GOVERNMENT NOTIFICATION.—No. 119.

The following Report of the Director of the Observatory for the year 1900 is published.

By Command,

J. H. STEWART LOCKHART,
Colonial Secretary.

Colonial Secretary's Office, Hongkong, 2nd March, 1901.

HONGKONG OBSERVATORY,
25*th January*, 1901.

SIR,—I have the honour to submit my annual report for 1900 to His Excellency the Governor. My sixteenth volume of observations was published last autumn, and the seventeenth volume is now being printed. It contains the usual astronomical, meteorological, and magnetic observations. During my absence on leave last year, Mr. F. G. FIGG acted for me, and I found everything in good order on my return.

2. The comparison of weather-forecasts, issued daily about 11 a.m., with the weather subsequently experienced has been conducted on the same system as heretofore (Comp. Annual Report for 1896 § 5). We have:

Success 60 %, partial success 33 %, partial failure 6 %, total failure 1 %.

Following the method used in meteorological offices and taking the sum of total and partial success as a measure of success, and the sum of total and partial failure as a measure of failure, we find finally that:—

93 % of the weather forecasts were successful.

3. The China Coast Meteorological Register was printed every morning at the Observatory, and information regarding storms was telegraphed and exhibited on notice boards as often and as fully as such information could be justified by the weather telegrams received. This happened on 96 days in 1900. The Red Drum was hoisted twice, the Black Drum twice, the Red South Cone once, the Black South Cone 4 times, the Red North Cone 0 times, the Black North Cone once, the Red Ball 0 times, the Black Ball twice. Orders to fire the Typhoon Gun were issued 3 times. Printed bulletins were circulated on 3 occasions.

4. Telegraphic connection with Victoria was interrupted from 2.7 p. on the 28th to 7 a. on the 29th April, 1900; on the 13th June, from 4 p. to 5 p.; on the 7th July, from 10.20 a. to 11.15 a., and from 11.50 a. to 12.20 p.; from 12.30 p. to 8.20 a. on the 8th; from 1 p. on the 8th to 1 p. on the 9th; from 1.15 p. on the 9th to 7.50 a. on the 10th; on the 24th from 7.10 a. to noon; on the 23rd August from 11.8 a. to 4.20 p.; from 6.15 p. on the 8th September to 10.56 a. on the 9th; on the 9th from 11.3 a. to 5.20 p.; on the 3rd October from 11.56 a. to 2.25 p.; on the 4th from 9.50 a. to 3.20 p.; from 4.10 p. on the 7th November to 1.30 p. on the 14th; from 1.33 p. on the 14th to 10.30 a. on the 15th; from 9.15 a. on the 7th December to 10.25 a. on the 8th. Interruptions occurred therefore on 24 days, and of course, also during thunderstorms. Telephone connection with the Peak was interrupted from 3 p. on the 29th to 7 a. on the 30th July, 1900; from 4 p. on the 8th to 3.55 p. on the 9th August; on the 1st September from 11 a. to 2.30 p.; from 7 a. on the 10th to 7 a. on the 14th November; from 6 p. on the 15th to 7 a. on the 17th; from 7 a. on the 22nd to 7 a. on the 26th, *i.e.* on 18 days as well as during thunderstorms.

5. During 1900 in addition to meteorological registers kept at about 40 stations on shore, 2405 shiplogs have been copied on board or forwarded by the captains. The total number of vessels, whose log-books have been made use of, was 326. The total number of days' observations (counting separately those made on board different ships on the same day) was 19248.

6. The following is a list of ships, from which logs have been obtained in 1900. The majority are steamships, and the others are distinguished as follows:—bk., barque; sh., ship; bqt., barquentine:—Abergeldie, Aglaia, Airlie, Alcinous, Alesia, Alexander, Algoa, Amara, Ambria, Anping Maru, Antenor, Argyle, Ariake Maru, Arratoon Apcar, Ashmore, Astoria, Asturia, Atagosan Maru, Athesia, Australian, Awa Maru, Ayr, Ballaarat, Bamberg, Banca, Belgian King, Bellerophon, Benclutha, Bengal, Bengloe, Benlaig, Benlawers, Benledi, Bisagno, Bittern (bqt.), Bombay, Bonaventure (H.M.S.), Bormida, Brand, Brandenburg (S.M.S.), Breconshire, Broadmayne, Brooklyn (U.S.S.), Buffalo (U.S.S.), Calchas, Candia, Canton (P.O.S.N.Co. and I.-C.S.N.Co.), Carlisle City, Carlo Alberto (Italian man-of-war), Caermarthenshire, Cathay, Catherine Apcar, Centurion (H.M.S.), Changsha, Chasseloup Laubat (French man-of-war), Chelydra, Chihli, China (P.M.S.Co. and Austr. steamer), Chingwo, Chiyuen, Chowfa, Chowtai, Choysang, Chunsang, Chusan, City of Cambridge, City of

Dublin, City of London, City of Peking, City of Rio de Janeiro, Clive, Clyde, Coptic, Coromandel, Dalhousie, Dardanus, Decima, D'Entrecasteaux (French man-of-war), Descartes (French man-of-war), Devawongse, Diamante, Dido (H.M.S.), Don Juan de Austria (U.S.S.), Doric, Eastern, Edgar (H.M.S.), Emily Reed (sh.), Empress of China, Empress of India, Empress of Japan, Endymion (H.M.S.), Ernest Simons, Eskdale, Esmeralda, Eva, Fausang, Feihoo (I.M.C.C.), Fitzclarence, Fooksang, Formosa, Gaelic, Gera, Gefion (S.M.S.), General Baquedano (Chilian training-ship), Germania, Gisela, Glenesk, Glenfalloch, Glenfarg, Glengyle, Glenogle, Glenturret, Guthrie, Gwalior (hospital ship), Haiching, Hailan, Haitan, Hakata Maru, Hakuai Maru, Hainan, Hangchow, Hanoi, Hating, Hector, Hela (S.M S.), Helios, Hertha (S.MS.), Hikosan Maru, Hinsang, Hiroshima Maru, Hi-yei (H.I.J.M.S.), Hoihao, Holland (Dutch man-of-war), Holsatia, Hongkong Maru, Hong Leong, Hsin Chi, Hue, Hunan, Independent, Idzumi Maru, India, Indrapura, Indus, Irene (S.M.S.), Isla de Cuba (U.S.S.), Itaura, Jacob Diederichsen, Japan, Jason, Java, Kachidate Maru, Kagoshima Maru, Kaifong, Kaiserin Augusta (S.M.S.), Kaiserin Elizabeth (Austr. man-of-war), Kamakura Maru, Kanagawa Maru, Kara, Kasuga Maru, Keong Wai, Kersaint (French man-of-war), Kiukiang, Kinshin Maru, Kongbeng, Kosai Maru, Kumsang, Kurfürst Friederich Wilhelm (S.M.S.), Kutsang, Kwanglee, Kweiyang, Kyoto Maru, König Albert, Liv, Loongmoon, Loongsang, Loosok, Loyal, Lyeemoon, Macedonia, Machaon, Machew, Maidzuru Maru, Malacca, Malta, Marco Minghetti, Marie Jebsen, Marie Theresa, Marquis Bacqueham, Mary L. Schepp (bk.), Mausang, Mazagon, Marathon (H.M.S.), Mcefoo, Melpomene, Menmuir, Michael Jebsen, Miike Maru, Mohawk, Mohawk (H.M.S.), Mongkut, Monmouthshire, Moyune, Mukawa Maru, München, Nairung, Namyong, Nanchang, Nestor, Nevasa, Ningpo, Nippon Maru, Nowshera, Oceanien, Oldenburg, Olympia, Onsang, Oregon (U.S.S.), Orlando (H.M.S.), Ormazan, Pakhoi, Pakshan, Parramatta, Pascal (French man-of-war), Patroclus, Peiyang, Pekin, Pennsylvania, Perla, Perthshire, Petrarch, Phra Chom Klao, Pigmy (H.M.S.), Pique (H.M.S.), Plover (H.M.S.), President (bk.), Preussen, Princeton (U.S.S.), Progress, Pronto, Propontis, Protector (H.M.S.), Quarta, Rajah, Razboinik (Russian man-of-war), Recina, Riojun Maru, Rohilla, Rosetta, Sachsen, Sado Maru, Saint Andrew, Sambria, Sandakan, Sanuki Maru, Sarpedon, Saxonia, Sazanami, Scindia (U.S.S.), Shantung, Shinano Maru, Siam, Siberia, Sierra Cordova (sh.), Sikh, Silesia, Singapore, Sishan, Skarpsno, Sobraon, Socotra, Stentor, Szechuan, Suisang, Sultan van Langkat, Sungkiang, Süllberg, Sydney, Tacoma, Taicheong, Tailee, Taisang, Taishun, Taiwan, Taiyuan, Takachiho (H.I.J.M.S.), Tamsui, Tamsui Maru, Tantalus, Tartar, Tategami Maru, Teenkai, Telemachus, Tetartos, Thales, Tientsin, Tiger (S.M.S.), Tonkin, Toyo Maru, Trafalgar (bk.), Tsinan, Tsurugisan Maru, Ulysses, Undaunted (H.M.S.), Unita, Urano, Vale of Doon (bk.), Valetta, Vesper, Victorius (H.M.S.), Volute, Wakasa Maru, Wardha, Warren (U.S.S.), Waterwitch (H.M.S.), Weimar, Wheeling (U.S.S.), Weissenburg (S.M.S.), Wittenberg, Woerth (S.M.S.), Yaeyama (H.I.J.M.S.), Yangtze, Yuensang, Zenta (Austrian man-of-war).

7. The entry of observations made at sea in degree squares for the area between 9° south and 45° north latitude, and between the longitude of Singapore and 180° East of Greenwich for the construction of trustworthy pilot charts has been continued, and 242481 in all have now been entered.

Table I.

Meteorological Observations entered in 10° Squares in 1893-1900 inclusive.

Square number.	Jan.	Feb.	Mar.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.
19	1	4	5	0	0	0	5	1	0	0	0	0
20	42	30	17	56	23	10	12	8	7	40	28	23
21	39	37	55	40	41	1	11	15	7	28	36	36
22	8	17	12	28	35	25	29	10	0	21	1	1
23	243	293	102	65	14	1	105	78	34	55	83	207
24	463	345	419	384	317	281	549	512	369	546	590	438
25	223	186	162	151	182	157	207	191	173	375	373	313
26	2871	2606	3142	3118	3396	3493	3661	3886	3712	3666	3049	2982
27	0	0	2	4	3	4	1	6	5	2	0	3
55	20	36	26	20	18	46	30	30	20	10	12	22
56	19	62	30	15	24	40	49	52	16	32	27	20
57	53	94	44	75	42	34	64	38	12	54	29	38
58	70	89	110	64	77	71	52	68	19	33	84	65
59	138	167	154	51	71	93	111	80	20	106	150	117
60	304	331	312	208	194	243	372	306	187	240	240	229
61	3109	2754	3384	3143	3800	4018	4140	4248	4170	4203	3903	3449
62	1817	1878	2132	2063	2228	2323	2141	2152	2159	2093	2009	1953
63	17	29	28	27	34	42	24	27	30	39	25	26
91	56	91	54	91	23	32	21	46	37	55	110	97
92	72	100	59	91	30	16	12	24	37	33	108	88

Meteorological Observations,—Continued.

Square number.	Jan.	Feb.	Mar.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.
93	63	77	40	45	8	26	3	26	34	42	67	67
94	67	74	79	101	82	97	76	35	35	22	155	65
95	94	120	70	109	99	64	76	62	55	99	82	147
96	2064	1847	1953	1914	2278	2269	2303	2173	2006	2217	2017	1973
97	913	882	1063	935	1049	1088	999	1019	1056	1091	1133	1058
98	296	285	283	303	360	408	401	399	401	374	383	350
127	168	90	119	114	94	87	150	105	124	143	127	91
128	188	103	141	130	109	124	183	156	126	193	165	124
129	217	130	194	210	130	185	183	185	161	209	220	176
130	529	377	459	440	578	581	661	599	522	541	592	497
131	511	446	474	549	566	631	697	789	512	592	533	452
132	1499	1469	1734	2350	2652	2741	3091	2759	2488	2575	2441	1714
133	0	0	90	103	133	141	165	104	99	141	117	19
163	151	133	170	233	206	248	259	289	225	217	196	143
164	250	176	248	324	284	379	362	375	377	297	259	187
165	296	186	196	272	358	378	407	381	418	286	295	216
166	98	64	70	95	131	113	147	93	174	118	95	88
167	17	12	12	56	74	123	144	162	90	71	42	4
168	1	3	0	14	15	13	11	7	6	14	12	0
199	45	34	33	68	59	57	58	51	73	64	55	50
200	11	5	2	5	0	4	8	0	23	6	13	1
202	0	0	0	0	0	3	2	1	7	1	0	0
203	0	0	0	0	0	2	2	1	2	0	0	0
318	0	21	0	15	0	0	19	0	0	0	3	8
319	40	36	45	24	1	0	2	0	1	28	11	24
320	4	7	27	16	13	35	9	10	0	20	2	0
321	0	1	0	1	4	13	2	15	4	8	11	0
322	84	22	36	44	62	64	58	48	62	82	54	34
323	417	243	333	217	210	171	253	220	213	235	288	323
324	333	256	200	115	92	87	147	144	239	299	342	374
325	300	266	268	389	411	411	566	536	591	367	370	328
	18171	16514	18588	18885	20610	21473	23040	22522	21138	21983	20937	18620

8. As stated in the "Instructions for making Meteorological Observations, etc.," meteorological observations forwarded by observers who regularly send their registers to the Observatory are verified here free of cost. During the past year 3 barometers, 2 anëroids and 4 thermometers were verified. In addition, several hundred barometers and anëroids on board ship were compared with our standard.

9. The mean values of the spectroscopic rainband (1-5) in 1900 were as follows:—January 1.65, February 1.86, March 2.52, April 2.03, May 2.26, June 2.47, July 2.29, August 2.13, September 2.07, October 1.58, November 1.70, December 1.00. Year 1.96.

10. In 1900 the number of transits observed was 3729. The axis of the transit instrument was levelled 222 times, and the azimuth and collimation errors were determined 17 times by aid of the meridian mark erected in 1884. All these observations, with the exception of 137 transits made by myself in January, have been made and reduced by Mr. J. I. PLUMMER.

11. The Sidereal Standard Clock by Dent was cleaned on December 18th and its rate during the whole year has been satisfactory. It was found necessary to clean the platinum points of the contact springs on several occasions: viz. on February 27, April 20, June 19 and August 24. This can be done without interfering with the going of the clock. On August 29 and again on September 3 the springs having been set too low the clock tripped a number of seconds during observations but it was detected at once and the escapement released. Advantage was taken of the cleaning of the clock to reduce the rate sensibly. The Standard mean time clock by Brock has been going uninterruptedly, but its rate is not satisfactory. The time-ball clock calls for no remark.

12. The errors of the time-ball are given in Table II. There was one failure in 1900. The ball is not dropped on Government holidays. On April 28th the Chinese assistant omitted to take the key of the time-ball tower with him. On September 11th the ball was not hoisted in consequence of a strong easterly gale, and from November 10th to November 12th, the telegraph line, having been broken down in the typhoon of the preceding day, was under repair. It was dropped successfully 348 times. The cause of the single failure was that the piston jammed at the top of the cylinder in consequence of the oil having become hardened in the dry weather. The probable error was in January ± 0ˢ.12, in February ± 0ˢ.10, in March ± 0ˢ.19, in April ± 0ˢ.16, in May ± 0ˢ.10, in June ± 0ˢ.12, in July ± 0ˢ.13, in August ± 0ˢ.09, in September ± 0ˢ.11, in October ± 0ˢ.09, in November ± 0ˢ.12, and in December ± 0ˢ.10.

Table II.

Errors of Time-Ball in 1900.

— means too late. + means too early.

Date.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	...	...	+0.6	+0.3	−0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
2	...	0.1	+0.5	0.1	0.1	+0.2	0.1	0.1	0.1	0.1	0.1	0.1
3	+0.4	0.1	0.1	−0.4	0.1	+0.3	0.1	0.1	0.1	0.1	0.1	0.1
4	+0.6	0.1	+0.2	−0.5	0.1	...	0.1	0.1	0.1	0.1	0.1	0.1
5	+0.4	0.1	+0.4	−0.7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
6	0.1	0.1	+0.5	−0.6	+0.2	0.1	0.1	...	0.1	0.1	0.1	0.1
7	0.1	0.1	+0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
8	0.1	0.1	+0.6	−0.2	0.1	0.1	0.1	0.1	0.1	0.1	+0.2	0.1
9	0.1	0.1	+0.6	0.1	0.1	+0.2	0.1	0.1	+0.2	0.1	+0.4	0.1
10	0.1	0.1	+0.5	0.1	0.1	+0.2	0.1	0.1	+0.2	0.1	...	0.1
11	0.1	0.1	−0.2	0.1	0.1	+0.2	0.1	0.1	...	0.1	...	0.1
12	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	+0.4	0.1	...	0.1
13	0.1	0.1	0.1	...	0.1	0.1	0.1	0.1	+0.2	0.1	0.1	0.1
14	0.1	0.1	0.1	...	0.1	0.1	+0.2	0.1	0.1	0.1	0.1	0.1
15	0.1	0.1	0.1	...	0.1	0.1	+0.2	0.1	0.1	0.1	0.1	0.1
16	0.1	0.1	0.1	...	+0.2	0.1	+0.3	0.1	0.1	0.1	0.1	0.1
17	0.1	0.1	+0.2	0.1	+0.3	+0.2	+0.4	0.1	0.1	0.1	0.1	0.1
18	0.1	0.1	+0.2	0.1	0.1	0.1	+0.4	0.1	0.1	0.1	0.1	0.1
19	0.1	0.1	+0.2	0.1	0.1	+0.2	0.1	0.1	0.1	0.1	−0.2	0.1
20	0.1	+0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	−0.4	0.1
21	0.1	+0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	+0.2	...	0.1
22	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	−0.2	0.1
23	0.1	0.1	0.1	0.1	+0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
24	0.1	0.1	0.1	0.1	...	−0.2	0.1	0.1	−0.2	0.1	0.1	...
25	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	...
26	0.1	0.1	0.1	0.1	0.1	0.1	+0.2	0.1	0.1	0.1	0.1	...
27	0.1	−0.2	0.1	0.1	0.1	0.1	+0.3	0.1	0.1	0.1	0.1	0.1
28	0.1	+0.2	0.1	...	0.1	0.1	+0.5	0.1	0.1	0.1	+0.2	0.1
29	0.1	...	0.1	0.1	0.1	−0.2	0.1	0.1	0.1	0.1	0.1	0.1
30	0.1	...	0.1	0.1	0.1	−0.2	0.1	0.1	0.1	0.1	+0.2	+0.2
31	...	...	+0.2	...	0.1	...	0.1	0.1	...	0.1	...	+0.3

13. The cisterns of the barograph and standard barometers are placed 109 feet above M.S.L. The bulbs of the thermometers are rotated 108 feet above M.S.L., and 4 feet above the grass. The solar radiation thermometer is placed at the same height. The rim of the rain-gauge is 105 feet above M.S.L., and 21 inches above the ground.

14. The monthly Weather Reports are arranged as follows :—

Table I. exhibits the hourly readings of the barometer reduced to freezing point of water, but not to sea level nor for gravity, as measured (at two minutes to the hour named) from the barograms.

Tables II. and III. exhibit the temperature of the air and of evaporation as determined by aid of rotating thermometers. Table II. exhibits also the extreme temperatures reduced to rotating thermometer by comparisons of thermometers hung beside them. Table III. exhibits also the solar radiation (black bulb in vacuo) maximum temperatures reduced to Kew arbitrary standard.

Table IV. exhibits the mean relative humidity in percentage of saturation and mean tension of water vapour present in the air in inches of mercury, for every hour of the day and for every day of the month, calculated by aid of Blanford's tables from the data in Tables II. and III.

Table V. exhibits the duration of sunshine expressed in hours, from half an hour before to half an hour after the hour (true time) named.

Table VI. exhibits the amount of rain (or dew) in inches registered from half an hour before to half an hour after the hour named. It exhibits also the observed duration of rain.

Table VII. exhibits the velocity of the wind in miles and its direction in points (1—32). The velocity is measured from half an hour before to half an hour after the hour named, but the direction is read off at the hour.

Table VIII. exhibits the amount (0--10), name (Howard's classification) and direction whence coming of the clouds. Where the names of upper and lower clouds are given, but only one direction, this refers to the lower clouds. With regard to the names of clouds; nimbus (nim) is entered only when the rain is seen to fall; when no rain is seen to fall cumulo-nimbus (cum-nim) is entered. This name indicates clouds intermediate between cum and nim. Cumulo-stratus (cum-str) is the well-known thunder cloud, while strato-cumulus (str-cum) signifies a cloud intermediate between stratus and cum. Sm-cum means alto-cumulus.

Table IX. exhibits for every hour in the day, the mean velocity of the wind reduced to 4 as well as 2 directions, according to strictly accurate formulæ, and also the mean direction of the wind.

Below this is printed a list of the phenomena observed.

15. The following annual Weather Report for 1900 is arranged as follows:—

Table III. exhibits the mean values for the year (or hourly excess above this) obtained from the monthly reports. The total duration of rain was 838 hours. There fell at least 0.01 inch of rain on 140 days.

Table IV. exhibits the number of hours during a portion of which at least 0.005 inch of rain (or dew) was registered.

Table V. exhibits the number of days with wind from eight different points of the compass. The figures are obtained from the mean daily directions in Table VII. of the monthly reports. Days with wind from a point equidistant from two directions given, are counted half to one of these and half to the other, *e.g.*, half of the days when the wind was NNE are counted as N, and the other half as NE.

Table VI. exhibits the number of days on which certain meteorological phenomena were registered, and also the total number of thunderstorms noted in the neighbourhood during the past year.

Table VII. shows the frequency of clouds of different classes.

Table VIII. is arranged as last year.

Table IX. exhibits the monthly and annual extremes.

Table X. contains five-day means.

16. The observations of magnetic declination and horizontal force published in Tables XI. and XII. were made with magnet No. 55 on Kew pattern unifilar magnetometer Elliott Brothers No. 55. The dips were observed with dip-circle Dover No. 71.

The methods adopted in making the observations and in determining and applying the corrections are explained in *Appendix G. of Observations and Researches made in 1885:* "On the verification of the unifilar magnetometer Elliott Brothers No. 55." The value of log $\pi^2 K$ was 3.44907 at 25°. The value of P was + 6.597. The mean value of the magnetic moment of the vibrating needle was 580.82.

The times of vibration exhibited in Table XII. are each derived from 12 observations of the time occupied by the magnet in making 100 vibrations, corrections having been applied for rate of chronometer and arc of vibration.

The observations of horizontal force given in Table XIII, are expressed in C.G.S. units. The vertical and total forces have been computed by aid of the observed dips.

I have the honour to be,

Sir,

Your most obedient Servant,

W. DOBERCK,
Director.

The Honourable
THE COLONIAL SECRETARY,
&c., &c., &c.

Table III.

Mean Values and Hourly Excess above the Mean of Meteorological Elements in 1900.

	1 a.	2 a.	3 a.	4 a.	5 a.	6 a.	7 a.	8 a.	9 a.	10 a.	11 a.	Noon.	1 p.	2 p.	3 p.	4 p.	5 p.	6 p.	7 p.	8 p.	9 p.	10 p.	11 p.	Midt.	Mean or Total.
Pressure,	+.004	−.008	−.017	−.020	−.015	−.002	+.015	+.031	+.042	+.045	+.036	+.018	−.006	−.026	−.039	−.043	−.040	−.030	−.015	+.001	+.014	+.021	+.020	+.014	29.854
Temperature,	− 1.2	− 1.4	− 1.6	− 1.8	− 1.9	− 1.9	− 1.4	− 0.5	+ 0.4	+ 1.4	+ 1.8	+ 2.1	+ 2.4	+ 2.4	+ 2.1	+ 1.6	+ 1.0	+ 0.3	− 0.2	− 0.4	− 0.6	− 0.7	− 0.9	− 1.0	71.6
Diurnal Range,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8.1
Humidity,	+ 4	+ 4	+ 5	+ 5	+ 4	+ 4	+ 2	0	− 3	− 5	− 6	− 7	− 7	− 6	− 5	− 4	− 2	0	+ 2	+ 2	+ 3	+ 3	+ 4	+ 4	77
Vapour Tension,	+.009	+.005	.000	−.002	−.007	−.008	−.009	−.009	−.011	−.013	−.012	−.012	−.004	−.003	−.001	.000	+.002	+.006	+.008	+.010	+.014	+.013	+.013	+.012	0.633
Sunshine (Total),	...	...	...	...	...	11.1	80.4	146.7	172.6	180.7	192.6	191.2	198.8	198.4	183.5	160.4	102.7	17.7	...	...	...	...	...	...	1836.8
Rainfall (Total).	3.045	3.050	3.110	3.920	4.770	3.190	3.995	6.285	7.110	2.635	5.075	1.755	1.750	3.425	2.260	2.585	1.920	1.820	2.780	2.855	2.420	1.115	1.665	1.185	73.730
Hours of Rain (Total),	47	45	45	48	48	34	39	40	41	38	30	32	25	28	33	34	34	32	34	33	35	33	39	29	876
Intensity of Rain,	0.065	0.068	0.069	0.082	0.099	0.094	0.102	0.157	0.173	0.069	0.169	0.055	0.070	0.122	0.068	0.076	0.056	0.057	0.082	0.087	0.069	0.034	0.043	0.041	0.084
Wind-Velocity,	− 0.5	− 1.2	− 1.3	− 1.0	− 1.4	− 1.9	− 1.6	− 0.6	+ 0.8	+ 1.1	+ 2.4	+ 1.6	+ 1.8	+ 2.0	+ 1.8	+ 1.6	+ 0.9	− 0.5	− 0.4	− 1.1	− 0.9	− 0.5	− 0.6	− 0.6	13.3
Wind-Direction,	− 4°	− 2°	0°	− 4°	− 4°	− 4°	− 6°	− 5°	− 5°	+ 1°	+ 1°	+ 6°	+10°	+ 7°	+ 8°	+ 8°	+ 5°	+ 2°	− 1°	− 1°	− 2°	− 4°	− 4°	− 5°	E 5° S
Cloudiness,	+ 2	...	...	− 1	...	...	+ 4	...	...	+ 2	...	...	− 0	...	...	− 1	...	...	− 2	...	...	− 4	...	...	71
Solar Radiation,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	124.5
Excess of do. do.,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	48.4

Table IV.

Number of Hours during a portion of which it rained for each Month in the Year 1900.

Month.	1 a.	2 a.	3 a.	4 a.	5 a.	6 a.	7 a.	8 a.	9 a.	10 a.	11 a.	Noon.	1 p.	2 p.	3 p.	4 p.	5 p.	6 p.	7 p.	8 p.	9 p.	10 p.	11 p.	Midt.	Total.
January,	0	1	0	1	1	1	3	0	1	1	0	0	1	1	1	1	1	2	2	3	0	1	1	1	24
February,	4	3	2	2	2	0	2	3	1	2	2	2	1	1	1	1	1	2	3	2	3	2	3	1	46
March,	7	4	5	4	5	5	6	3	6	5	2	3	3	5	5	6	7	5	4	5	5	5	4	5	114
April,	4	1	1	3	4	3	4	3	3	4	1	1	0	1	3	2	1	0	3	3	1	2	3	1	52
May,	6	7	4	4	5	0	2	3	2	2	2	3	2	2	2	5	4	5	4	3	4	3	4	6	84
June,	9	11	8	11	9	10	8	10	11	11	8	10	8	9	7	6	7	6	5	5	8	5	5	6	193
July,	7	10	13	11	10	9	6	8	8	6	8	6	4	3	4	5	6	3	6	3	5	3	5	2	151
August,	2	1	4	3	5	2	2	5	5	2	2	1	2	1	3	1	2	2	1	2	1	3	6	2	60
September,	3	1	3	4	3	2	4	4	3	2	3	4	2	2	2	2	0	2	2	1	2	2	3	2	58
October,	1	2	2	2	1	1	1	0	0	1	1	1	1	2	2	2	2	3	2	2	2	3	2	1	37
November,	3	4	2	2	2	1	1	1	1	2	1	1	1	1	3	3	3	2	2	3	2	2	3	2	48
December,	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0	0	9
Total,	47	45	45	48	48	34	39	40	41	38	30	32	25	28	33	34	34	32	34	33	35	33	39	29	876

Table V.

Number of Days with Wind from eight different points of the Compass during each Month of the Year 1900.

Month.	N.	NE.	E.	SE.	S.	SW.	W.	NW.
January,	8	2	16	...	...	...	3	2
February,	3	5	18	...	...	...	...	2
March,	1	6	22	...	...	...	1	1
April,	...	1	22	1	4	2	...	...
May,	...	1	13	1	2	12	2	...
June,	...	...	13	4	3	9	1	...
July,	...	...	10	5	6	6	3	1
August,	...	2	17	3	1	1	4	3
September,	2	3	14	5	...	1	2	3
October,	2	2	24	1	...	...	1	1
November,	11	5	14	...	...	...	...	...
December,	4	6	20	...	...	...	...	1
Sums,	31	33	203	20	16	31	17	14

Table VI.

Total Number of Days on which different Meteorological Phenomena were noted and Total Number of Thunderstorms during each Month of the Year 1900.

Month.	Fog.	Electric Phenomena.	Lightning.	Thunder.	Thunderstorms.	Unusual Visibility.	Dew.	Rainbows.	Lunar Halo.	Lunar Corona.	Solar Halo.	Solar Corona.
January,	2	...	...	...	...	2	1	...	...	...	...	...
February,	...	3	2	3	...	2	...	...	...	...	...	...
March,	9	9	7	7	1	2	...	...	...	...	1	...
April,	3	4	4	2	2	2	3	1	...	1	...	...
May,	...	16	16	6	2	4	1	...	1	...	2	...
June,	1	18	17	12	7	3	...	2	4	2	5	...
July,	...	11	10	6	1	6	13	6	3	7	5	...
August,	...	22	22	6	4	8	18	5	3	11	8	...
September,	...	6	6	2	2	3	14	2	6	5	2	...
October,	...	1	...	1	...	2	9	...	...	5	1	1
November,	1	...	...	...	...	3	5	2	5	3	2	...
December,	2	...	...	...	...	...	9	...	3	2	1	...
Sums,	18	90	84	45	19	37	73	18	25	36	27	1

Table VII.

Total Number of Times that Clouds of different forms were observed in each Month of the Year 1900.

Month.	c.	c-str.	c-cum.	sm-cum.	cum.	cum-str.	str.	R-cum.	cum-nim.	nim.
January,	...	...	14	61	68	...	35	...	20	17
February,	...	...	3	45	98	...	62	...	15	18
March,	...	1	9	33	59	...	54	...	37	69
April,	...	2	21	42	119	...	20	3	6	45
May,	...	13	54	50	177	...	16	...	15	33
June,	...	13	47	34	144	...	14	...	14	55
July,	...	38	58	27	176	1	7	...	8	37
August,	...	35	80	40	179	...	5	...	4	9
September,	...	28	59	69	133	...	7	...	3	16
October,	...	2	50	61	138	...	6	...	5	16
November,	...	12	36	55	108	...	22	2	5	17
December,	...	5	36	59	78	...	18	...	3	4
Sums,	...	149	467	576	1477	1	266	5	135	336

Table VIII.

Month. 1900.	Barometric Tide.	Mean Diurnal Variability of Temperature.	Weight of Water Vapour in Troy Grains in each cubic foot of Air.	Rainfall. Mean.	Rainfall. 1900.	Hourly Intensity of Rain.	Mean Direction of Clouds whence coming. Lower.	Upper.	Cirrus.	Number of Days with Clouds below 2,000 ft.	Number of Days with Clouds below 1,000 ft.
January, ...	0.114	2°.13	3.86	1.545	0.770	0.023	E 2° S	W 2° S	...	14	6
February, ...	0.111	2 .45	3.92	2.091	2.640	0.061	E 8° S	W 8° S	...	7	5
March, ...	0.099	2 .55	5.30	2.991	3,020	0.018	E	W 24° S	...	22	16
April, ...	0,093	2 .15	7.27	5.980	2.780	0.031	E 38° S	W 6° S	...	18	11
May, ...	0.088	1 .63	8.46	13.159	9.310	0.115	S 20° W	W 12° S	...	19	3
June, ...	0.061	1 .06	8.77	16.496	26.520	0.165	S 4° E	W 17° N	...	19	10
July, ...	0.065	0 .85	9.45	14.210	10.135	0.104	S 4° W	E 40° N	...	8	4
August,.....	0.074	0 .90	9.38	13.482	6.690	0.223	E 3° S	E 43° N	...	3	0
September, ...	0.079	0 .84	8.19	8.833	4.310	0.127	E 9° N	E 15° N	...	1	0
October, ...	0.096	1 .18	7.16	5.794	1.615	0.044	E 9° N	E 7° N	...	4	1
November, ...	0.090	2 .38	5.33	1.302	5.785	0.129	E 16° N	E 56° S	...	2	0
December,.....	0.107	2 .49	4.46	0.985	0.155	0.010	E 2° S	W 37° S	...	2	1
Mean,.....	0.090	1 .72	6.80	86.867	73.730	0.088	E 26° S	...	...	10	5

Table IX.

Monthly Extremes of the Principal Meteorological Elements registered during the Year 1900.

Month.	Barometer. Max.	Barometer. Min.	Temperature. Max.	Temperature. Min.	Humidity. Min.	Vapour Tension. Max.	Vapour Tension. Min.	Rain. Daily Max.	Rain. Hourly Max.	Wind Velocity. Max.	Radiation. Sum Max.
January, ...	30.211	29.884	71.1	37.5	36	0.507	0.156	0.520	0.130	38	125.5
February, ...	.347	.846	70.2	44.5	23	0.588	0.078	1.395	0.970	38	130.6
March, ...	,176	,717	74.4	49.7	40	0.796	0.238	0,680	0.465	38	130.1
April, ...	.082	.617	82.7	61.6	43	0.880	0.336	1.570	0.740	36	138.2
May, ...	29.942	.562	88.6	67.0	46	0.955	0,481	5,180	1,950	43	150.3
June,.....	.826	.397	86.5	70.3	42	1,001	0,461	8,450	2,855	35	149.1
July, ...	.889	.497	89.6	73.7	59	0.994	0,766	1,325	0,625	22	151.7
August,.....	.846	.227	97.0	75.4	38	1.017	0,535	2,330	1,465	51	155.9
September, ...	.965	.373	90.8	74.4	40	1.022	0,439	2,140	0.560	68	153.1
October, ...	30.078	.764	86.6	65.6	38	0.917	0,314	0,975	0,305	40	151.7
November, ...	,158	28.735	81.9	51.6	10	0,831	0,064	4,730	1,240	90	147.9
December, ...	.317	29.791	76.6	48.1	22	0.664	0,106	0,065	0,035	37	138.0
Year,.....	30.347	28.735	97.0	37.5	10	1,022	0.064	8,450	2,855	90	155.9

Table X.

Five-Day Means of the Principal Meteorological Elements observed at Hongkong in 1900.

FIVE-DAY PERIODS.	Barometer.	Temperature.	Humidity.	Vapour Tension.	Wind Velocity.	Nebulosity.	Sunshine.	Rain.
January 1– 5	30.067	52.0	79	0.305	7.1	10.0	0.1	0.135
" 6–10	.040	46.7	72	.231	6.0	7.1	3.6	0.012
" 11–15	.052	56.4	63	.290	10.1	3.4	8.8	0.000
" 16–20	.097	58.2	78	.379	17.2	6.2	4.8	0.000
" 21–25	.012	61.4	84	.458	18.5	6.2	4.8	0.000
" 26–30	.085	58.1	85	.412	15.2	9.9	0.6	0.007
" 31– 4	.022	56.6	73	.337	11.6	8.4	1.8	0.000
February 5– 9	.180	52.1	56	.229	10.4	9.8	0.7	0.000
" 10–14	.026	57.5	73	.356	14.9	8.9	2.0	0.000
" 15–19	.033	57.3	86	.407	15.2	9.7	0.3	0.469
" 20–24	.068	56.4	70	.319	11.9	8.4	3.6	0.053
" 25– 1	29.953	64.1	87	.518	18.0	9.1	3.0	0.006
March 2– 6	.917	61.0	90	.484	19.3	9.9	0.6	0.144
" 7–11	30.077	60.7	80	.425	13.0	8.6	2.9	0.172
" 12–16	29.940	62.1	84	.473	15.2	9.6	0.5	0.037
" 17–21	.934	57.0	88	.412	12.1	10.0	0.3	0.042
" 22–26	.885	64.0	95	.575	19.6	10.0	0.0	0.054
" 27–31	.943	64.2	85	.510	18.8	9.7	0.5	0.155
April 1– 5	.746	68.2	91	.629	20.0	9.4	1.0	0.456
" 6–10	.742	76.5	89	.816	10.0	9.8	3.1	0.001
" 11–15	.810	72.9	89	.724	16.0	9.0	2.9	0.025
" 16–20	.864	75.2	87	.757	10.5	4.5	9.2	0.000
" 21–25	.903	71.9	82	.647	19.0	9.1	1.4	0.034
" 26–30	.969	70.4	65	.481	14.9	5.7	6.2	0.040
May 1– 5	.848	72.6	82	.654	10.9	9.7	1.6	0.220
" 6–10	.764	78.0	77	.747	17.7	8.2	6.6	0.001
" 11–15	.843	74.3	90	.768	16.4	9.9	1.7	1.553
" 16–20	.765	79.0	86	.854	10.5	9.1	4.7	0.003
" 21–25	.691	82.8	80	.899	10.7	8.2	6.9	0.019
" 26–30	.702	82.4	77	.853	9.7	5.6	9.4	0.013
" 31– 4	.739	77.6	86	.811	14.2	9.6	1.5	0.576
June 5– 9	.711	78.7	77	.754	16.8	4.8	9.3	0.110
" 10–14	.634	79.6	88	.884	7.4	9.3	2.9	1.169
" 15–19	.550	78.3	82	.799	13.2	8.2	4.4	1.753
" 20–24	.714	79.4	78	.789	18.2	6.7	5.8	0.393
" 25–29	.648	81.6	83	.891	15.5	9.0	3.9	0.779
" 30– 4	.618	79.6	89	.893	7.6	8.0	3.1	0.968
July 5– 9	.610	82.2	85	.932	6.2	8.0	5.4	0.542
" 10–14	.668	83.1	79	.901	13.0	8.6	7.8	0.241
" 15–19	.692	82.9	80	.897	8.2	6.1	9.5	0.114
" 20–24	.768	82.6	81	.907	8.4	4.5	9.3	0.148
" 25–29	.733	77.7	88	.840	5.9	9.6	1.8	0.586
" 30– 3	.672	81.1	82	.868	4.8	4.9	8.6	0.012
August 4– 8	.692	83.5	80	.922	6.0	3.0	10.0	0.003
" 9–13	.673	83.8	79	.912	6.5	5.8	10.4	0.017
" 14–18	.452	84.0	75	.871	11.6	8.0	5.9	0.040
" 19–23	.422	83.1	79	.895	26.5	9.1	4.3	0.643
" 24–28	.591	82.9	76	.853	5.4	5.4	7.8	0.297
" 29– 2	.791	81.7	81	.869	9.5	5.9	6.6	0.333
September 3– 7	.776	82.6	78	.867	6.7	3.2	9.9	0.000
" 8–12	.594	82.3	78	.859	23.7	9.3	3.5	0.756
" 13–17	.626	81.8	68	.744	10.3	7.3	7.8	0.039
" 18–22	.761	80.1	67	.686	6.6	7.0	4.7	0.056
" 23–27	.794	80.2	72	.745	10.2	3.4	8.2	0.002
" 28– 2	.862	79.2	67	.669	20.4	7.2	6.8	0.002
October..... 3– 7	.841	79.5	75	.763	26.6	5.9	8.5	0.000
" 8–12	.874	77.9	84	.806	17.6	9.1	2.7	0.322
" 13–17	.910	75.7	62	.549	17.3	6.1	7.5	0.001
" 18–22	.918	75.3	62	.544	14.3	2.9	9.2	0.000
" 23–27	.976	74.2	75	.640	15.0	2.6	8.8	0.000
" 28– 1	.972	75.4	74	.658	11.5	3.0	7.8	0.000
November 2– 6	.943	73.4	69	.574	15.1	7.1	5.2	0.000
" 7–11	.702	74.1	77	.652	23.6	9.4	3.2	1.136
" 12–16	30.001	65.3	54	.341	11.3	6.0	4.8	0.000
" 17–21	.006	64.2	64	.399	11.3	6.3	4.5	0.019
" 22–26	.001	68.1	74	.511	18.2	3.2	8.8	0.000
" 27– 1	29.955	66.3	72	.468	12.0	6.6	3.7	0.002
December..... 2– 6	.895	67.9	72	.493	12.1	6.5	5.7	0.013
" 7–11	30.162	60.2	56	.307	12.7	5.2	6.8	0.007
" 12–16	.149	64.7	55	.342	12.1	5.6	5.9	0.011
" 17–21	.109	62.3	58	.333	11.5	0.6	9.6	0.000
" 22–26	.115	63.8	69	.410	14.0	3.4	8.3	0.000
" 27–31	29.957	67.5	83	.558	13.0	6.5	3.9	0.000

Table XI.

Observations of Magnetic Declination and Dip.

1900.	H.K.M.T.	Declination East.	Observer.	H.K.M.T.	Dip North.	Needle No.	Observer.
February,	16d. 3h. 18m. p.	0°19′40″	F.G.F.	15d. 4h. 5m. p.	31°26′.79	3	F.G.F.
					28 .50	4	,,
April,	13 3 17 p.	17 57	,,	18 4 15 p.	24 .44	3	,,
					25 .03	4	,,
June,	14 3 28 p.	17 46	,,	13 4 16 p.	24 .90	3	,,
					24 .81	4	,,
August,	14 3 29 p.	17 56	,,	17 4 5 p.	25 .24	3	,,
					24 .25	4	,,
October,	17 3 25 p.	18 30	,,	15 3 55 p.	22 .86	3	,,
					21 .69	4	,,
December,	17 3 16 p.	19 2	,,	13 3 38 p.	24 .70	3	,,
					23 .68	4	,,

Table XII.

Observations of Horizontal Magnetic Force.

1900.	H.K.M.T.	Time of one Vibration.	Temperature. Cent.	Log mX.	Value of m.	H.K.M.T.	Distance in Centimetres.	Temperature. Cent.	Deflection.	Log $\frac{m}{X}$	Value of X	Observer.
Feb. 14, ...	3h. 50m. p.	3s. .6349	19°.9	2.32916	581.32	3h. 15m. p.	30	19°.1	6°44′10″.0	3.19968	0.36706	F.G.F.
							40		2 49 38 .1			
						4 37 p.	30	18 .5	6 44 32 .5			
							40		2 49 48 .8			
April 17, ...	3 59 p.	3 .6410	27 .55	2.32908	580.99	3 19 p.	30	27 .35	6 42 27 .5	3.19926	0.36721	,,
							40		2 48 54 .4			
						4 33 p.	30	26 .55	6 42 38 .7			
							40		2 49 1 .9			
June 17, ...	4 13 p.	3 .6421	28 .5	2.32899	580.90	3 35 p.	30	28 .6	6 42 8 .8	3.19921	0.36719	,,
							40		2 48 50 .0			
						4 51 p.	30	27 .7	6 42 21 .2			
							40		2 48 55 .0			
Aug. 13, ..	3 57 p.	3 .6456	33 .7	2.32913	580.61	3 17 p.	30	34 .0	6 40 40 .0	3.19864	0.36748	,,
							40		2 48 10 .6			
						4 38 p.	30	33 .5	6 40 48 .8			
							40		2 48 13 .1			
Oct. 16, ...	3 56 p.	3 .6401	26 .7	2.32906	580.74	3 15 p.	30	26 .55	6 42 5 .0	3.19890	0.36735	,,
							40		2 48 45 .0			
						4 30 p.	30	26 .45	6 42 16 .3			
							40		2 49 5 .0			
Dec. 14, ...	3 46 p.	3 .6382	23 .2	2.32882	580 35	3 13 p.	30	22 .9	6 42 27 .5	3.19856	0.36739	,,
							40		2 48 55 .6			
						4 22 p.	30	21 .5	6 42 52 .5			
							40		2 49 13 .1			

Table XIII.

Results of Magnetic Observations made in 1900.

Month.	Declination East.	Dip North.	Magnetic Force.		
			X.	Y.	Total.
February,	0°19′ 40″	31°27′ 39″	0.36706	0.22459	0.43032
April,	17 57	24 44	0.36721	0.22425	0.43027
June,	17 46	24 51	0.36719	0.22426	0.43026
August,	17 56	24 45	0.36748	0.22442	0.43060
October,	18 30	22 17	0.36735	0.22398	0.43025
December,	19 2	24 11	0.36739	0.22428	0.43044
Year,	0 18 28	31 24 45	0.36728	0.22430	0.43036