128	0·053	0·033	0·068
	κ =	297	202	191	224	225	228

Table II.

Beypore.

Commence 0 h., December 1.

Year		1878–9.	1879–80.	1880–1.	1881–2.	1882–3.	Mean.
S_1	H =	0·021	0·083	0·093	0·073	0·035	0·061
	κ =	120	207	187	185	173	174
S_2	H =	0·331	0·310	0·308	0·341	0·359	0·330
	κ =	20	19	22	17	12	18
S_4	H =	0·004	0·003	0·004	0·006	0·007	0·005
	κ =	140	118	133	145	148	137
S_6	H =	0·004	0·004	0·003	0·006	0·010	0·005
	κ =	252	244	266	227	248	247
S_8	H =	0·001	0·000	0·001	0·001	0·001	0·001
	κ =	21	252	45	319	339	339
M_1	H =	0·017	0·032	0·038	0·024	0·032	0·029
	κ =	146	69	23	40	90	73
M_2	H =	0·907	0·904	0·895	0·950	1·001	0·931
	κ =	330	330	333	329	324	329
M_3	H =	0·011	0·010	0·011	0·010	0·009	0·010
	κ =	214	184	200	196	194	197
M_4	H =	0·021	0·015	0·018	0·020	0·026	0·020
	κ =	45	36	53	41	31	41
M_6	H =	0·010	0·004	0·003	0·006	0·012	0·007
	κ =	121	114	184	138	133	138
M_8	H =	0·008	0·010	0·007	0·008	0·009	0·008
	κ =	137	130	140	162	162	146
O	H =	0·337	0·338	0·334	0·337	0·356	0·340
	κ =	58	57	59	57	55	57
K_1	H =	0·704	0·691	0·683	0·715	0·727	0·704
	κ =	52	53	54	51	47	52
K_2	H =	0·065	0·079	0·089	0·069	0·098	0·080
	κ =	11	3	13	11	17	11
P	H =	0·184	0·188	0·197	0·177	0·211	0·191
	κ =	49	56	57	54	48	53
J	H =	0·035	0·047	0·064	0·040	0·034	0·044
	κ =	67	44	84	82	40	63

Table II.

Beypore.

Commence 0 h., December 1.

Year	1878–9.	1879–80.	1880–1.	1881–2.	1882–3.	Mean.
Q { H =	0·078	0·089	0·082	0·078	0·078	0·081
Q { κ =	68	76	59	62	67	66
L { H =	0·018	0·037	0·020	0·033	0·025	0·027
L { κ =	349	341	342	347	1	348
N { H =	0·191	0·189	0·190	0·199	0·215	0·197
N { κ =	306	309	302	307	299	305
λ { H =	0·004	0·012	0·013	0·017	0·011	0·011
λ { κ =	187	1	289	14	354	313
ν { H =	0·035	0·041	0·050	0·095	0·053	0·055
ν { κ =	249	20	354	296	277	311
μ { H =	0·024	0·020	0·008	0·014	0·030	0·019
μ { κ =	202	349	203	299	239	258
R { H =	......	0·017	......	0·028	......	0·023
R { κ =	......	163	......	101	......	132
T { H =	......	0·043	......	0·036	......	0·040
T { κ =	......	37	......	0	......	19
MS { H =	0·010	0·004	0·005	0·008	0·016	0·009
MS { κ =	76	80	100	57	69	77
2SM { H =	0·006	0·004	0·004	0·004	0·007	0·005
2SM { κ =	65	219	241	243	350	296
Mm { H =	0·073	0·072	0·105	0·144	0·059	0·091
Mm { κ =	6	85	350	33	44	32
Mf { H =	0·086	0·086	0·022	0·118	0·044	0·071
Mf { κ =	15	18	50	48	346	23
Msf { H =	0·066	0·037	0·017	0·041	0·028	0·038
Msf { κ =	228	167	275	197	214	216
Sa { H =	0·307	0·344	0·328	0·321	0·243	0·309
Sa { κ =	311	316	311	329	298	313
Ssa { H =	0·139	0·252	0·180	0·189	0·123	0·177
Ssa { κ =	226	181	208	193	214	205

Table II.

Paumben.

Commence 0 h., October 1.

Year	1878–9.	1879–80.	1880–1.	1881–2.	Mean.
S_1 { H =	0·036	0·049	0·035	0·022	0·036
κ =	146	131	153	163	148
S_2 { H =	0·377	0·375	0·377	0·360	0·372
κ =	90	92	91	94	92
S_4 { H =	0·005	0·001	0·004	0·003	0·003
κ =	287	191	262	304	261
S_6 { H =	0·002	0·001	0·005	0·006	0·004
κ =	246	168	195	179	197
S_8 { H =	0·004	0·005	0·002	0·001	0·003
κ =	249	255	257	135	224
M_1 { H =	0·013	0·009	0·013	0·008	0·011
κ =	17	38	64	19	35
M_2 { H =	0·589	0·585	0·598	0·569	0·585
κ =	47	47	46	49	47
M_3 { H =	0·016	0·016	0·015	0·017	0·016
κ =	170	168	165	177	170
M_4 { H =	0·020	0·016	0·015	0·014	0·016
κ =	199	190	199	187	194
M_6 { H =	0·011	0·011	0·011	0·009	0·011
κ =	42	50	40	34	42
M_8 { H =	0·005	0·004	0·004	0·007	0·005
κ =	294	348	303	313	314
O { H =	0·114	0·113	0·116	0·115	0·115
κ =	47	45	43	47	45
K_1 { H =	0·297	0·293	0·295	0·291	0·294
κ =	44	45	45	49	46
K_2 { H =	0·103	0·110	0·116	0·121	0·113
κ =	84	92	89	94	90
P { H =	0·105	0·110	0·108	0·115	0·110
κ =	44	47	46	50	46
J { H =	0·008	0·013	0·014	0·021	0·014
κ =	68	44	38	42	48

Table II.

Paumben.

Commence 0 h., October 1.

Year	1878–9.	1879–80.	1880–1.	1881–2.	Mean.
Q { H =	0·025	0·021	0·023	0·016	0·021
Q { κ =	84	98	91	81	89
L { H =	0·023	0·026	0·016	0·026	0·023
L { κ =	56	49	79	50	58
N { H =	0·076	0·087	0·084	0·082	0·082
N { κ =	29	30	32	32	31
λ { H =	0·017	0·023	0·008	0·014	0·016
λ { κ =	63	24	354	173	64
ν { H =	0·016	0·034	0·030	0·027	0·027
ν { κ =	82	49	15	334	30
μ { H =	0·004	0·010	0·012	0·011	0·009
μ { κ =	78	98	95	148	105
R { H =	....	0·012	....	0·019	0·016
R { κ =	....	133	....	94	114
T { H =	....	0·038	....	0·012	0·025
T { κ =	....	104	....	79	92
MS { H =	0·021	0·017	0·018	0·017	0·018
MS { κ =	292	294	286	295	292
2SM { H =	0·010	0·008	0·012	0·008	0·010
2SM { κ =	6	338	340	288	333
Mm { H =	0·063	0·053	0·033	0·043	0·048
Mm { κ =	349	58	23	40	27
Mf { H =	0·045	0·040	0·053	0·033	0·043
Mf { κ =	2	355	359	344	355
MSf { H =	0·016	0·013	0·027	0·007	0·016
MSf { κ =	174	209	157	27	141
Sa { H =	0·122	0·138	0·164	0·171	0·149
Sa { κ =	299	318	287	304	302
Ssa { H =	0·138	0·178	0·184	0·129	0·157
Ssa { κ =	96	110	117	111	108

Table II.

Negapatam. Commence 0 h., December 6.

Madras. Commence 0 h., February 1.

Year	Negapatam 1881–2.	Negapatam 1882–3.	Negapatam Mean.	Madras 1880–1.	Madras 1881–2.	Madras 1882–3.	Madras Mean.
S_1 H =	0·048	0·044	0·046	0·037	0·026	0·012	0·025
S_1 κ =	117	100	108	80	96	99	92
S_2 H =	0·271	0·277	0·274	0·437	0·445	0·440	0·441
S_2 κ =	283	286	284	277	275	276	276
S_4 H =	0·006	0·004	0·005	0·002	0·002	0·001	0·002
S_4 κ =	136	166	151	98	169	218	161
S_6 H =	0·000	0·000	0·000	0·002	0·001	0·001	0·001
S_6 κ =	135	166	150	61	99	176	112
S_8 H =	0·001	0·001	0·001	0·001	0·000	0·001	0·001
S_8 κ =	225	228	227	131	63	291	162
M_1 H =	0·003	0·006	0·005	0·019	0·001	0·004	0·008
M_1 κ =	149	73	111	4	312	65	7
M_2 H =	0·712	0·727	0·720	1·047	1·051	1·049	1·049
M_2 κ =	251	252	252	249	247	248	248
M_3 H =	0·003	0·003	0·003	0·004	0·003	0·006	0·004
M_3 κ =	73	133	103	65	55	67	62
M_4 H =	0·023	0·018	0·021	0·002	0·001	0·005	0·003
M_4 κ =	76	77	77	130	115	193	146
M_6 H =	0·010	0·013	0·012	0·010	0·011	0·009	0·010
M_6 κ =	130	126	128	161	149	154	154
M_8 H =	0·005	0·004	0·005	0·002	0·001	0·002	0·002
M_8 κ =	297	309	303	331	84	83	46
O H =	0·092	0·089	0·091	0·094	0·096	0·101	0·097
O κ =	320	323	322	327	324	325	325
K_1 H =	0·222	0·227	0·225	0·294	0·291	0·293	0·293
K_1 κ =	345	345	345	340	338	342	340
K_2 H =	0·071	0·082	0·077	0·121	0·120	0·094	0·112
K_2 κ =	281	291	286	278	276	286	280
P H =	0·083	0·085	0·084	0·093	0·094	0·103	0·097
P κ =	342	350	346	341	341	350	344
J H =	0·006	0·016	0·011	0·029	0·012	0·021	0·021
J κ =	348	307	328	337	314	304	318

Table II.

	Negapatam. Commence 0 h., December 6.			*Madras.* Commence 0 h., February 1.			
Year	1881–2.	1882–3.	Mean.	1880–1.	1881–2.	1882–3.	Mean.
Q { H =	0·007	0·007	0·007	0·004	0·003	0·009	0·005
Q { κ =	143	219	181	140	150	43	111
L { H =	0·022	0·031	0·027	0·037	0·017	0·054	0·036
L { κ =	278	279	279	278	335	310	307
N { H =	0·164	0·152	0·158	0·246	0·235	0·238	0·240
N { κ =	243	246	244	243	240	242	242
λ { H =	0·025	0·005	0·015	0·027	0·025	0·035	0·029
λ { κ =	234	229	231	348	283	268	299
ν { H =	0·048	0·047	0·048	0·053	0·007	0·072	0·044
ν { κ =	228	206	217	209	287	318	271
μ { H =	0·018	0·024	0·021	0·046	0·048	0·030	0·041
μ { κ =	132	113	122	184	167	183	178
R { H =	......	0·031	0·031	......	0·016	......	0·016
R { κ =	......	349	349	......	103	......	103
T { H =	......	0·050	0·050	......	0·056	......	0·056
T { κ =	......	255	255	......	257	......	257
MS { H =	0·019	0·017	0·018	0·004	0·001	0·004	0·003
MS { κ =	96	96	96	177	54	280	170
2MS { H =	0·007	0·006	0·007	0·020	0·022	0·023	0·022
2MS { κ =	161	216	188	228	220	178	209
Mm { H =	0·081	0·032	0·057	0·040	0·047	0·055	0·047
Mm { κ =	345	310	328	41	130	68	80
Mf { H =	0·061	0·017	0·039	0·030	0·050	0·055	0·045
Mf { κ =	35	338	7	5	349	25	6
MSf { H =	0·084	0·097	0·091	0·001	0·034	0·021	0·019
MSf { κ =	2	13	7	84	46	44	58
Sa { H =	0·543	0·522	0·533	0·372	0·335	0·449	0·385
Sa { κ =	231	233	232	201	225	211	212
Ssa { H =	0·400	0·316	0·358	0·275	0·383	0·257	0·305
Ssa { κ =	126	134	130	120	149	115	128

Table II.

Vizagapatam.

Commence 0 h., February 3.

Year	1879–80.	1880–1.	1881–2.	1882–3.	Mean.
S_1 { H =	0·028	0·047	0·035	0·096	0·052
κ =	101	77	92	1	68
S_2 { H =	0·674	0·659	0·651	0·641	0·656
κ =	280	286	286	290	285
S_4 { H =	0·001	0·007	0·006	0·006	0·005
κ =	0	77	50	60	47
S_6 { H =	0·001	0·001	0·001	0·002	0·001
κ =	124	128	214	215	170
S_8 { H =	0·001	0·001	0·003	0·001	0·002
κ =	73	103	61	78	79
M_1 { H =	0·023	0·021	0·001	0·004	0·012
κ =	355	23	199	242	295
M_2 { H =	1·532	1·460	1·459	1·439	1·473
κ =	249	253	254	255	253
M_3 { H =	0·007	0·001	0·006	0·008	0·006
κ =	332	208	41	14	329
M_4 { H =	0·014	0·014	0·015	0·018	0·015
κ =	310	331	339	342	331
M_6 { H =	0·003	0·004	0·005	0·008	0·005
κ =	144	78	30	35	72
M_8 { H =	0·004	0·002	0·002	0·005	0·003
κ =	174	214	243	206	209
O { H =	0·139	0·140	0·144	0·142	0·141
κ =	330	332	333	329	331
K_1 { H =	0·371	0·364	0·366	0·335	0·359
κ =	338	342	342	346	342
K_2 { H =	0·179	0·157	0·168	0·306	0·203
κ =	270	274	285	278	277
P { H =	0·112	0·104	0·117	0·049	0·096
κ =	336	346	346	329	339
J { H =	0·035	0·027	0·014	0·024	0·025
κ =	328	356	314	351	337

Table II.

Vizagapatam.

Commence 0 h., February 3.

Year ……		1879–80.	1880–1.	1881–2.	1882–3.	Mean.
Q	H =	0·010	0·007	0·004	0·014	0·009
	κ =	20	277	306	336	325
L	H =	0·049	0·044	0·027	0·088	0·052
	κ =	257	245	297	217	254
N	H =	0·355	0·300	0·291	0·309	0·314
	κ =	243	250	251	242	246
λ	H =	0·021	0·019	0·022	0·024	0·022
	κ =	201	332	244	278	264
ν	H =	0·114	0·055	0·002	0·127	0·075
	κ =	244	199	72	283	199
μ	H =	0·030	0·026	0·016	0·034	0·027
	κ =	234	259	218	326	259
R	H =	……	0·015	……	0·039	0·027
	κ =	……	130	……	246	188
T	H =	……	0·021	……	0·080	0·051
	κ =	……	336	……	189	263
MS	H =	0·007	0·010	0·014	0·015	0·012
	κ =	345	20	20	357	5
2MS	H =	0·008	0·010	0·015	0·016	0·012
	κ =	210	292	250	148	225
Mm	H =	0·022	0·078	0·049	0·072	0·055
	κ =	22	53	104	35	54
Mf	H =	0·030	0·051	0·061	0·027	0·042
	κ =	23	340	2	2	2
MSf	H =	0·076	0·021	0·038	0·048	0·046
	κ =	22	13	314	102	23
Sa	H =	0·740	0·833	0·577	0·707	0·714
	κ =	190	173	189	175	182
Ssa	H =	0·301	0·328	0·458	0·241	0·332
	κ =	89	126	140	101	114

Table II.

False Point. Commence 0 h., May 1.

Dublat. Commence 0 h., April 22.

Year		False Point 1881–2.	False Point 1882–3.	False Point Mean.	Dublat 1881–2.	Dublat 1882–3.	Dublat Mean.
S_1	H =	0·006	0·024	0·015	0·044	0·050	0·047
	κ =	325	48	6	99	121	110
S_2	H =	1·005	1·030	1·018	2·053	2·163	2·108
	κ =	302	304	303	327	326	327
S_4	H =	0·007	0·008	0·008	0·025	0·011	0·018
	κ =	331	327	329	202	220	211
S_6	H =	0·003	0·003	0·003	0·002	0·005	0·004
	κ =	153	185	169	120	78	99
S_8	H =	0·003	0·003	0·003	0·004	0·007	0·006
	κ =	219	261	240	116	110	113
M_1	H =	0·009	0·008	0·009	0·008	0·007	0·008
	κ =	66	355	30	345	97	41
M_2	H =	2·247	2·253	2·250	4·623	4·596	4·610
	κ =	269	271	270	290	290	290
M_3	H =	0·012	0·016	0·014	0·049	0·043	0·046
	κ =	34	27	30	131	135	133
M_4	H =	0·035	0·041	0·038	0·101	0·089	0·095
	κ =	224	236	230	143	145	144
M_6	H =	0·006	0·014	0·010	0·014	0·013	0·014
	κ =	80	47	63	275	236	255
M_8	H =	0·003	0·002	0·003	0·014	0·009	0·012
	κ =	229	262	246	316	273	294
O	H =	0·175	0·179	0·177	0·181	0·197	0·189
	κ =	335	335	335	332	335	334
K_1	H =	0·408	0·407	0·408	0·498	0·488	0·493
	κ =	344	346	345	353	350	352
K_2	H =	0·268	0·241	0·255	0·573	0·618	0·596
	κ =	296	297	297	310	325	318
P	H =	0·133	0·157	0·145	0·158	0·151	0·155
	κ =	349	340	344	336	351	343
J	H =	0·021	0·030	0·026	0·031	0·016	0·024
	κ =	306	319	312	352	296	324

Table II.

	False Point. Commence 0 h., May 1.			*Dublat.* Commence 0 h., April 22.		
Year	1881–2.	1882–3.	Mean.	1881–2.	1882–3.	Mean.
Q { H =	0·004	0·017	0·011	0·010	0·008	0·009
Q { κ =	307	340	324	306	1	333
L { H =	0·068	0·050	0·059	0·175	0·158	0·167
L { κ =	281	227	254	291	292	291
N { H =	0·471	0·481	0·476	1·041	0·852	0·947
N { κ =	265	268	267	285	286	286
λ { H =	0·045	0·081	0·063	0·298	0·139	0·219
λ { κ =	277	83	180	339	293	316
ν { H =	0·163	0·120	0·142	0·271	0·192	0·232
ν { κ =	247	241	244	261	240	251
μ { H =	0·070	0·080	0·075	0·218	0·111	0·165
μ { κ =	266	280	273	10	19	15
R { H =	......	0·034	0·034	......	0·219	0·219
R { κ =	......	217	217	......	289	289
T { H =	......	0·017	0·017	......	0·137	0·137
T { κ =	......	149	149	......	299	299
MS { H =	0·039	0·042	0·041	0·094	0·059	0·077
MS { κ =	272	275	274	171	139	155
2MS { H =	0·019	0·014	0·017	0·097	0·046	0·072
2MS { κ =	196	177	187	195	227	211
Mm { H =	0·053	0·072	0·063	0·045	0·035	0·040
Mm { κ =	53	58	55	29	125	77
Mf { H =	0·061	0·073	0·067	0·056	0·039	0·048
Mf { κ =	37	33	35	61	71	66
MSf { H =	0·041	0·059	0·050	0·049	0·077	0·063
MSf { κ =	279	73	356	278	75	356
Sa { H =	0·746	0·840	0·793	0·796	1·003	0·900
Sa { κ =	166	166	166	147	154	150
Ssa { H =	0·364	0·210	0·287	0·234	0·182	0·208
Ssa { κ =	142	149	146	162	110	136

Table II.

Year		*Diamond Harbour.* Commence 0 h., April 4. 1881–2.	1882–3.	Mean.	*Kidderpore.* Commence 0 h., March 22. 1881–2.	1882–3.	Mean.
S_1	H =	0·082	0·088	0·085	0·094	0·088	0·091
	κ =	156	147	152	197	190	193
S_2	H =	2·215	2·288	2·252	1·427	1·508	1·468
	κ =	26	25	26	102	101	101
S_4	H =	0·117	0·122	0·120	0·066	0·084	0·075
	κ =	328	323	326	126	111	119
S_6	H =	0·013	0·013	0·013	0·006	0·004	0·005
	κ =	266	235	251	266	332	299
S_8	H =	0·002	0·004	0·003	0·006	0·009	0·008
	κ =	305	42	353	298	323	311
M_1	H =	0·020	0·020	0·020	0·012	0·013	0·013
	κ =	88	103	95	112	202	157
M_2	H =	5·175	5·179	5·177	3·593	3·660	3·627
	κ =	345	344	344	59	58	58
M_3	H =	0·042	0·028	0·035	0·012	0·018	0·015
	κ =	220	225	223	335	328	331
M_4	H =	0·756	0·734	0·745	0·734	0·719	0·727
	κ =	246	245	246	39	35	37
M_6	H =	0·156	0·148	0·152	0·158	0·160	0·159
	κ =	106	105	106	323	315	319
M_8	H =	0·065	0·058	0·062	0·074	0·082	0·078
	κ =	347	343	345	276	263	270
O	H =	0·237	0·230	0·234	0·228	0·211	0·220
	κ =	344	346	345	22	20	21
K_1	H =	0·499	0·492	0·496	0·390	0·387	0·389
	κ =	15	14	14	58	54	56
K_2	H =	0·667	0·644	0·656	0·439	0·431	0·435
	κ =	20	27	23	90	101	96
P	H =	0·176	0·174	0·175	0·146	0·142	0·144
	κ =	6	12	9	42	52	47
J	H =	0·029	0·033	0·031	0·016	0·012	0·014
	κ =	299	340	320	355	298	327

Table II.

	Diamond Harbour. Commence 0 h., April 4.			*Kidderpore.* Commence 0 h., March 22.		
Year	1881–2.	1882–3.	Mean.	1881–2.	1882–3.	Mean.
Q { H =	0·024	0·036	0·030	0·039	0·039	0·039
Q { κ =	9	10	9	358	20	9
L { H =	0·174	0·347	0·261	0·201	0·173	0·187
L { κ =	357	344	351	86	62	74
N { H =	0·988	0·914	0·951	0·677	0·599	0·638
N { κ =	339	340	339	48	46	47
λ { H =	0·171	0·058	0·115	0·126	0·075	0·101
λ { κ =	19	296	337	131	84	107
ν { H =	0·420	0·186	0·303	0·323	0·152	0·238
ν { κ =	294	284	289	358	349	353
μ { H =	0·272	0·333	0·303	0·224	0·260	0·242
μ { κ =	79	90	85	174	190	182
R { H =	......	0·216	0·216	......	0·167	0·167
R { κ =	......	10	10	......	77	77
T { H =	......	0·078	0·078	......	0·147	0·147
T { κ =	......	55	55	......	107	107
MS { H =	0·687	0·702	0·695	0·646	0·643	0·645
MS { κ =	286	284	285	82	80	81
2SM { H =	0·095	0·053	0·074	0·084	0·086	0·085
2SM { κ =	251	290	271	355	9	2
Mm { H =	0·147	0·057	0·102	0·316	0·172	0·244
Mm { κ =	12	351	1	0	341	351
Mf { H =	0·157	0·142	0·150	0·301	0·293	0·297
Mf { κ =	36	41	39	41	36	38
MSf { H =	0·401	0·501	0·451	0·829	0·920	0·875
MSf { κ =	26	40	33	35	43	39
Sa { H =	1·011	1·189	1·100	2·809	2·670	2·740
Sa { κ =	140	147	143	157	157	157
Ssa { H =	0·023	0·109	0·066	0·935	0·708	0·822
Ssa { κ =	64	77	71	205	334	269

Table II.

(*a*) *Elephant Point.* *Rangoon.*

(*a*) Commence 0 h., May 24. Commence 0 h., March 1.

Year	1880–1. (*a*)	1880–1.	1881–2.	1882–3.	Mean.
S_1 H =	0·113	0·120	0·123	0·097	0·113
S_1 κ =	79	141	129	129	133
S_2 H =	2·337	2·009	2·003	2·025	2·012
S_2 κ =	143	169	170	171	170
S_4 H =	0·037	0·076	0·088	0·079	0·081
S_4 κ =	162	262	256	258	259
S_6 H =	0·021	0·011	0·009	0·011	0·010
S_6 κ =	94	42	39	63	48
S_8 H =	0·008	0·006	0·003	0·005	0·005
S_8 κ =	60	119	117	122	120
M_1 H =	0·019	0·049	0·037	0·013	0·033
M_1 κ =	88	151	236	163	183
M_2 H =	5·870	5·539	5·519	5·577	5·545
M_2 κ =	103	130	132	131	131
M_3 H =	0·025	0·009	0·016	0·038	0·021
M_3 κ =	146	238	154	142	178
M_4 H =	0·079	0·388	0·424	0·418	0·410
M_4 κ =	46	167	171	168	169
M_6 H =	0·205	0·236	0·227	0·235	0·233
M_6 κ =	349	85	89	87	87
M_8 H =	0·031	0·074	0·083	0·087	0·081
M_8 κ =	322	92	103	96	97
O H =	0·349	0·289	0·294	0·300	0·294
O κ =	356	30	27	28	28
K_1 H =	0·807	0·674	0·682	0·653	0·670
K_1 κ =	18	35	35	36	35
K_2 H =	0·401	0·535	0·576	0·598	0·570
K_2 κ =	91	168	173	165	169
P H =	0·199	0·134	0·148	0·166	0·149
P κ =	33	61	52	53	55
J H =	0·110	0·049	0·023	0·018	0·030
J κ =	61	70	91	298	33

Table II.

(*a*) *Elephant Point.* *Rangoon.*

(*a*) Commence 0 h., May 24. Commence 0 h., March 1.

Year	(*a*) 1880–1.	1880–1.	1881–2.	1882–3.	Mean.
Q { H =	0·042	0·028	0·024	0·028	0·027
Q { κ =	336	9	29	56	31
L { H =	0·346	0·368	0·327	0·525	0·407
L { κ =	109	153	158	160	157
N { H =	1·543	1·045	0·949	0·977	0·990
N { κ =	80	117	120	115	117
λ { H =	0·659	0·299	0·290	0·181	0·257
λ { κ =	145	174	184	152	170
ν { H =	0·681	0·479	0·288	0·184	0·317
ν { κ =	209	94	75	130	100
μ { H =	0·356	0·497	0·508	0·536	0·514
μ { κ =	279	289	295	286	290
R { H =	....	....	0·117	....	0·117
R { κ =	....	....	66	....	66
T { H =	....	....	0·290	....	0·290
T { κ =	....	....	128	....	128
MS { H =	0·135	0·349	0·415	0·394	0·386
MS { κ =	67	207	212	210	210
2SM { H =	0·042	0·173	0·155	0·153	0·160
2SM { κ =	84	46	54	61	54
Mm { H =	0·145	0·296	0·230	0·182	0·236
Mm { κ =	6	21	9	39	23
Mf { H =	0·098	0·168	0·223	0·233	0·208
Mf { κ =	310	35	27	39	34
MSf { H =	0·059	0·515	0·559	0·588	0·554
MSf { κ =	273	45	52	49	49
Sa { H =	0·930	1·600	1·415	1·444	1·486
Sa { κ =	146	144	153	152	150
Ssa { H =	0·261	0·193	0·012	0·174	0·126
Ssa { κ =	198	306	315	3	328

Table II.

Amherst. Commence 0 h., August 5.

Moulmein. Commence 0 h., April 17.

N.B.—The MS. gives H of K_2=1·771 for 1880–1; an obvious mistake. The mean has been corrected.

Year		Amherst 1880–1.	Amherst 1881–2.	Amherst 1882–3.	Amherst Mean.	Moulmein 1880–1.	Moulmein 1881–2.	Moulmein 1882–3.	Moulmein Mean.
S_1	H =	0·426	0·143	0·096	0·222	0·095	0·099	0·095	0·096
	κ =	178	149	97	141	146	155	148	149
S_2	H =	2·851	2·705	2·750	2·769	1·400	1·344	1·343	1·362
	κ =	109	101	105	105	148	145	150	148
S_4	H =	0·095	0·118	0·104	0·106	0·068	0·069	0·065	0·067
	κ =	147	102	117	122	230	225	231	229
S_6	H =	0·022	0·004	0·009	0·012	0·006	0·006	0·004	0·005
	κ =	222	221	119	187	178	187	185	183
S_8	H =	0·009	0·006	0·009	0·008	0·002	0·001	0·002	0·002
	κ =	209	348	269	276	164	252	218	211
M_1	H =	0·041	0·021	0·035	0·032	0·034	0·019	0·002	0·018
	κ =	192	273	300	255	128	101	183	138
M_2	H =	6·230	6·081	6·389	6·233	3·884	3·698	3·756	3·779
	κ =	70	68	68	69	112	112	115	113
M_3	H =	0·034	0·003	0·019	0·019	0·023	0·031	0·020	0·025
	κ =	287	224	273	261	274	215	139	209
M_4	H =	0·273	0·423	0·355	0·350	0·926	0·880	0·897	0·901
	κ =	60	51	41	51	169	170	174	171
M_6	H =	0·070	0·146	0·139	0·118	0·105	0·107	0·095	0·102
	κ =	257	248	251	252	200	198	201	200
M_8	H =	0·006	0·014	0·021	0·014	0·034	0·036	0·044	0·038
	κ =	282	244	220	249	125	141	134	133
O	H =	0·310	0·319	0·323	0·317	0·256	0·252	0·252	0·253
	κ =	328	339	352	339	44	49	50	48
K_1	H =	0·668	0·686	0·744	0·699	0·452	0·447	0·414	0·438
	κ =	3	6	6	5	39	40	42	40
K_2	H =	0·771	0·858	0·682	0·770	0·409	0·282	0·316	0·336
	κ =	91	81	97	90	151	152	162	155
P	H =	0·132	0·193	0·207	0·177	0·113	0·144	0·144	0·134
	κ =	308	348	354	337	62	61	57	60
J	H =	0·109	0·083	0·031	0·074	0·038	0·018	0·009	0·022
	κ =	13	7	82	34	52	48	222	107

Table II.

Amherst. Commence 0 h., August 5.

Moulmein. Commence 0 h., April 17.

Year		Amherst 1880–1.	Amherst 1881–2.	Amherst 1882–3.	Amherst Mean.	Moulmein 1880–1.	Moulmein 1881–2.	Moulmein 1882–3.	Moulmein Mean.
Q	H =	0·064	0·060	0·039	0·054	0·043	0·054	0·039	0·045
	κ =	325	321	322	322	53	55	53	53
L	H =	0·226	0·303	0·348	0·292	0·204	0·390	0·242	0·279
	κ =	112	120	103	112	134	155	129	139
N	H =	1·374	1·248	1·343	1·322	0·735	0·672	0·630	0·679
	κ =	60	51	51	54	97	106	102	102
λ	H =	0·393	0·280	0·226	0·300	0·161	0·249	0·118	0·176
	κ =	113	65	178	119	152	182	162	165
ν	H =	0·426	0·283	0·566	0·425	0·314	0·215	0·169	0·233
	κ =	186	267	79	177	101	91	58	84
μ	H =	0·443	0·247	0·220	0·303	0·308	0·314	0·316	0·313
	κ =	278	299	326	301	272	259	280	270
R	H =	......	0·451	......	0·451	......	0·097	......	0·097
	κ =	......	252	......	252	......	70	......	70
T	H =	......	0·841	......	0·841	......	0·200	......	0·200
	κ =	......	144	......	144	......	110	......	110
MS	H =	0·285	0·406	0·350	0·347	0·741	0·701	0·693	0·712
	κ =	90	80	76	82	210	209	214	211
2SM	H =	0·188	0·150	0·115	0·151	0·127	0·137	0·109	0·124
	κ =	345	28	16	10	38	40	37	38
Mm	H =	......	0·152	0·038	0·095	0·409	0·441	0·229	0·360
	κ =	......	43	52	48	3	17	21	14
Mf	H =	......	0·062	0·132	0·097	0·282	0·379	0·342	0·334
	κ =	......	315	24	350	42	40	40	41
Msf	H =	......	0·080	0·029	0·055	1·088	1·097	1·146	1·110
	κ =	......	76	66	71	43	48	46	46
Sa	H =	......	0·638	0·814	0·726	2·460	2·389	2·453	2·434
	κ =	......	150	130	140	145	153	149	149
Saa	H =	......	0·188	0·124	0·156	0·563	0·653	0·593	0·603
	κ =	......	139	332	235	283	284	295	287

Table II.

	Port Blair. Commence 0 h., April 19.				*Fort Point, California.* Commence 0 h., October 1.			
Year	1880–1.	1881–2.	1882–3.	Mean.	1858–9.	1859–60.	1860–1.	Mean.
S_1 { H =	0·028	0·018	0·016	0·021	0·015	......	......	0·015
κ =	49	35	31	38	212	......	......	212
S_2 { H =	0·966	0·978	0·959	0·968	0·407	0·380	0·382	0·390
κ =	316	313	315	315	334	336	336	336
S_4 { H =	0·003	0·001	0·004	0·003				
κ =	107	86	59	84				
S_6 { H =	0·002	0·002	0·002	0·002				
κ =	152	99	142	131				
S_8 { H =	0·002	0·002	0·001	0·002				
κ =	98	88	53	80				
M_1 { H =	0·016	0·007	0·008	0·010	0·034	0·037	0·044	0·038
κ =	23	254	238	291	98	273	139	170
M_2 { H =	2·042	2·014	2·010	2·022	1·722	1·659	1·685	1·689
κ =	279	277	278	278	332	333	331	332
M_3 { H =	0·004	0·011	0·007	0·007				
κ =	20	11	16	16				
M_4 { H =	0·003	0·011	0·011	0·008	0·066	0·074	0·072	0·071
κ =	167	128	158	151	26	30	15	24
M_6 { H =	0·004	0·002	0·000	0·002				
κ =	342	206	42	317				
M_8 { H =	0·003	0·002	0·002	0·002				
κ =	19	70	120	70				
O { H =	0·153	0·162	0·166	0·160	0·769	0·756	0·814	0·780
κ =	299	304	302	302	89	89	85	87
K_1 { H =	0·403	0·397	0·391	0·397	1·217	1·209	1·232	1·219
κ =	326	327	327	327	106	107	107	107
K_2 { H =	0·286	0·296	0·264	0·282	0·139	0·143	0·122	0·135
κ =	314	308	310	311	336	328	325	330
P { H =	0·130	0·137	0·134	0·134	0·367	0·366	0·387	0·373
κ =	324	327	326	326	107	106	104	105
J { H =	0·038	0·030	0·014	0·027	0·072	0·034	0·053	0·053
κ =	316	324	333	325	130	127	105	121

Table II.

	Port Blair. Commence 0 h., April 19.				*Fort Point, California.* Commence 0 h., October 1.			
Year	1880–1.	1881–2.	1882–3.	Mean.	1858–9.	1859–60.	1860–1.	Mean.
Q { H =	0·023	0·027	0·023	0·024	0·147	0·094	0·123	0·121
Q { κ =	236	242	233	237	78	54	90	74
L { H =	0·059	0·098	0·046	0·068	0·053	0·060	0·064	0·059
L { κ =	269	290	258	272	300	18	335	338
N { H =	0·413	0·392	0·391	0·399	0·406	0·357	0·359	0·374
N { κ =	273	273	277	274	305	307	305	305
λ { H =	0·035	0·046	0·047	0·043	0·038	0·029	0·012	0·026
λ { κ =	229	311	301	280	9	338	326	345
ν { H =	0·148	0·137	0·079	0·121	0·107	0·040	0·045	0·064
ν { κ =	294	254	214	254	288	274	352	305
μ { H =	0·094	0·089	0·074	0·086	0·028	0·032	0·026	0·029
μ { κ =	288	298	291	292	257	210	214	227
R { H =	......	0·020	......	0·020	......	0·008	......	0·008
R { κ =	......	326	......	326	......	63	......	63
T { H =	......	0·099	......	0·099	......	0·014	......	0·014
T { κ =	......	313	......	313	......	198	......	198
MS { H =	0·004	0·016	0·007	0·009	0·026	0·034	0·032	0·031
MS { κ =	153	206	284	215	23	14	25	21
2SM { H =	0·021	0·020	0·028	0·023				
2SM { κ =	149	168	146	154				
Mm { H =	0·020	0·017	0·005	0·014				
Mm { κ =	13	26	21	20				
Mf { H =	0·056	0·067	0·048	0·057				
Mf { κ =	356	15	17	9				
MSf { H =	0·019	0·007	0·018	0·015				
MSf { κ =	168	4	9	61				
Sa { H =	0·299	0·062	0·251	0·204				
Sa { κ =	163	133	156	150				
Ssa { H =	0·106	0·134	0·110	0·117				
Ssa { κ =	165	197	170	177				

Table II.

(*a*) *San Diego.* (*b*) *Port Leopold.* (*c*) *Beechey Island.* (*d*) *Cat Island.* (*e*) *Toulon.*

(*a*) Com. 0 h., Jan. 1. (*b*) Com. 0 h., Nov. 1, 1848, to July 31, 1849. (*c*) Com. 0 h., Nov. 2, 1858, to Feb. 28, 1859. (*d*) Com. 0 h., Jan. 1. (*e*) Com. 0 h., Jan. 1.

	(*a*)	(*a*)	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)
Year	1860.	1861.	Mean.	1848–9.	1858–9.	1848.	1853.
S_1 {H =	0·030	0·025	0·028	0·031	......	0·044	0·010
{κ =	229	246	238	27	......	10	186
S_2 {H =	0·697	0·693	0·695	0·643	0·686	0·068	0·090
{κ =	273	275	274	29	34	24	250
S_4 {H =	0·007	0·005	0·006	0·007	......	......	0·002
{κ =	187	221	204	257	......	......	298
S_6 {H =							
{κ =							
S_8 {H =							
{κ =							
M_1 {H =	0·046	0·051	0·049	0·045	......	0·007	0·010
{κ =	115	98	106	230	......	26	319
M_2 {H =	1·718	1·712	1·715	2·001	1·996	0·116	0·190
{κ =	275	277	276	338	347	11	252
M_3 {H =	0·007	0·007	0·007	......	......	......	0·004
{κ =	17	21	19	......	......	......	9
M_4 {H =	0·028	0·027	0·028	0·015	0·024	......	0·011
{κ =	205	200	203	202	268	......	349
M_6 {H =	0·010	0·013	0·012	......	......	......	0·002
{κ =	88	80	84	......	......	......	152
M_8 {H =	......	......	......	......	......	......	0·001
{κ =	......	......	......	......	......	......	146
O {H =	0·694	0·698	0·696	0·443	0·488	0·479	0·059
{κ =	77	78	78	164	162	315	302
K_1 {H =	1·097	1·095	1·096	0·899	0·901	0·525	0·116
{κ =	94	95	94	216	243	325	3
K_2 {H =	0·210	0·203	0·207	0·175	0·151	0·028	0·024
{κ =	260	267	263	29	54	288	254
P {H =	0·352	0·361	0·357	0·216	0·215	0·156	0·041
{κ =	91	90	90	218	222	321	0
J {H =	0·068	0·100	0·084	......	......	0·035	0·008
{κ =	96	103	99	......	......	297	15

Table II.

(*a*) *San Diego.* (*b*) *Port Leopold.* (*c*) *Beechey Island.* (*d*) *Cat Island.* (*e*) *Toulon.*

(*a*) Com. 0 h., Jan. 1. (*b*) Com. 0 h., Nov. 1, 1848, to July 31, 1849. (*c*) Com. 0 h., Nov. 2, 1858, to Feb. 28, 1859. (*d*) Com. 0 h., Jan. 1. (*e*) Com. 0 h., Jan. 1.

	(*a*)	(*a*)	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)
Year	1860.	1861.	Mean.	1848–9.	1858–9.	1848.	1853.
Q { H =	0·129	0·160	0·145	......	......	0·091	0·006
Q { κ =	73	77	75	......	......	307	242
L { H =	0·033	0·005	0·019	0·044	0·080	0·012	0·007
L { κ =	0	328	344	3	47	33	224
N { H =	0·415	0·440	0·428	0·420	0·429	0·026	0·046
N { κ =	258	261	260	306	315	33	240
λ { H =	0·069	0·049	0·059	......	......	......	0·003
λ { κ =	179	268	224	......	......	......	10
ν { H =	0·134	0·070	0·102	......	......	......	0·008
ν { κ =	261	233	247	......	......	......	219
μ { H =	0·039	0·015	0·027	......	......	......	0·007
μ { κ =	244	235	240	......	......	......	219
R { H =	......	0·010	0·010				
R { κ =	......	153	153				
T { H =	......	0·041	0·041				
T { κ =	......	319	319				
MS { H =	0·006	0·012	0·009				
MS { κ =	188	191	189				
2SM { H =							
2SM { κ =							
Mm { H =	......	......	......	......	......	0·094	0·061
Mm { κ =	......	......	......	......	......	304	228
Mf { H =	......	......	......	......	......	0·069	0·045
Mf { κ =	......	......	......	......	......	134	118
MSf { H =	......	......	......	......	......	0·095	0·018
MSf { κ =	......	......	......	......	......	336	53
Sa { H =	......	......	......	......	......	0·274	0·157
Sa { κ =	......	......	......	......	......	145	279
Ssa { H =	......	......	......	......	......	0·128	0·090
Ssa { κ =	......	......	......	......	......	35	144

Table II.

(*a*) *Brest.* (*b*) *Ramsgate.* (*c*) *West Hartlepool.*

(*a*) Com. 0 h., Jan. 1. (*b*) Com. 0 h., Jan. 1. (*c*) Com. 0 h., July 1.

N.B.—English ports referred to G.M.T.

	(*a*)	(*b*)	(*c*)	(*c*)	(*c*)	(*c*)
Year	1875.	1864.	1858–9.	1859–60.	1860–1.	Mean.
S_1 { H =	0·015	0·037	0·019	0·054	0·025	0·033
κ =	52	313	132	157	169	152
S_2 { H =	2·551	1·877	1·754	1·711	1·749	1·738
κ =	138	33	141	138	138	139
S_4 { H =	......	0·032	0·025	0·021	0·019	0·022
κ =	......	4	190	174	172	179
S_6 { H =	......	0·027				
κ =	......	27				
S_8 { H =						
κ =						
M_1 { H =	0·004	......	0·028	0·030	0·019	0·026
κ =	167	......	39	125	147	104
M_2 { H =	6·766	6·144	5·176	5·148	5·166	5·163
κ =	100	341	99	99	97	98
M_3 { H =	0·067	0·043	0·038	0·023	0·046	0·036
κ =	2	56	122	105	127	118
M_4 { H =	0·169	0·548	0·080	0·106	0·099	0·095
κ =	85	243	103	117	107	109
M_6 { H =	0·106	0·164	0·071	0·078	0·073	0·074
κ =	325	127	50	55	46	50
M_8 { H =	0·008	0·054				
κ =	203	54				
O { H =	0·211	0·642	0·433	0·425	0·444	0·434
κ =	322	180	84	86	85	85
K_1 { H =	0·208	0·223	0·390	0·365	0·385	0·380
κ =	66	18	247	247	248	248
K_2 { H =	0·553	0·520	0·485	0·511	0·467	0·488
κ =	144	24	139	136	132	135
P { H =	0·071	0·073	0·121	0·120	0·095	0·112
κ =	59	353	232	232	232	232
J { H =	......	......	0·031	0·026	0·027	0·028
κ =	......	......	268	300	105	224

Table II.

(*a*) *Brest.* (*b*) *Ramsgate.* (c) *West Hartlepool.*

(*a*) Com. 0 h., Jan. 1. (*b*) Com. 0 h., Jan. 1. (*c*) Com. 0 h., July 1.

N.B.—English ports referred to G.M.T.

	(*a*)	(*b*)	(*c*)	(*c*)	(*c*)	(*c*)
Year	1875.	1864.	1858–9.	1859–60.	1860–1.	Mean.
Q { H =	......	......	0·140	0·143	0·160	0·148
Q { κ =	......	......	41	31	25	32
L { H =	0·192	0·447	0·169	0·179	0·253	0·200
L { κ =	101	16	106	140	94	114
N { H =	1·375	1·084	0·951	0·973	1·040	0·988
N { κ =	83	312	77	70	72	73
λ { H =	0·059	0·174	0·057	0·110	0·117	0·095
λ { κ =	59	351	148	85	115	116
ν { H =	0·293	0·344	0·115	0·325	0·369	0·270
ν { κ =	45	330	75	116	73	88
μ { H =	0·307	0·251	0·097	0·100	0·057	0·085
μ { κ =	92	87	9	346	24	6
R { H =	......	......	......	......	0·008	0·008
R { κ =	......	......	......	......	158	158
T { H =	......	......	......	......	0·140	0·140
T { κ =	......	......	......	......	200	200
MS { H =	......	0·324	0·047	0·040	0·046	0·044
MS { κ =	......	127	122	142	115	126
2SM { H =	......	0·141	0·034	0·034	0·009	0·026
2SM { κ =	......	262	315	29	226	310
Mm { H =	0·038	0·029	0·085	0·148	0·147	0·127
Mm { κ =	328	45	24	176	79	93
Mf { H =	0·069	0·044	0·037	0·040	0·060	0·046
Mf { κ =	76	288	200	237	178	205
MSf { H =	0·290	0·094	0·135	0·134	0·143	0·137
MSf { κ =	52	206	70	56	53	59
Sa { H =	0·261	0·127	0·217	0·366	0·213	0·265
Sa { κ =	234	181	258	200	200	219
Ssa { H =	0·071	0·075	0·004	0·138	0·149	0·097
Ssa { κ =	93	288	275	106	287	223

Table II.

Portland Breakwater.

Commence 0 h., January 1.

N.B.—Referred to G.M.T.

Year	1851.	1857.	1866.	1870.	Mean.
S_1 H =	0·074	0·031	0·026	0·015	0·037
S_1 κ =	84	98	91	83	89
S_2 H =	1·076	1·076	1·090	1·055	1·074
S_2 κ =	243	247	245	241	244
S_4 H =	0·012	0·010	0·016	0·010	0·012
S_4 κ =	193	185	168	196	186
S_6 H =					
S_6 κ =					
S_8 H =					
S_8 κ =					
M_1 H =	0·011	0·004	0·030	0·013	0·015
M_1 κ =	317	184	278	32	292
M_2 H =	2·109	2·104	1·911	2·067	2·048
M_2 κ =	193	197	195	192	194
M_3 H =	0·029	0·045	0·045	0·026	0·036
M_3 κ =	172	195	188	166	180
M_4 H =	0·440	0·535	0·439	0·456	0·468
M_4 κ =	29	42	31	29	32
M_6 H =	0·211	0·217	0·195	0·203	0·207
M_6 κ =	67	79	68	65	70
M_8 H =	0·013	0·017	0·009	0·009	0·012
M_8 κ =	54	46	40	57	49
O H =	0·165	0·162	0·156	0·168	0·163
O κ =	351	357	351	353	353
K_1 H =	0·283	0·292	0·295	0·308	0·295
K_1 κ =	113	116	114	114	114
K_2 H =	0·312	0·292	0·316	0·282	0·301
K_2 κ =	238	243	234	236	237
P H =	0·096	0·118	0·108	0·108	0·108
P κ =	111	108	105	108	108
J H =					
J κ =					

Table II.

Portland Breakwater.

Commence 0 h., January 1.

N.B.—Referred to G.M.T.

Year		1851.	1857.	1866.	1870.	Mean.
Q	H =					
	κ =					
L	H =	0·227	0·105	0·142	0·208	0·171
	κ =	144	98	109	95	111
N	H =	0·465	0·462	0·499	0·483	0·477
	κ =	184	186	186	184	185
λ	H =	0·103	0·058	0·080	0·089	0·083
	κ =	113	109	134	112	117
ν	H =	0·093	0·125	0·121	0·121	0·115
	κ =	196	119	109	135	140
μ	H =	0·377	0·401	0·350	0·367	0·374
	κ =	197	199	193	193	196
R	H =					
	κ =					
T	H =					
	κ =					
MS	H =	0·261	0·276	0·253	0·279	0·267
	κ =	86	94	90	91	90
2SM	H =	0·050	0·072	0·062	0·050	0·059
	κ =	351	6	348	346	353
Mm	H =					
	κ =					
Mf	H =					
	κ =					
MSf	H =					
	κ =					
Sa	H =					
	κ =					
Ssa	H =					
	κ =					

Table II.

Liverpool.

Commence 0 h., September 1.

N.B.—Referred to G.M.T.

Year	1857–8.	1858–9.	1859–60.	Mean.
S_1 H =	0·045	0·070	0·084	0·066
S_1 κ =	70	60	57	62
S_2 H =	3·215	3·312	3·194	3·240
S_2 κ =	12	11	10	11
S_4 H =	0·061	0·060	0·048	0·056
S_4 κ =	322	330	295	316
S_6 H =				
S_6 κ =				
S_8 H =				
S_8 κ =				
M_1 H =	0·015	0·042	0·004	0·020
M_1 κ =	303	314	159	258
M_2 H =	10·033	10·136	10·130	10·100
M_2 κ =	327	327	326	326
M_3 H =	0·111	0·103	0·159	0·124
M_3 κ =	331	317	324	324
M_4 H =	0·737	0·700	0·668	0·702
M_4 κ =	221	220	225	222
M_6 H =	0·202	0·208	0·224	0·211
M_6 κ =	344	352	348	348
M_8 H =	0·067	0·092	0·073	0·077
M_8 κ =	264	283	266	271
O H =	0·374	0·356	0·400	0·377
O κ =	45	42	42	43
K_1 H =	0·354	0·362	0·357	0·358
K_1 κ =	195	197	189	194
K_2 H =	0·904	1·001	0·912	0·939
K_2 κ =	9	9	3	7
P H =	0·125	0·134	0·131	0·130
P κ =	192	196	189	192
J H =				
J κ =				

Table II.

Liverpool.

Commence 0 h., September 1.

N.B.—Referred to G.M.T.

Year		1857–8.	1858–9.	1859–60.	Mean.
Q	H =				
	κ =				
L	H =	0·408	0·681	0·530	0·540
	κ =	330	4	342	345
N	H =	1·930	1·819	2·019	1·923
	κ =	304	310	306	306
λ	H =	0·424	0·233	0·120	0·259
	κ =	322	316	13	337
ν	H =	0·769	0·651	0·291	0·570
	κ =	308	285	263	285
μ	H =	0·308	0·241	0·323	0·291
	κ =	33	44	36	38
R	H =	....	0·101	0·082	0·092
	κ =	....	46	46	46
T	H =	....	0·349	0·121	0·235
	κ =	....	348	317	333
MS	H =	0·454	0·361	0·397	0·404
	κ =	271	267	272	270
2SM	H =	0·140	0·165	0·151	0·152
	κ =	206	216	228	216
Mm	H =	0·053	0·223	0·166	0·147
	κ =	289	32	173	165
Mf	H =	0·064	0·027	0·018	0·036
	κ =	175	159	89	141
MSf	H =	0·071	0·021	0·081	0·058
	κ =	111	324	302	246
Sa	H =	0·359	0·284	0·353	0·332
	κ =	210	259	213	227
Ssa	H =	0·090	0·104	0·190	0·128
	κ =	144	270	112	175

Table II.

Liverpool.

Commence 0 h., January 23.

N.B.—Referred to G.M.T.

Year	1866–7.	1867–8.	1868–9.	1869–70.	Mean.
S_1 { H =	0·047	0·035	0·040	0·028	0·038
S_1 { κ =	39	66	101	124	83
S_2 { H =	3·130	3·099	3·122	3·052	3·101
S_2 { κ =	12	11	12	14	12
S_4 { H =	0·048	0·068	0·064	0·051	0·058
S_4 { κ =	314	327	298	313	313
S_6 { H =					
S_6 { κ =					
S_8 { H =					
S_8 { κ =					
M_1 { H =	0·035	0·023	0·049	0·048	0·039
M_1 { κ =	304	261	19	39	336
M_2 { H =	9·901	9·906	9·807	9·911	9·881
M_2 { κ =	326	326	327	328	327
M_3 { H =	0·081	0·097	0·111	0·098	0·097
M_3 { κ =	336	327	323	311	324
M_4 { H =	0·711	0·673	0·659	0·688	0·683
M_4 { κ =	225	222	221	225	223
M_6 { H =	0·184	0·174	0·172	0·205	0·184
M_6 { κ =	344	347	350	358	350
M { H =	0·058	0·058	0·059	0·070	0·061
M { κ =	283	279	291	287	285
O { H =	0·379	0·331	0·398	0·357	0·366
O { κ =	41	41	39	36	40
K_1 { H =	0·372	0·332	0·344	0·362	0·353
K_1 { κ =	192	197	194	196	195
K_2 { H =	0·846	1·021	0·935	0·933	0·934
K_2 { κ =	10	9	3	7	7
P { H =	0·141	0·136	0·133	0·094	0·126
P { κ =	178	199	174	167	180
J { H =					
J { κ =					

Table II.

Liverpool.

Commence 0 h., January 23.

N.B.—Referred to G.M.T.

Year		1866–7.	1867–8.	1868–9.	1869–70.	Mean.
Q	H =					
	κ =					
L	H =	0·550	0·491	0·476	0·565	0·521
	κ =	296	331	347	337	328
N	H =	2·083	1·845	1·774	1·848	1·888
	κ =	302	308	306	303	305
λ	H =	0·228	0·209	0·192	0·187	0·204
	κ =	356	0	317	310	336
ν	H =	0·692	0·487	0·138	0·675	0·498
	κ =	279	267	310	331	297
μ	H =	0·238	0·212	0·242	0·220	0·228
	κ =	33	31	62	36	41
R	H =					
	κ =					
T	H =					
	κ =					
MS	H =	0·447	0·400	0·395	0·387	0·407
	κ =	270	271	268	271	270
2SM	H =	0·134	0·112	0·136	0·118	0·125
	κ =	222	225	225	235	227
Mm	H =	0·064	....	....	....	0·064
	κ =	260	....	....	....	260
Mf	H =	0·057	....	....	....	0·057
	κ =	344	....	....	....	344
MSf	H =	0·051	....	....	....	0·051
	κ =	68	....	....	....	68
Sa	H =	0·452	....	....	....	0·452
	κ =	272	....	....	....	272
Ssa	H =	0·185	....	....	....	0·185
	κ =	229	....	....	....	229

Table II.

Helbre Island.

Commence 0 h., January 1.

N.B.—Referred to G.M.T.

Year	1858.	1859.	1860.	1861.	1862.	1863.
S_1 {H =						
κ =						
S_2 {H =	3·138	3·177	3·163	3·171	3·119	3·120
κ =	2	3	2	2	3	3
S_4 {H =	0·033	0·033	0·026	0·030	0·026	0·025
κ =	322	329	298	332	317	300
S_6 {H =						
κ =						
S_8 {H =						
κ =						
M_1 {H =	0·008	0·043	0·036	0·023	0·080	0·013
κ =	289	8	108	60	125	267
M_2 {H =	9·768	9·763	9·929	9·828	9·740	9·709
κ =	319	320	319	318	320	320
M_3 {H =	0·104	0·091	0·106	0·140	0·079	0·117
κ =	304	288	307	278	283	279
M_4 {H =	0·446	0·441	0·491	0·479	0·409	0·500
κ =	216	219	214	210	218	213
M_6 {H =	0·065	0·063	0·081	0·066	0·065	0·066
κ =	37	51	26	21	28	36
M_8 {H =	0·013	0·007	0·012	0·013	0·011	0·013
κ =	350	51	339	6	309	13
O {H =	0·367	0·368	0·361	0·404	0·379	0·377
κ =	41	42	42	42	44	40
K_1 {H =	0·387	0·376	0·376	0·404	0·387	0·388
κ =	192	187	186	188	188	189
K_2 {H =	0·922	0·883	0·919	0·916	0·928	0·989
κ =	358	355	354	1	354	5
P {H =	0·172	0·147	0·131	0·131	0·162	0·138
κ =	184	180	190	99	176	194
J {H =	0·022	0·018				
κ =	251	159				

Table II.

Helbre Island.

Commence 0 h., January 1.

N.B.—Referred to G.M.T.

Year		1858.	1859.	1860.	1861.	1862.	1863.
Q	H =	0·108	0·099				
	κ =	359	334				
L	H =	0·370	0·561	0·477	0·424	0·215	0·315
	κ =	334	354	336	324	256	353
N	H =	1·855	1·896	1·794	1·883	1·847	1·843
	κ =	296	292	291	295	297	296
λ	H =	0·144	0·204	0·058	0·202	0·255	0·182
	κ =	327	293	14	353	357	323
ν	H =	0·189	0·321	0·221	0·626	0·371	0·611
	κ =	268	274	336	277	210	276
μ	H =	0·033	0·176	0·076	0·145	0·026	0·057
	κ =	80	44	30	32	345	73
R	H =	......	0·022	......	0·102		
	κ =	......	18	......	291		
T	H =	......	0·222	......	0·406		
	κ =	......	311	......	6		
MS	H =	0·275	0·206	0·261	0·310	0·257	0·270
	κ =	276	265	272	267	277	266
2SM	H =	0·132	0·122	0·123	0·126	0·126	0·123
	κ =	217	230	237	208	216	234
Mm	H =						
	κ =						
Mf	H =						
	κ =						
MSf	H =						
	κ =						
Sa	H =						
	κ =						
Ssa	H =						
	κ =						

Table II.

Helbre Island.

Commence 0 h., January 1.

N.B.—Referred to G.M.T

Year	1864.	1865.	1866.	1867.	Mean.
S_1 { H =					
κ =					
S_2 { H =	3·089	3·093	3·106	3·108	3·128
κ =	3	3	1	2	3
S_4 { H =	0·035	0·029	0·030	0·034	0·030
κ =	309	303	304	302	312
S_6 { H =					
κ =					
S_8 { H =					
κ =					
M_1 { H =	0·002	0·034	0·044	0·046	0·033
κ =	166	256	336	284	262
M_2 { H =	9·728	9·762	9·708	9·645	9·758
κ =	321	320	319	319	319
M_3 { H =	0·104	0·077	0·107	0·110	0·104
κ =	305	285	310	293	293
M_4 { H =	0·515	0·510	0·503	0·494	0·479
κ =	213	211	209	211	213
M_6 { H =	0·078	0·069	0·079	0·072	0·070
κ =	44	42	32	28	34
M_8 { H =	0·011	0·009	0·009	0·005	0·010
κ =	18	348	307	338	352
O { H =	0·341	0·386	0·363	0·357	0·370
κ =	37	41	40	39	41
K_1 { H =	0·388	0·416	0·419	0·370	0·391
κ =	189	189	185	187	188
K_2 { H =	0·738	0·919	0·918	0·770	0·890
κ =	0	4	351	357	358
P { H =	0·134	0·153	0·160	0·134	0·146
κ =	176	179	179	183	174
J { H =	......	......	0·018	0·044	0·026
κ =	......	......	342	98	122

Table II.

Helbre Island.

Commence 0 h., January 1.

N.B.—Referred to G.M.T.

Year		1864.	1865.	1866.	1867.	Mean.
Q	H =	......	......	0·121	0·122	0·113
	κ =	......	......	339	350	345
L	H =	0·506	0·554	0·390	0·466	0·428
	κ =	356	342	317	341	331
N	H =	1·923	1·852	1·824	1·849	1·857
	κ =	296	295	298	297	295
λ	H =	0·275	0·263	0·254	0·106	0·194
	κ =	334	343	343	290	334
ν	H =	0·666	0·683	0·522	0·173	0·438
	κ =	289	295	263	291	278
μ	H =	0·061	0·095	0·012	0·151	0·083
	κ =	11	43	331	66	34
R	H =	......	0·050	......	0·026	0·050
	κ =	......	344	......	63	359
T	H =	......	0·230	......	0·158	0·254
	κ =	......	356	......	277	327
MS	H =	0·314	0·322	0·290	0·292	0·280
	κ =	266	264	261	260	267
2SM	H =	0·094	0·124	0·104	0·112	0·119
	κ =	212	210	221	230	221
Mm	H =					
	κ =					
Mf	H =					
	κ =					
MSf	H =					
	κ =					
Sa	H =					
	κ =					
Ssa	H =					
	κ =					

Table III.

1, *Aden*. 2, *Karachi*. 3, *Okha*. 4, *Kathiwadar*. 5, *Bombay*. 6, *Karwar*. 7, *Beypore*.

	1	2	3	4	5	6	7
Years.	1879–83.	1868–83.	1874–5.	1881–2.	1878–82.	1878–83.	1878–83.
No. of years observed ...	4	15	1	1	5	5	5
S_1 H =	0·090	0·082	0·074	0·134	0·078	0·057	0·061
S_1 κ =	162	158	150	201	182	159	174
S_2 H =	0·697	0·948	1·222	1·207	1·622	0·624	0·330
S_2 κ =	248	322	14	81	3	335	18
S_4 H =	0·006	0·010	0·013	0·029	0·012	0·010	0·005
S_4 κ =	271	14	117	273	256	100	137
S_6 H =	0·004	0·007	0·003	0·013	0·003	0·005	0·005
S_6 κ =	201	295	21	42	171	52	247
S_8 H =	0·001	0·001	0·001	0·002	0·001	0·002	0·001
S_8 κ =	259	204	220	264	115	304	339
M_1 H =	0·047	0·044	0·051	0·057	0·051	0·033	0·029
M_1 κ =	21	30	43	35	49	41	73
M_2 H =	1·568	2·504	3·820	2·970	4·034	1·742	0·931
M_2 κ =	229	294	347	55	330	302	329
M_3 H =	0·018	0·039	0·030	0·020	0·065	0·014	0·010
M_3 κ =	209	330	21	152	23	273	197
M_4 H =	0·007	0·024	0·136	0·220	0·124	0·055	0·020
M_4 κ =	314	14	107	178	322	17	41
M_6 H =	0·005	0·049	0·007	0·139	0·011	0·011	0·007
M_6 κ =	341	210	270	137	111	284	138
M_8 H =	0·003	0·005	0·011	0·002	0·004	0·002	0·008
M_8 κ =	43	267	96	199	351	109	146
O H =	0·653	0·647	0·693	0·720	0·650	0·497	0·340
O κ =	38	47	57	66	48	49	57
K_1 H =	1·299	1·281	1·414	1·611	1·393	1·004	0·704
K_1 κ =	36	46	53	66	45	45	52
K_2 H =	0·201	0·278	0·328	0·324	0·410	0·174	0·080
K_2 κ =	244	320	17	79	352	330	11
P H =	0·388	0·380	0·384	0·436	0·402	0·277	0·191
P κ =	33	46	50	71	42	42	53
J H =	0·103	0·079	0·107	0·175	0·089	0·068	0·044
J κ =	52	70	81	107	72	57	63

Table III.

1, *Aden.* 2, *Karachi.* 3, *Okha.* 4, *Kathiwadar.* 5, *Bombay.* 6, *Karwar.* 7, *Beypore.*

	1	2	3	4	5	6	7
Years.	1879–83.	1868–83.	1874–5.	1881–2.	1878–82.	1878–83.	1878–83.
No. of years observed ...	4	15	1	1	5	5	5
Q { H =	0·151	0·129	0·137	0·152	0·131	0·114	0·081
Q { κ =	42	52	59	68	52	59	66
L { H =	0·046	0·081	0·221	0·079	0·108	0·056	0·027
L { κ =	230	299	23	261	316	317	348
N { H =	0·427	0·600	0·781	0·755	1·003	0·410	0·197
N { κ =	225	277	322	34	314	282	305
λ { H =	0·026	0·042	0·073	0·043	0·032	0·020	0·011
λ { κ =	197	282	23	107	235	273	313
ν { H =	0·099	0·142	0·164	0·131	0·199	0·088	0·055
ν { κ =	226	277	8	15	315	294	311
μ { H =	0·075	0·061	0·203	0·286	0·206	0·044	0·019
μ { κ =	196	263	182	343	308	263	258
R { H =	0·005	0·030	......	......	0·042	0·008	0·023
R { κ =	30	276	......	......	283	145	132
T { H =	0·050	0·068	......	......	0·171	0·061	0·040
T { κ =	240	332	......	......	24	155	19
MS { H =	0·012	0·027	0·064	0·159	0·129	0·026	0·009
MS { κ =	159	307	111	215	24	67	77
2SM { H =	0·023	0·021	0·044	0·029	0·036	0·007	0·005
2SM { κ =	109	123	292	154	106	315	296
Mm { H =	0·042	0·060	0·066	0·052	0·056	0·065	0·091
Mm { κ =	354	95	311	8	26	27	32
Mf { H =	0·045	0·033	0·050	0·027	0·051	0·042	0·071
Mf { κ =	31	316	44	103	346	5	23
MSf { H =	0·014	0·036	0·141	0·040	0·031	0·022	0·038
MSf { κ =	341	266	250	153	228	164	216
Sa { H =	0·390	0·138	0·162	0·236	0·186	0·352	0·309
Sa { κ =	357	79	3	133	358	310	313
Ssa { H =	0·095	0·135	0·121	0·109	0·122	0·068	0·177
Ssa { κ =	126	142	145	156	228	228	205

Table III.

8, *Paumben.* 9, *Negapatam.* 10. *Madras.* 11. *Vizagapatam.* 12. *False Point.* 13. *Dublat.* 14. *Diamond Harbour.*

	8	9	10	11	12	13	14
Years.	1878–82.	1881–3.	1880–3.	1879–83.	1881–3.	1881–3.	1881–3.
No. of years observed ...	4	2	3	4	2	2	2
S_1 {H =	0·036	0·046	0·025	0·052	0·015	0·047	0·085
{κ =	148	108	92	68	6	110	152
S_2 {H =	0·372	0·274	0·441	0·656	1·018	2·108	2·252
{κ =	92	284	276	285	303	327	26
S_4 {H =	0·003	0·005	0·002	0·005	0·008	0·018	0·120
{κ =	261	151	161	47	329	211	326
S_6 {H =	0·004	0·000	0·001	0·001	0·003	0·004	0·013
{κ =	197	150	112	170	169	99	251
S_8 {H =	0·003	0·001	0·001	0·002	0·003	0·006	0·003
{κ =	224	227	162	79	240	113	353
M_1 {H =	0·011	0·005	0·008	0·012	0·009	0·008	0·020
{κ =	35	111	7	295	30	41	95
M_2 {H =	0·585	0·720	1·049	1·473	2·250	4·610	5·177
{κ =	47	252	248	253	270	290	344
M_3 {H =	0·016	0·003	0·004	0·006	0·014	0·046	0·035
{κ =	170	103	62	329	30	133	223
M_4 {H =	0·016	0·021	0·003	0·015	0·038	0·095	0·745
{κ =	194	77	146	331	230	144	246
M_6 {H =	0·011	0·012	0·010	0·005	0·010	0·014	0·152
{κ =	42	128	154	72	63	255	106
M_8 {H =	0·005	0·005	0·002	0·003	0·003	0·012	0·062
{κ =	314	303	46	209	246	294	345
O {H =	0·115	0·091	0·097	0·141	0·177	0·189	0·234
{κ =	45	322	325	331	335	334	345
K_1 {H =	0·294	0·225	0·293	0·359	0·408	0·493	0·496
{κ =	46	345	340	342	345	352	14
K_2 {H =	0·113	0·077	0·112	0·203	0·255	0·596	0·656
{κ =	90	286	280	277	297	318	23
P {H =	0·110	0·084	0·097	0·096	0·145	0·155	0·175
{κ =	46	346	344	339	344	343	9
J {H =	0·014	0·011	0·021	0·025	0·026	0·024	0·031
{κ =	48	328	318	337	312	324	320

Table III.

8, *Paumben.* 9, *Negapatam.* 10, *Madras.* 11, *Vizagapatam.* 12, *False Point.* 13, *Dublat.* 14, *Diamond Harbour.*

		8	9	10	11	12	13	14
Years.		1878–82.	1881–3.	1880–3.	1879–83.	1881–3.	1881–3.	1881–3.
No. of years observed ...		4	2	3	4	2	2	2
Q	H =	0·021	0·007	0·005	0·009	0·011	0·009	0·030
	κ =	89	181	111	325	324	333	9
L	H =	0·023	0·027	0·036	0·052	0·059	0·167	0·261
	κ =	58	279	307	254	254	291	351
N	H =	0·082	0·158	0·240	0·314	0·476	0·947	0·951
	κ =	31	244	242	246	267	286	339
λ	H =	0·016	0·015	0·029	0·022	0·063	0·219	0·115
	κ =	64	231	299	264	180	316	337
ν	H =	0·027	0·048	0·044	0·075	0·142	0·232	0·303
	κ =	30	217	271	199	244	251	289
μ	H =	0·009	0·021	0·041	0·027	0·075	0·165	0·303
	κ =	105	122	178	259	273	15	85
R	H =	0·016	0·031	0·016	0·027	0·034	0·219	0·216
	κ =	114	349	103	188	217	289	10
T	H =	0·025	0·050	0·056	0·051	0·017	0·137	0·078
	κ =	92	255	257	263	149	299	55
MS	H =	0·018	0·018	0·003	0·012	0·041	0·077	0·695
	κ =	292	96	170	5	274	155	285
2SM	H =	0·010	0·007	0·022	0·012	0·017	0·072	0·074
	κ =	333	188	209	225	187	211	271
Mn	H =	0·048	0·057	0·047	0·055	0·063	0·040	0·102
	κ =	27	328	80	54	55	77	1
Mf	H =	0·043	0·039	0·045	0·042	0·067	0·048	0·150
	κ =	355	7	6	2	35	66	39
MSf	H =	0·016	0·091	0·019	0·046	0·050	0·063	0·451
	κ =	141	7	58	23	356	356	33
Sa	H =	0·149	0·533	0·385	0·714	0·793	0·900	1·100
	κ =	302	232	212	182	166	150	143
Ssa	H =	0·157	0·358	0·305	0·332	0·287	0·208	0·066
	κ =	108	130	128	114	146	136	71

Table III.

15, *Kidderpore.* 16, *Elephant Point.* 17, *Rangoon.* 18, *Amherst.* 19, *Moulmein.* 20, *Port Blair.* 21, *Fort Point.*

	15	16	17	18	19	20	21
Years.	1881–3.	1880–1.	1880–3.	1880–3.	1880–3.	1880–3.	1858–61.
No. of years observed ...	2	1	3	3	3	3	3
S_1 { H =	0·091	0·113	0·113	0·222	0·096	0·021	0·015
S_1 { κ =	193	79	133	141	149	38	212
S_2 { H =	1·468	2·337	2·012	2·769	1·362	0·968	0·390
S_2 { κ =	101	143	170	105	148	315	336
S_4 { H =	0·075	0·037	0·081	0·106	0·067	0·003	
S_4 { κ =	119	162	259	122	229	84	
S_6 { H =	0·005	0·021	0·010	0·012	0·005	0·002	
S_6 { κ =	299	94	48	187	183	131	
S_8 { H =	0·008	0·008	0·005	0·008	0·002	0·002	
S_8 { κ =	311	60	120	276	211	80	
M_1 { H =	0·013	0·019	0·033	0·032	0·018	0·010	0·038
M_1 { κ =	157	88	183	255	138	291	170
M_2 { H =	3·627	5·870	5·545	6·233	3·779	2·022	1·689
M_2 { κ =	58	103	131	69	113	278	332
M_3 { H =	0·015	0·025	0·021	0·019	0·025	0·007	
M_3 { κ =	331	146	178	261	209	16	
M_4 { H =	0·727	0·079	0·410	0·350	0·901	0·008	0·071
M_4 { κ =	37	46	169	51	171	151	24
M_6 { H =	0·159	0·205	0·233	0·118	0·102	0·002	
M_6 { κ =	319	349	87	252	200	317	
M_8 { H =	0·078	0·031	0·081	0·014	0·038	0·002	
M_8 { κ =	270	322	97	249	133	70	
O { H =	0·220	0·349	0·294	0·317	0·253	0·160	0·780
O { κ =	21	356	28	339	48	302	87
K_1 { H =	0·389	0·807	0·670	0·699	0·438	0·397	1·219
K_1 { κ =	56	18	35	5	40	327	107
K_2 { H =	0·435	0·401	0·570	1·104	0·336	0·282	0·135
K_2 { κ =	96	91	169	90	155	311	330
P { H =	0·144	0·199	0·149	0·177	0·134	0·134	0·373
P { κ =	47	33	55	337	60	326	105
J { H =	0·014	0·110	0·030	0·074	0·022	0·027	0·053
J { κ =	327	61	33	34	107	325	121

Table III.

15, *Kidderpore.* 16, *Elephant Point.* 17, *Rangoon.* 18, *Amherst.* 19, *Moulmein.* 20, *Port Blair,* 21, *Fort Point.*

	15	16	17	18	19	20	21
Years.	1881–3.	1880–1.	1880-3.	1880–3.	1880–3.	1880–3.	1858–61.
No. of years observed ...	2	1	3	3	3	3	3
Q { H =	0·039	0·042	0·027	0·054	0·045	0·024	0·121
Q { κ =	9	336	31	322	53	237	74
L { H =	0·187	0·346	0·407	0·292	0·279	0·068	0·059
L { κ =	74	109	157	112	139	272	338
N { H =	0·638	1·543	0·990	1·322	0·679	0·399	0·374
N { κ =	47	80	117	54	102	274	305
λ { H =	0·101	0·659	0·257	0·300	0·176	0·043	0·026
λ { κ =	107	145	170	119	165	280	345
ν { H =	0·238	0·681	0·317	0·425	0·233	0·121	0·064
ν { κ =	353	209	100	177	84	254	305
μ { H =	0·242	0·356	0·514	0·303	0·313	0·086	0·029
μ { κ =	182	279	290	301	270	292	227
R { H =	0·167	......	0·117	0·451	0·097	0·020	0·008
R { κ =	77	......	66	252	70	326	63
T { H =	0·147	......	0·290	0·841	0·200	0·099	0·014
T { κ =	107	......	128	144	110	313	198
MS { H =	0·645	0·135	0·386	0·347	0·712	0·009	0·031
MS { κ =	81	67	210	82	211	215	21
2SM { H =	0·085	0·042	0·160	0·151	0·124	0·023	
2SM { κ =	2	84	54	10	38	154	
Mm { H =	0·244	0·145	0·236	0·095	0·360	0·014	
Mm { κ =	351	6	23	48	14	20	
Mf { H =	0·297	0·098	0·208	0·097	0·334	0·057	
Mf { κ =	38	310	34	350	41	9	
MSf { H =	0·875	0·059	0·554	0·055	1·110	0·015	
MSf { κ =	39	273	49	71	46	61	
Sa { H =	2·740	0·930	1·486	0·726	2·434	0·204	
Sa { κ =	157	146	150	140	149	150	
Ssa { H =	0·822	0·261	0·126	0·156	0·603	0·117	
Ssa { κ =	269	198	328	235	287	177	

Table III.

22, *San Diego.* 23, *Port Leopold.* 24, *Beechey Island.* 25, *Cat Island, Gulf of Mexico.* 26, *Toulon.* 27, *Brest.* 28, *Ramsgate (referred to G.M.T.).*

	22	23	24	25	26	27	28
Years.	1860–1.	1848–9.	1858–9.	1848.	1853.	1875.	1864.
No. of years observed ...	2	1	1	1	1	1	1
S_1 H =	0·028	0·031	......	0·044	0·010	0·015	0·037
S_1 κ =	238	27	......	10	186	52	313
S_2 H =	0·695	0·643	0·686	0·068	0·090	2·551	1·877
S_2 κ =	274	29	34	24	250	138	33
S_4 H =	0·006	0·007	......	......	0·002	......	0·032
S_4 κ =	204	257	......	......	298	......	4
S_6 H =	......	......	......	......	......	......	0·027
S_6 κ =	......	......	......	......	......	......	27
S_8 H =							
S_8 κ =							
M_1 H =	0·049	0·045	......	0·007	0·010	0·004	
M_1 κ =	106	230	......	26	319	167	
M_2 H =	1·715	2·001	1·996	0·116	0·190	6·766	6·144
M_2 κ =	276	338	347	11	252	100	341
M_3 H =	0·007	......	......	......	0·004	0·067	0·043
M_3 κ =	19	......	......	......	9	2	56
M_4 H =	0·028	0·015	0·024	......	0·011	0·169	0·548
M_4 κ =	203	202	268	......	349	85	243
M_6 H =	0·012	......	......	......	0·002	0·106	0·164
M_6 κ =	84	......	......	......	152	325	127
M_8 H =	......	......	......	......	0·001	0·008	0·054
M_8 κ =	......	......	......	......	146	203	54
O H =	0·696	0·443	0·488	0·479	0·059	0·211	0·342
O κ =	78	164	162	315	302	322	180
K_1 H =	1·096	0·899	0·901	0·525	0·116	0·208	0·223
K_1 κ =	94	216	243	325	3	66	18
K_2 H =	0·207	0·175	0·151	0·028	0·024	0·553	0·520
K_2 κ =	263	29	54	288	254	144	24
P H =	0·357	0·216	0·215	0·156	0·041	0·071	0·073
P κ =	90	218	222	321	0	59	353
J H =	0·084	......	......	0·035	0·008		
J κ =	99	......	......	297	15		

Table III.

22, *San Diego.* 23, *Port Leopold.* 24, *Beechey Island.* 25, *Cat Island, Gulf of Mexico.* 26, *Toulon.* 27, *Brest.* 28, *Ramsgate (referred to G.M.T.).*

	22	23	24	25	26	27	28
Years.	1860–1.	1848–9.	1858–9.	1848.	1853.	1875.	1864.
No. of years observed ...	2	1	1	1	1	1	1
Q { H =	0·145	......	......	0·091	0·006		
Q { κ =	75	......	......	307	242		
L { H =	0·019	0·044	0·080	0·012	0·007	0·192	0·447
L { κ =	344	3	47	33	224	101	16
N { H =	0·428	0·420	0·429	0·026	0·046	1·375	1·084
N { κ =	260	306	315	33	240	83	312
λ { H =	0·059	......	......	......	0·003	0·059	0·174
λ { κ =	224	......	......	......	10	59	351
ν { H =	0·102	......	......	......	0·008	0·293	0·344
ν { κ =	247	......	......	......	219	45	330
μ { H =	0·027	......	......	......	0·007	0·307	0·251
μ { κ =	240	......	......	......	219	92	87
R { H =	0·010						
R { κ =	153						
T { H =	0·041						
T { κ =	319						
MS { H =	0·009	......	......	......	......	......	0·324
MS { κ =	189	......	......	......	......	......	127
2SM { H =	......	......	......	......	......	......	0·141
2SM { κ =	......	......	......	......	......	......	262
Mm { H =	......	......	......	0·094	0·061	0·038	0·029
Mm { κ =	......	......	......	304	228	328	45
Mf { H =	......	......	......	0·069	0·045	0·069	0·044
Mf { κ =	......	......	......	134	118	76	288
MSf { H =	......	......	......	0·095	0·018	0·290	0·094
MSf { κ =	......	......	......	336	53	52	206
Sa { H =	......	......	......	0·274	0·157	0·261	0·127
Sa { κ =	......	......	......	145	279	234	181
Ssa { H =	......	......	......	0·128	0·090	0·071	0·075
Ssa { κ =	......	......	......	35	144	93	288

Table III.

29, *West Hartlepool.* 30, *Portland Breakwater.* 31, *Liverpool.* 32, *Liverpool.* 33, *Helbre Island.* 34, *Freemantle, West Australia.* 35, *Mauritius, Port Louis.*

N.B.—English ports referred to G.M.T.

	29	30	31	32	33	34	35
Years.	1858–61.	1851, 57, 66, & 70.	1857–60.	1866–70.	1858–67.	1873–4.	1838–9.
No. of years observed ...	3	4	3	4	10	1	1
S_1 H =	0·033	0·037	0·066	0·038	......	0·039	0·013
S_1 κ =	152	89	62	83	......	60	32
S_2 H =	1·738	1·074	3·240	3·101	3·128	0·145	0·331
S_2 κ =	139	244	11	12	3	292	26
S_4 H =	0·022	0·012	0·056	0·058	0·030	0·004	0·003
S_4 κ =	179	186	316	313	312	72	116
S_6 H =	......	......	......	......	......	......	0·002
S_6 κ =	......	......	......	......	......	......	235
S_8 H =	......	......	......	......	......	......	0·001
S_8 κ =	......	......	......	......	......	......	114
M_1 H =	0·026	0·015	0·020	0·039	0·033	0·025	0·004
M_1 κ =	104	292	258	336	262	261	100
M_2 H =	5·163	2·048	10·100	9·881	9·758	0·159	0·433
M_2 κ =	98	194	326	327	319	286	23
M_3 H =	0·036	0·036	0·124	0·097	0·104	0·008	0·016
M_3 κ =	118	180	324	324	293	217	167
M_4 H =	0·095	0·468	0·702	0·683	0·479	0·010	0·004
M_4 κ =	109	32	222	223	213	260	296
M_6 H =	0·074	0·207	0·211	0·184	0·070	0·007	0·005
M_6 κ =	50	70	348	350	34	277	94
M_8 H =	......	0·012	0·077	0·061	0·010	0·005	0·001
M_8 κ =	......	49	271	285	352	259	168
O H =	0·434	0·163	0·377	0·366	0·370	0·372	0·140
O κ =	85	353	43	40	41	291	98
K_1 H =	0·380	0·295	0·358	0·353	0·391	0·638	0·244
K_1 κ =	248	114	194	195	188	300	121
K_2 H =	0·488	0·301	0·939	0·934	0·890	0·057	0·138
K_2 κ =	135	237	7	7	358	288	23
P H =	0·112	0·108	0·130	0·126	0·146	0·156	0·056
P κ =	232	108	192	180	174	297	132
J H =	0·028	......	......	......	0·026	0·029	0·009
J κ =	224	......	......	......	122	310	118

Table III.

29, *West Hartlepool.* 30, *Portland Breakwater.* 31, *Liverpool.* 32, *Liverpool.* 33, *Helbre Island.* 34, *Freemantle, West Australia.* 35, *Mauritius, Port Louis.*

N.B.—English ports referred to G.M.T.

	29	30	31	32	33	34	35
Years.	1858–61.	1851, 57, 66, & 70.	1857–60.	1866–70.	1858–67.	1873–4.	1838–9.
No. of years observed ...	3	4	3	4	10	1	1
Q { H =	0·148	......	......	......	0·113	0·099	0·024
Q { κ =	32	......	......	......	345	290	78
L { H =	0·200	0·171	0·540	0·521	0·428	0·021	0·033
L { κ =	114	111	345	328	331	244	4
N { H =	0·988	0·477	1·923	1·888	1·857	0·041	0·137
N { κ =	73	185	306	305	295	340	32
λ { H =	0·095	0·083	0·259	0·204	0·194	0·006	0·018
λ { κ =	116	117	337	336	334	356	298
ν { H =	0·270	0·115	0·570	0·498	0·438	0·012	0·008
ν { κ =	88	140	285	297	278	232	257
μ { H =	0·085	0·374	0·291	0·228	0·083	0·016	0·019
μ { κ =	6	196	38	41	34	324	317
R { H =	0·008	......	0·092	......	0·050		
R { κ =	158	......	46	......	359		
T { H =	0·140	......	0·235	......	0·254		
T { κ =	200	......	333	......	327		
MS { H =	0·044	0·267	0·404	0·407	0·280		
MS { κ =	126	90	270	270	267		
2SM { H =	0·026	0·059	0·152	0·125	0·119		
2SM { κ =	310	353	216	227	221		
Mm { H =	0·127	......	0·147	0·064	......	0·079	0·047
Mm { κ =	93	......	165	260	......	147	297
Mf { H =	0·046	......	0·036	0·057	......	0·082	0·036
Mf { κ =	205	......	141	344	......	25	350
MSf { H =	0·137	......	0·058	0·051	......	0·032	0·015
MSf { κ =	59	......	246	68	......	178	91
Sa { H =	0·265	......	0·332	0·452	......	0·537	0·211
Sa { κ =	219	......	227	272	......	27	346
Ssa { H =	0·097	......	0·128	0·185	......	0·175	0·118
Ssa { κ =	223	......	175	229	......	126	118

Table III.

36, *Falkland Islands, Port Louis.* 37, *Malta.* 38, *Marseilles.* 39, *Toulon.*

	36	37	38	39
Years.	1842–3.	1871–2.	1850–1.	Mean of 1847, 48, 53.
No. of years observed ...	1	1	1	
S_1 H =	0·289	0·009	0·019	0·011
κ =	25	162	48	20
S_2 H =	0·492	0·120	0·078	0·091
κ =	195	100	247	250
S_4 H =	0·007	0·001	0·003	0·002
κ =	64	37	277	288
S_6 H =				
κ =				
S_8 H =				
κ =				
M_1 H =	0·024	0·005	0·003	0·005
κ =	79	69	124	168
M_2 H =	1·544	0·197	0·220	0·195
κ =	157	93	228	246
M_3 H =	0·018	0·002	0·005	0·004
κ =	83	204	185	174
M_4 H =	0·068	0·003	0·019	0·014
κ =	357	350	0	352
M_6 H =	0·012	0·001	....	0·001
κ =	76	26	....	145
M_8 H =	0·010	0·003	....	0 002
κ =	193	127	....	60
O H =	0·451	0·024	0·069	0·060
κ =	4	83	106	120
K_1 H =	0·358	0·035	0·104	0·105
κ =	37	43	181	186
K_2 H =	0·170	0·033	0·016	0·019
κ =	206	110	254	254
P H =	0·141	0·011	0·040	0·041
κ =	87	58	182	178
J H =	....	0·001	0·008	0·005
κ =	....	59	198	176

Table III.

36, *Falkland Islands, Port Louis.* 37, *Malta.* 38, *Marseilles.* 39, *Toulon.*

	36	37	38	39
Years.	1842–3.	1871–2.	1850–1.	Mean of 1847, 48, 53.
No. of years observed ...	1	1	3	
Q { H =	....	0·006	0·012	0·010
Q { κ =	....	69	28	44
L { H =	0·095	0·016	0·006	0·009
L { κ =	135	110	280	255
N { H =	0·335	0·031	0·043	0·049
N { κ =	130	114	221	226
λ { H =	....	0·007	0·004	0·010
λ { κ =	....	72	190	308
ν { H =	....	0·003	0·003	0·011
ν { κ =	....	198	308	158
μ { H =	....	0·003	0·004	0·009
μ { κ =	....	73	187	193
R { H =				
R { κ =				
T { H =				
T { κ =				
MS { H =				
MS { κ =				
2SM { H =				
2SM { κ =				
Mm { H =	....	....	0·010	0·057
Mm { κ =	....	....	293	196
Mf { H =	....	....	0·019	0·061
Mf { κ =	....	....	229	159
MSf { H =	....	....	0·008	0·029
MSf { κ =	....	....	41	323
Sa { H =	....	....	0·151	0·123
Sa { κ =	....	....	185	254
Ssa { H =	....	....	0·170	0·108
Ssa { κ =	....	....	118	114

Table IV.

Penobscot Bay.

Year		1870.	1871.	1872.	1873.	1874.	1875.	Mean.
S_1	H =	0·068	0·015	0·022	0·020	0·020	0·002	0·024 ± 0·004
	κ =	129	78	67	123	73	25	65·9 ± 10·8
S_2	K =	0·825	0·735	0·776	0·797	0·746	0·747	0·771 ± 0·007
	κ =	350	356	357	354	354	358	354·7 ± 9·8
S_4	H =	0·008	0·004	0·003	0·006	0·005	0·004	
	κ =	113	73	346	222	350	29	
S_6	H =							
	κ =							
S_8	H =							
	κ =							
M_1	H =	Not reduced according to same rules as the rest of our results and omitted.						
	κ =							
M_2	H =	4·878	4·849	4·910	4·911	4·884	4·937	4·895 ± 0·008
	κ =	320	319	320	320	320	320	319·82 ± 0·10
M_3	H =	0·012	0·002	0·009	0·012	0·006	0·002	
	κ =	263	135	161	123	279	229	
M_4	H =	0·039	0·021	0·019	0·028	0·020	0·022	
	κ =	160	154	173	115	127	121	
M_6	H =	0·118	0·115	0·121	0·125	0·122	0·119	
	κ =	61	60	65	61	60	58	
M_8	H =	0·017	0·014	0·009	0·018	0·014	0·016	
	κ =	336	314	354	336	326	320	
O	H =	0·363	0·351	0·364	0·353	0·354	0·366	0·359 ± 0·002
	κ =	113	109	114	109	112	110	111·1 ± 0·55
K_1	H =	0·455	0·459	0·452	0·452	0·459	0·440	0·453 ± 0·002
	κ =	129	130	132	129	129	129	129·6 ± 0·35
K_2	H =	0·256	0·229	0·226	0·195	0·235	0·238	0·230 ± 0·006
	κ =	5	351	359	2	4	352	358·8 ± 1·7
P	H =	0·152	0·151	0·148	0·152	0·155	0·160	0·153 ± 0·001
	κ =	127	133	137	132	124	131	130·5 ± 1·2
J	H =	0·025	0·014	0·026	0·031	0·019	0·009	0·020
	κ =	341	266	320	315	323	292	315

Table IV.

Penobscot Bay.

Year ……	1870.	1871.	1872.	1873.	1874.	1875.	Mean.
Q { H =	0·060	0·058	0·073	0·058	0·077	0·073	0·066 ± 0·002
Q { κ =	245	271	259	246	272	284	262·8 ± 3·7
L { H =	0·336	0·172	0·195	0·285	0·223	0·209	0·237 ± 0·017
L { κ =	190	187	156	193	219	209	192·1 ± 6·4
N { H =	1·046	1·136	0·986	0·929	0·991	1·027	1·019 ± 0·019
N { κ =	295	291	287	289	291	289	290·3 ± 0·8
λ { H =	0·083	0·132	0·043	0·120	0·156	0·177	0·064
λ { κ =	162	256	146	256	125	234	196
ν { H =	0·162	0·335	0·093	0·320	0·215	0·289	0·274
ν { κ =	301	317	306	317	263	323	308
μ { H =	0·043	0·034	0·015	0·031	0·048	0·035	0·032
μ { κ =	237	194	176	241	219	202	216
R { H =	0·068	0·026	0·055	0·050	0·035	0·062	
R { κ =	227	26	92	352	182	8	
T { H =	0·189	0·104	0·190	0·233	0·156	0·087	0·022
T { κ =	239	139	50	331	243	123	288
MS { H =	0·036	0·016	0·025	0·010	0·028	0·010	
MS { κ =	308	210	21	299	311	75	
2SM { H =	0·039	0·014	0·021	0·025	0·055	0·025	
2SM { κ =	297	135	318	270	327	41	
Mm { H =	0·082	0·069	0·024	0·074	0·057	0·014	
Mm { κ =	96	35	34	296	279	110	
Mf { H =	0·012	0·037	0·048	0·047	0·073	0·040	
Mf { κ =	1	208	11	212	4	95	
MSf { H =	0·190	0·157	0·163	0·229	0·180	0·123	0·174 ± 0·010
MSf { κ =	161	151	152	161	159	159	157 ± 1·2
Sa { H =	0·080	0·176	….	0·120	0·177	0·262	κ is computed on hypothesis that these are astronomical tides.
Sa { κ =	120	162	….	167	188	226	
Ssa { H =	0·090	0·093	….	0·097	0·026	0·152	
Ssa { κ =	48	57	….	111	146	74	

Table IV.

Port Townsend. *Astoria, Oregon.*

Commence, January, 1874.

Year	1874.	1875.	1876.	Mean.	1874.	1875.	1876.	Mean.
S_1 H =	0·086	0·072	0·102	0·087	0·051	0·053	......	0·052
S_1 κ =	113	121	114	116·2	112	117	......	115
S_2 H =	0·557	0·558	0·542	0·552	0·778	0·774	0·811	0·788
S_2 κ =	130	129	129	129·5	39	38	41	40
S_4 H =	0·007	0·011	0·013	0·010	0·012	0·009	0·007	0·009
S_4 κ =	349	316	316	327	344	341	348	344
S_6 H =								
S_6 κ =								
S_8 H =								
S_8 κ =								
M_1 H =								
M_1 κ =								
M_2 H =	2·202	2·311	2·218	2·244	2·963	2·942	2·905	2·937
M_2 κ =	109	108	108	108·5	12	12	11	11·7
M_3 H =	0·021	0·015	0·022	0·019	0·021	0·013	0·029	0·021
M_3 κ =	41	343	298	347	107	63	34	68
M_4 H =	0·128	0·113	0·125	0·122	0·093	0·095	0·116	0·101
M_4 κ =	297	299	295	297	321	329	329	326
M_6 H =	0·032	0·027	0·028	0·029	0·033	0·026	0·033	0·031
M_6 κ =	240	255	236	244	121	115	111	116
M_8 H =								
M_8 κ =								
O H =	1·407	1·397	1·430	1·411	0·773	0·752	......	0·762
O κ =	132	131	130	131	119	118	......	118
K_1 H =	2·475	2·470	2·465	2·470	1·290	1·288	......	1·289
K_1 κ =	149	148	148	149	129	129	......	129
K_2 H =	0·171	0·145	0·167	0·161	0·233	0·214	......	0·224
K_2 κ =	128	132	137	132	24	27	......	26
P H =	0·776	0·751	0·787	0·771	0·374	0·347	......	0·360
P κ =	145	147	147	147	96	96	......	96
J H =	0·162	0·050	0·149		0·067	0·009		
J κ =	36	345	167		172	142		

Table IV.

Port Townsend. *Astoria, Oregon.*

Commence, January, 1874.

Year	Port Townsend 1874.	1875.	1876.	Mean.	Astoria, Oregon 1874.	1875.	1876.	Mean.
Q { H =	0·297	0·315	0·295	0·302	0·175	0·156	......	0·166
Q { κ =	119	124	124	122	109	120	......	115
L { H =	0·085	0·107	0·080	0·091	0·117	0·119	0·109	0·112
L { κ =	347	355	320	341	198	215	198	204
N { H =	0·461	0·466	0·440	0·456	0·574	0·556	0·543	0·559
N { κ =	82	81	79	80	352	351	345	349
λ { H =	0·045	0·031	0·019	0·031	0·073	0·032	0·035	0·047
λ { κ =	6	29	332	2	192	200	150	181
ν { H =	0·156	0·089	0·029	0·091	0·202	0·127	0·129	0·153
ν { κ =	76	46	137	86	342	12	53	16
μ { H =	0·078	0·098	0·059	0·078	0·016	0·030	0·040	0·029
μ { κ =	352	7	356	358	130	142	108	127
R { H =	0·010	0·008	0·020	0·013	0·016	0·002	0·126	
R { κ =	352	214	241	269	259	320	148	
T { H =	0·071	0·050	0·108		0·083	0·067	0·058	
T { κ =	38	239	175		307	137	169	
MS { H =	0·062	0·072	0·058	0·064	0·055	0·049	0·053	0·052
MS { κ =	319	310	318	316	341	344	4	350
2SM { H =	0·011	0·017	0·018	0·016	0·018	0·021	0·030	0·023
2SM { κ =	62	42	41	49	220	259	246	242
Mm { H =								
Mm { κ =								
Mf { H =								
Mf { κ =								
MSf { H =								
MSf { κ =								
Sa { H =								
Sa { κ =								
Ssa { H =								
Ssa { κ =								

Table IV.

San Diego. — Commence 0 h., January 1, 1869.

St. Thomas. — Commence October 4, 1872.

Year	1869.	1870.	1871.	Mean.	1872–3.	1873–4.	1874–5.	Mean.
S_1 H =	0·024	0·024	0·023	0·024	0·007	0·017	0·008	0·011
S_1 κ =	54	51	12	39	233	249	251	244
S_2 H =	0·701	0·697	0·716	0·704	0·030	0·032	0·031	0·031
S_2 κ =	274	274	275	275	245	243	242	243
S_4 H =	0·006	0·005	0·006	0·006				
S_4 κ =	221	169	204	207				
S_6 H =								
S_6 κ =								
S_8 H =								
S_8 κ =								
M_1 H =								
M_1 κ =								
M_2 H =	1·710	1·703	1·697	1·703	0·131	0·121	0·119	0·124
M_2 κ =	279	279	280	279	208	208	207	208
M_3 H =	0·008	0·012	0·005	0·008				
M_3 κ =	32	67	48	49				
M_4 H =	0·025	0·026	0·030	0·027				
M_4 κ =	200	193	194	196				
M_6 H =	0·010	0·011	0·009	0·010				
M_6 κ =	150	118	110	126				
M_8 H =								
M_8 κ =								
O H =	0·697	0·698	0·714	0·703	0·237	0·240	0·253	0·243
O κ =	71	71	72	71	149	153	156	153
K_1 H =	1·010	1·010	1·010	1·010	0·290	0·296	0·300	0·295
K_1 κ =	96	96	96	96	173	170	170	171
K_2 H =	0·207	0·202	0·194	0·201				
K_2 κ =	268	265	266	266				
P H =	0·358	0·349	0·339	0·349	0·082	0·080	0·073	0·078
P κ =	93	92	95	93	190	167	170	176
J H =								
J κ =								

Table IV.

San Diego. Commence 0 h., January 1, 1869.

St. Thomas. Commence October 4, 1872.

Year	1869.	1870.	1871.	Mean.	1872–3.	1873–4.	1874–5.	Mean.
Q { H =								
κ =								
L { H =	0·065	0·028	0·032	0·042				
κ =	62	29	117	69				
N { H =	0·423	0·412	0·401	0·412				
κ =	262	263	264	263				
λ { H =								
κ =								
ν { H =								
κ =								
μ { H =	0·024	0·037	0·017	0·026				
κ =	256	244	258	253				
R { H =								
κ =								
T { H =								
κ =								
MS { H =								
κ =								
2SM { H =								
κ =								
Mm { H =								
κ =								
Mf { H =								
κ =								
MSf { H =								
κ =								
					Me	teorologi	cal	
Sa { H =	......	......	......	......	......	0·007	0·037	
κ =	......	......	......	......	......	355	222	
Ssa { H =	......	......	......	......	......	0·049	0·061	
κ =	......	......	......	......	......	98	207	

Table IV.

Sandy Hook.

Year ……		1876.	1877.	1878.	1879.	1880.	1881.	Mean.
S_1	H =	0·026	0·028	0·028	0·025	0·036	0·049	0·032
	κ =	225	222	254	216	255	237	235
S_2	H =	0·439	0·432	0·436	0·445	0·416	0·435	0·434
	κ =	246	245	248	245	242	249	246
S_4	H =	0·036	0·047	0·033	0·033	0·037	0·041	0·038
	κ =	65	64	83	81	68	52	69
S_6	H =							
	κ =							
S_8	H =							
	κ =							
M_1	H =							
	κ =							
M_2	H =	2·238	2·230	2·272	2·244	2·229	2·250	2·246
	κ =	217	218	218	218	215	216	217
M_3	H =	0·025	0·022	0·021	0·035	0·029	0·030	0·027
	κ =	191	196	202	192	222	206	202
M_4	H =	0·020	0·016	0·017	0·020	0·024	0·027	0·021
	κ =	349	339	336	321	335	329	335
M_6	H =	0·049	0·048	0·053	0·046	0·057	0·059	0·052
	κ =	352	355	351	344	344	342	348
M_8	H =							
	κ =							
O	H =	0·178	0·167	0·163	0·157	0·177	0·176	0·170
	κ =	94	95	99	101	90	100	97
K_1	H =	0·322	0·330	0·340	0·337	0·333	0·342	0·334
	κ =	91	91	90	91	88	90	90
K_2	H =	0·129	0·126	0·113	0·114	0·130	0·160	0·129
	κ =	45	34	30	40	35	40	37
P	H =	0·103	0·123	0·091	0·100	0·102	0·100	0·103
	κ =	97	102	103	107	106	108	104
J	H =	0·013	0·024	0·014	0·014	0·009	0·025	0·016
	κ =	86	125	145	111	107	134	118

Table IV.

Sandy Hook.

Year		1876.	1877.	1878.	1879.	1880.	1881.	Mean.
Q	H =	0·039	0·039	0·029	0·033	0·033	0·037	0·035
	κ =	118	131	107	133	98	134	120
L	H =	0·103	0·110	0·108	0·084	0·075	0·072	0·092
	κ =	52	47	30	35	0	21	31
N	H =	0·470	0·507	0·532	0·500	0·457	0·475	0·490
	κ =	198	196	199	202	199	199	199
λ	H =	0·012	0·039	0·030	0·029	0·042	0·062	0·036
	κ =	15	26	26	69	60	13	35
ν	H =	0·045	0·124	0·167	0·153	0·065	0·077	0·105
	κ =	178	238	198	170	149	253	198
μ	H =	0·072	0·063	0·094	0·061	0·083	0·039	0·069
	κ =	221	216	235	207	249	236	227
R	H =	0·020	0·030	0·010	0·011	0·073	0·037	0·030
	κ =	324	241	19	16	318	9	334
T	H =	0·098	0·105	0·046	0·075	0·111	0·058	
	κ =	116	34	306	155	94	23	
MS	H =	0·045	0·037	0·050	0·039	0·041	0·040	0·042
	κ =	116	122	107	116	104	114	113
2SM	H =	0·018	0·014	0·007	0·021	0·010	0·005	
	κ =	138	158	66	237	338	323	
Mm	H =							
	κ =							
Mf	H =							
	κ =							
MSf	H =	0·030	0·014	0·010	0·042	0·011	0·014	
	κ =	41	171	332	224	230	23	
Sa	H =	0·083	0·066	0·066	0·072	0·060	0·058	0·068
	κ =	224	225	164	203	236	198	208
Ssa	H =							
	κ =							