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NO. 241.

JAMAICA

METEOROLOGICAL RESULTS

FOR

1898.

REPORT ON THE TIME SERVICE

FOR

1898.

National Oceanic and Atmospheric Administration

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March 28, 2002

1898. RAINFALL OVER THE ISLAND FROM ABOUT 150 STATIONS.

MONTH.	North Eastern Division.	Northern Division.	West Central Division.	Southern Division.	The Island.	NOTES.
	In.	In.	In.	In.	In	
January	2.69	2.02	1.26	0.49	1.62	Much below the average.
February	4.75	1.85	4.30	3.90	3.70	Above the average.
March	2.29	0.93	0.72	0.72	1.16	Below the average.
April	5.67	3.00	6.76	2.36	4.44	
May	20.95	11.79	19.24	11.52	16.62	Heavy May seasons.
June	9.57	4.66	8.97	5.90	7.26	
July	7.61	4.38	8.94	4.22	6.29	
August	6.69	3.37	9.93	5.29	6.32	
September	9.75	5.88	9.54	3.81	7.24	
October	12.39	5.48	11.01	11.66	10.14	Usual October seasons.
November	7.85	2.98	3.30	3.19	4.33	
December	4.29	3.26	1.90	1.64	2.77	Below the average.
Totals	94.50	49.49	85.87	57.09	71.88	Above the average.

1898. MORANT POINT LIGHTHOUSE :—ELEVATION 8 FEET.

MONTH.	Bar Pressure.		Rainfall.	Wind : direction (from) and Miles per Hour				Cloud (in tenths.)	
	7 a.m.	3 p.m.		7 a.m.		3 p.m.		7 a.m.	3 p.m.
	In.	In.	In.		M.		M.		
January	29.988	29.940	1.02	N.E.	9.0	N.E.	11.0	5.5	5.7
February	.961	.912	2.74	N.N.E.	6.9	N.E.	8.5	4.6	5.7
March	.947	.912	0.23	N.N.E.	11.0	N.E.	12.0	5.1	4.8
April	.976	.925	1.36	N.E.	4.7	E.N.E.	5.9	5.5	5.5
May	.914	.867	15.93	E.N.E.	5.2	N.E.	7.2	6.5	6.2
June	.937	.911	4.05	E.	6.9	E.	8.6	6.1	6.4
July	.938	.909	5.99	E.N.E.	6.7	E.	11.0	5.6	5.6
August	.926	.896	5.48	E.	6.2	E.	10.0	5.3	6.4
September	.887	.838	10.18	Var.	5.3	Var.	7.3	6.5	6.1
October	.867	.821	13.43	Var.	6.2	Var.	8.7	7.1	6.9
November	.897	.832	6.82	N.E.	5.4	N.E.	9.0	5.4	5.9
December	29.973	29.919	4.13	N.E.	4.8	N.E.	10.1	5.7	5.9
Means	29.934	29.890	..	N.E.	6.5	N.E.	9.1	5.7	5.9

Total 72.26

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NEGRIL POINT LIGHT HOUSE :—ELEVATION 33 FEET.

MONTH.	Bar Pressure.		Temperature.					Dewpoint and Humidity.				Rainfall.	Wind per Diem.	Wind : direction (from) and Miles per Hour.				Cloud (in tenths)	
	7 a.m.	3 p.m.	7 a.m.	3 p.m.	Max.	Min.	Range.	7 a.m.		3 p.m.				7 a.m.		3 p.m.		7 a.m.	3 p.m.
	In.	In.	°	°	°	°	°	°		°		In.	Miles.		M.		M.		
January	30.003	29.941	71.2	82.1	84.0	68.2	15.8	65.8	83	69.4	66	0.89	275	N. E.	13	N.	13	4.4	6.2
February	29.971	29.921	71.1	80.8	83.5	68.0	15.5	66.8	87	69.0	68	0.79	204	N. E.	9	N.	13	4.1	6.9
March	29.964	29.900	73.6	82.8	85.3	69.0	16.3	68.1	83	70.7	67	0.09	261	N. E.	11	N.	16	3.2	5.7
April	29.975	29.930	76.8	81.2	84.4	71.2	13.2	72.4	86	73.8	79	3.84	206	N. E.	6	N W.	9	5.7	8.7
May	29.910	29.873	78.2	83.1	86.1	73.0	13.1	71.7	81	73.0	72	10.39	242	N. E	10	S.	14	6.4	8.7
June	29.937	29.907	78.6	83.1	86.8	73.2	13.6	71.9	80	73.5	73	6 07	226	N. E.	7	S E.	12	7.4	9.1
July	29.939	29.914	78.0	82.9	86.9	72.2	14.7	71.5	80	73.3	73	6.88	203	E.N.E	8	S.	10	5.3	9.2
August	29.929	29.896	77.8	83.9	87.2	72.8	14.4	72.7	84	74.3	73	4.16	198	Var.	7	Var.	10	8.2	9.1
September	29.880	29.846	77.2	83.1	87.3	73.0	14.4	73.5	88	73.3	72	3.87	213	N E	6	S.E.	11	7.9	8.8
October	29.855	29.813	77.8	82.8	86.6	71.8	14.8	72.8	84	73.7	74	7.88	282	E.N.E.	10	S E.	14	8.6	9.2
November	29.893	29.887	74.7	82.9	86.2	71.2	15.0	70.6	87	71.7	69	2.95	202	N. E	8	N.	11	5.9	7.7
December	29.983	29.925	72.1	82.0	85.1	69.6	15.5	67.1	84	70 2	68	1.77	218	N. E.	9	N.	11	5.8	8.1
Means	29.937	29.892	75.6	82.6	85.8	71.4	14.4	70.4	84	72.2	72	...	227	N. E	8.7	Var.	12.0	6.0	8.1
											total	48.63							

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KINGSTON, PARADE GARDENS :—ELEVATION 50 FEET.

MONTH.	Bar Pressure.		Temperature.					Dewpoint and Humidity.				Rainfall.	Wind per Diem.	Wind : direction (from) and Miles per Hour.				Cloud (in tenths.)	
	7 a.m.	3 p.m.	7 a.m.	3 p.m.	Max.	Min.	Range.	7 a.m.		3 p.m.				7 a.m.		3 p.m.		7 a.m.	3 p.m.
	In.	In.	°	°	°	°	°	°		°		In.	Miles.		M.		M.		
January	30.001	29.926	69.2	84.1	86.8	68.1	18.7	62.7	80	66.6	57	0.03	56.8	N.	3.1	S.E.	5.3	1.9	5.0
February	29.970	29.907	68.2	82.2	84.3	66.4	18.4	62.2	81	67.1	61	2.66	36.3	"	2.1	"	4.3	2.3	5.0
March	29.962	29.892	69.7	83.7	85.7	67.4	18.8	63.5	81	66.0	56	1.81	41.7	"	1.5	"	4.2	1.9	4.1
April	29.987	29.952	72.9	82.7	85.9	69.7	16.2	66.0	79	68.5	62	0.17	49.5	"	0.9	"	6.0	3.6	6.6
May	29.917	29.867	77.1	85.6	86.0	72.4	13.6	70.6	81	71.9	69	9.66	48.4	"	1.1	"	5.8	6.9	6.6
June	29.940	29.898	77.4	84.9	87.8	73.1	14.7	69.5	77	71.1	64	3.89	61.1	"	1.2	"	5.6	5.1	7.9
July	29.943	29.898	77.0	85.6	88.7	72.8	15.9	69.1	77	71.8	68	1.68	60.8	"	1.8	"	5.0	3.4	6.1
August	29.985	29.888	75.5	84.0	88.1	73.4	14.7	69.4	82	72.3	69	1.86	46.6	"	1.1	"	5.2	3.4	6.1
September	29.891	29.840	75.5	84.1	87.9	72.7	15.2	70.1	86	72.4	68	2.95	34.3	"	1.0	"	3.4	5.7	6.9
October	29.876	29.820	74.9	83.2	86.4	73.0	13.4	70.8	86	72.8	71	9.77	28.2	"	1.2	"	3.7	7.4	7.4
November	29.898	29.828	72.5	84.1	87.7	71.1	16.6	67.5	86	70.5	64	1.03	28.2	"	1 3	"	3.0	3.0	5.7
December	29.988	29.924	70.0	82.9	87.0	68.8	18.2	64.6	86	68.4	62	0.14	37.8	"	1.2	"	4.1	3.4	5.5
Means	29.942	29.887	73.8	83.8	86.9	70.7	16.2	67.2	82	69.9	64	..	43.7	N.	1.4	S.E.	4.6	3.8	6.1
											Total	34.80							

1898. BRANDON HILL, MONTEGO BAY :—ELEVATION 160 FEET.

MONTH.	Bar Pressure.		Temperature.					Dewpoint and Humidity.				Rainfall.	Wind per Diem.	Wind: direction (from) and Miles per Hour.				Cloud (in tenths.)	
	7 a.m.	3 p.m	7 a.m.	3 p.m.	Max.	Min.	Range.	7 a.m.		3 p.m.				7 a.m.		3 p.m.		7 a.m.	3 p.m.
	In.	In.	°	°	°	°	°	°		°		In.	Miles.						
January	29.999	29.938	68.7	80.1	81.7	67.3	14.4	65.0	88	68.0	67	0.14	94	E.	2.5	E.N.E.	6.3	3.4	2.5
February	29.969	29.921	67.9	79.7	82.0	64.7	17.3	65.1	93	66.3	65	1.68	77	E.N.E.	1.6	E.N.E.	5.0	2.3	3.1
March	29.961	29.896	70.3	80.7	82.6	67.2	15.4	65.1	84	64.6	58	0.56	110	E.N.E.	2.6	N.E.	9.6	2.8	2.8
April	29.975	29.916	72.5	83.0	85.5	68.4	17.1	67.9	85	69.3	65	1.23	71	E.N.E.	1.7	N.E.	6.9	3.3	5.7
May	29.900	29.852	75.4	83 0	85.8	70 7	15.1	70.8	86	73.1	72	13.56	55	N.E.	2.2	N.	5.4	6.7	8.0
June	29.943	29.898	75.7	83.3	86.6	70.7	15.9	71.0	86	73.5	73	5.57	54	E.N.E.	1.8	E.N.E.	5.0	4.9	8.3
July	29.930	29.882	75.8	81 7	86.5	70.5	16 0	72.6	89	73.8	78	7.60	56	E.	1.3	E.N.E.	3.3	3.0	3.0
August	29.932	29.882	76.2	83.1	86.8	70 9	15.9	72.5	91	75.8	79	4.70	48	E.N.E.	1.2	N.E.	3.8	4.3	7.9
September	29.836	29.851	76.2	79.5	86.9	70.8	16.1	73.2	93	75.5	86	9.26	45	E.N.E.	1.3	E.N.E.	2.3	5 3	9.6
October	29.864	29.815	74.9	81.0	87.2	71.3	15.9	72.9	92	75.6	84	5.15	46	E.N.E.	0.8	E.N.E.	2.6	6 2	8.0
November	29.894	29.833	72.5	81.6	85.2	69.4	15.8	70.0	91	73.0	75	3.05	64	E.N.E.	2.1	E.N.E.	3.4	2.8	5.5
December	29.989	29.924	69.5	79.0	83.1	66.7	16.4	67.5	93	69.8	73	1.63	61	E.N.E.	1.9	N.E.	4.7	3.7	4.6
Means	29.937	29.884	72.7	81.3	85.0	69 1	15.9	69.5	89	71.5	73	...	65	E.N.E.	1.8	E.N E.	4.9	4.0	5 7
											Total	54.13							

1898. CASTLETON GARDENS :—ELEVATION 496 FEET.

MONTH.	Temperature.					Dewpoint and Humidity.				Rainfall.
	7 a.m.	3 p.m.	Max.	Min.	Range.	7 a.m.		3 p.m.		
	°	°	°	°	°	°		°		In.
January	65.7	78.2	84 8	60.4	24.4	64.8	88	70.0	72	4.67
February	64.8	77.2	81.8	60.6	21.2	60.9	86	69 7	74	1.44
March	66.6	79.6	82 4	63.6	18.8	64.2	89	70.0	70	2 37
April	69.1	82 2	86.4	63.2	23.2	65 7	89	77.2	81	7.47
May	73.1	81.6	83.8	66.3	17.5	69.4	86	73 8	78	23.60
June	71.7	82 7	88.1	67.0	21.1	69.0	88	74 3	75	6.52
July	70.9	82.0	87.4	66.3	21.1	68.7	90	75.0	78	9.63
August	73.3	82.1	87.5	68.6	18.9	68.7	87	72.5	74	5.34
September	71.0	81.4	86.9	65 8	21.1	69.1	88	74.3	80	7.76
October	70.9	80.9	83.4	66.4	17.0	69.2	92	74.3	82	8.64
November	70.0	80.0	85.3	64.8	20.5	64.2	91	72.3	76	9.52
December	65 5	79.5	84.9	62.0	22.9	62.0	88	71.7	74	4.29
Means	69.4	80.6	85.2	64.6	20.6	66.3	88	72.9	76	..
									Total	91.25

1898. HOPE GARDENS:—ELEVATION 600 FEET.

MONTH	Temperature.					Dewpoint and Humidity				Rainfall.
	7 a.m.	3 p.m.	Max.	Min	Range.	7 a.m		3 p.m.		
	°	°	°	°	°	°		°		In.
January	65.6	82.3	87.7	63.2	24.5	62.1	90	69.7	67	0.92
February	65.1	80.3	86.8	61.4	25.4	60.7	87	69.5	71	2.72
March	67.1	82.6	86.0	62.3	23.7	61.7	84	67.0	58	0.66
April	70.7	82.8	85.6	64.0	21.6	62.7	75	68.1	60	1.07
May	74.2	82.0	86.6	67.9	18.7	69.0	84	71.4	89	15.74
June	74.0	82.7	87.0	68.0	19.0	68.4	81	71.0	67	5.07
July	73.7	84.3	88.6	68.2	20.4	68.3	81	71.7	67	5.59
August	73.3	82.1	87.5	68.6	18.9	68.7	87	72.1	74	5.34
September	72.5	81.8	87.5	68.4	19.1	67.8	84	72.3	74	4.48
October	72.5	81.0	86.0	68.8	17.2	70.2	90	73.6	79	13.30
November	69.8	78.4	86.0	67.7	18.3	66.6	90	74.3	87	2.43
December	67.1	81.3	85.3	64.2	21.1	63.1	87	70.5	71	0.74
Means	70.5	81.8	86.7	66.1	20.6	65.8	85	71.0	70	..
									Total	58.06

1898. STONY HILL REFORMATORY :—ELEVATION 1400 FEET.

MONTH.	Temperature.					Rainfall.
	7 a.m.	3 p.m.	Max.	Min.	Range.	
	°	°	°	°	°	In.
January	66.3	77.7	82.7	63.1	19.6	0.40
February	65.0	76.5	81.8	62.9	18.9	2.52
March	67.0	77.6	82.1	63.1	19.0	2.60
April	68.7	78.3	83.4	64.6	18.8	5.32
May	71.7	77.0	82.6	66.8	15.8	21.21
June	73.0	80.0	85.8	67.5	18.3	5.08
July	72.2	78.3	85.2	67.6	17.6	7.68
August	71.8	78.6	85.5	67.9	17.6	9.15
September	71.9	77.9	84.9	68.0	16.9	5.92
October	72.1	78.3	84.6	68.2	16.4	12.13
November	70.7	78.5	84.0	66.8	17.2	3.96
December	67.6	77.9	83.3	64.3	19.0	2.71
Means	69.3	78.0	83.8	65.9	17.9	..
					Total	78.68

1898. HILL GARDENS :—ELEVATION 4,907 FEET.

MONTH.	Bar Pressure.		Temperature.					Dewpoint & Humidity.				Rainfall.	Wind per Diem.	Wind : direction (from) and Miles per Hour.			
	7 a.m.	3 p.m.	7 a.m.	3 p.m.	Max.	Min.	Range	7 a.m.		3 p.m.				7 a.m.		3 p.m.	
	In.		°	°	°	°	°	°		°		In.	Miles.				
January	25.251	25.219	57.1	64.1	67.4	53.1	14.3	51.7	80	58.8	82	3.04	46.9	S.E.	..	E.	..
February	.279	.245	55.9	61.6	64.9	52.8	12.1	51.9	85	57.6	85	4.51	18.9	E.	..	E.	..
March	.203	.171	55.7	63.4	67.1	52.8	14.3	51.4	85	57.4	80	2.08	61.4	E.	..	E.	..
April	.237	.195	59.1	64.1	67.2	54.8	12.4	54.5	83	59.3	84	4.25	13.0	..	..	S.E.	..
May	.205	.176	61.4	65.0	68.2	57.5	10.7	57.0	80	62.0	85	44.31	23.5	E.	..	S.E.	..
June	.232	.210	62.1	66.2	70.0	58.5	11.5	56.8	81	61.8	85	8.73	41.5	E.	..	E.	..
July	.299	.199	62.9	67.3	71.0	58.6	12.4	57.5	81	62.3	83	3.78	26.1	E.	..	E.	..
August	.225	.208	62.9	66.4	70.0	58.5	11.5	57.5	82	62.4	86	5.21	17.8	E.	..	E.	..
September	.202	.173	61.9	65.5	69.7	58.2	11.5	57.7	85	62.9	90	8.55	17.3	S.E.	..	S.E.	..
October	.186	.152	61.6	65.5	68.7	58.5	10.2	58.6	88	62.2	88	16.79	21.4	S.E.	..	S.E.	..
November	.150	.112	59.7	64.6	68.5	56.5	12.0	56.6	84	61.3	88	6.76	16.3	E.	..	E.	..
December	25.250	25.216	58.4	64.2	67.6	54.5	13.1	54.1	84	60.7	87	1.69	11.1	E.	..	E.	..
Means	25.226	25.190	59.9	64.8	68.4	56.2	12.2	55.4	83	60.7	85	..	26.2	E.	..	E.	..
											Total	109.70					

NOTES.

Morant Point Lighthouse.—

The Barometer used is a first class mercurial instrument Comparing the pressure with that of Kingston, it appears that the pressure at 7 a.m. was generally less, and at 3 p.m. greater, than that of Kingston.

The Wind in September and October at 7 a.m. and 3 p.m. was variable : but the variations were for the most part between N.E. and S.E.. The miles of wind were estimated, not measured.

The amount of Cloud at 7 a.m and 3 p.m. was almost exactly the same.

Negril Point Lighthouse.—

Comparing the pressure with that of Kingston, there is the same general result as at the Morant Point Lighthouse. The means for the year at these two stations at the extreme ends of the Island are almost exactly the same.

The anemometer is above the lantern and 94 feet above the ground ; it is therefore unusually well exposed ; and this no doubt has a great deal to do with the large amount of Wind registered every day, namely 227 miles. At Kingston the average is 89 ; at the Kempshot Observatory, elevation 1773 feet, the average is 140 ; at the Hill Gardens, elevation 4.907 feet, the average used to be 88, but it has greatly fallen off in late years.

As to the general direction of the Wind. at 7 a.m. it appears to move from the N.E. ; the following table applies to 3 p.m.

NEGRIL POINT LIGHT HOUSE, 3 P.M.

Number of times Wind blew from

1898.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Z.
January	10	3	1	3	6	0	3	5	0
February	9	4	0	2	4	3	2	5	0
March	12	1	2	3	6	3	1	3	0
April	5	1	1	4	4	3	2	5	2
May	3	4	3	6	6	2	3	4	0
June	5	3	0	13	6	0	0	2	1
July	4	3	2	6	12	2	0	1	1
August	8	4	2	8	4	0	0	3	2
September	2	4	6	12	3	1	0	2	0
October	6	2	4	14	4	0	0	1	0
November	10	2	3	2	7	2	0	3	1
December	11	3	0	3	6	1	2	5	0
	85	34	24	76	68	16	13	42	7

Kingston.—

The maximum was a little below the average, most probably in consequence of the growth of the ornamental trees in the Parade Gardens. The anemometer is on the roof of the Public Works Office.

Montego Bay.—

A complete register was kept at Brandon Hill in order to compare the average climate on the north side of the Island with that of Kingston. Brandon Hill is about three quarters of a mile east of the Court-house, Montego Bay, on rising ground 160 feet above the sea-level ; it therefore overlooks the town towards the west : on the other sides are "dewy pastures, dewy trees." The E.N.E. sea-breeze which is drawn in on the northern shores between Montego Bay and Falmouth sweeps the intervening land and Brandon Hill with considerable force, especially in the month of March ; and passing to a certain extent over the town of Montego Bay, it sweeps the harbour seawards. The land breeze at night comes from the higher hills at Rosemount to the E.N.E. ; so that the air at Brandon Hill comes from the same direction day and night.

There was not in 1898 the barometric variation noticed at Morant Point and Negril Point when compared with Kingston : and in all respects the register at Brandon Hill closely agrees with that at Kingston.

It is true that the afternoon temperature at Brandon Hill is about 2° lower than at Kingston; but I do not think that this is sufficient to account for the difference in climate as perceptible to the feelings, especially as the higher humidity at Brandon Hill must have a relaxing or depressing effect.

But it is generally acknowledged that the north side of the Island is more invigorating than the south side ; and I feel convinced that Brandon Hill has a pleasanter climate than that of Kingston. To what then are we to attribute this difference? Why should the air drawn in from the N.E. be more refreshing than the air drawn in from the S.E., apart from temperature?

In England there is a marked difference from a physiological point of view between wind from the N.E. and S.W. apart from temperature, especially to persons who are not in the very best of health; and apparently there is the same effect in Jamaica.

Castleton Gardens.—

The temperature here is somewhat lower than at Kingston ; but the min. seems to read too low : perhaps some of the alcohol has distilled across to the wrong end of the thermometer tube.

Hope Gardens.—

The same remark as to the min. applies here : the max. also apparently requires attention.

Stony Hill.—

Both Dry and Wet bulbs were recorded ; but it seems doubtful whether the muslin over the Wet bulb was kept sufficiently clean by constant renewal ; the Dewpoint and Humidity have therefore been omitted.

Hill Gardens.—

The foregoing barometer pressures have all been reduced to the sea-level ; but a difficulty was noticed shortly after the establishment in 1881 of the Station at the Hill Gardens, or Cinchona Plantation as it was then called, with regard to the reduction to the sea-level. The 3 p.m. readings can be reduced according to rule, and so can the 7 a.m. readings during the summer months ; but during the winter months the 7 a.m. reduced readings show systematic changes due to the fact that the readings were taken too near sun rise when the atmosphere is expanding with the rapidly increasing temperature.

Consequently in taking barometer readings to determine differences of elevation, care should be taken to avoid readings too near sunrise. I have found this rule applicable to Kempshot and Montego Bay, as well as to the Hill Gardens and Kingston.

However, if we apply 4.697* to the 3 p.m. mean reading, we get 29.887, which agrees exactly with the Kingston mean reading at that hour, both reduced to sea-level.

Temperature, Dewpoint, and Humidity call for no comment ; but the very large Rainfall of 44.31 inches for May will be noticed.

The Wind per diem is small, and is apparently smaller than formerly. Perhaps trees are impeding the wind, or perhaps the anemometer is out of order.

* The tabulated reduction to sea-level corresponding to the mean temperature of the column of air.

THE KINGSTON TIME SERVICE, 1898.

The Time Service was established in 1896 to ascertain the errors and rates of marine chronometers sent to the Transit-room for that purpose, and to supply the public offices and institutions in Kingston with Time as may be requi.ed.

The Transit-room in the Parade Gardens, Kingston, is in latitude 17° 58' 18".7 north, and in longitude 5 hrs. 7 min. 10.41 sec. west of Greenwich, according to a survey which connected the Transit-room with Captain Green's station at the lower end of King Street.

The building is of brick-work with wooden floor, and roof covered with "Tilestoneite" roofing material. It comprises two small wings connected by a central portion in which stands the transit instrument, over which there is a moveable roof consisting of light wooden canvas covered shutters, operated by rods from below. The structure is well suited to its purpose.

The instruments are, a Transit-instrument, a Sidereal clock, and a Mean time chronometer; the two former were brought to Kingston from the Kempshot Observatory; the last was purchased from Messrs. J. H. Milke Bros. for £20.

The Transit-instrument has an aperture of 3 inches; it may easily be reversed; and it is provided with a very delicate hanging level. It was made by Messrs. T. Cooke & Sons of York, and cost £66 in England.

The clock is provided with a mercurial compensating pendulum and a dead-beat escapement.

By watching the transit of stars across the wires in the field of view of the Transit-instrument, the error of the Sidereal clock may be ascertained with all possible accuracy; and then the error of the Mean time chronometer, or of any other marine chronometer, may be ascertained by comparison with the clock, and by reduction from sidereal to mean time.

The Transit-instrument is mounted on a solid concrete pedestal which has proved firm and stable during the year 1898 according to the constancy shown in the following Table of instrumental errors.

The flooring of the building is constructed so that it is entirely clear of the pedestal of the Transit-instrument and of the Sidereal clock.

Let a'' be the error of azimuth, or the deviation of the plane of collimation to the East of the South horizontal point measured in seconds of arc; and let $a = \frac{a''}{15}$, or the same error expressed in seconds of time.

Let b'' be the error of level, or the elevation of the West pivot above the East pivot; and as before let $b = \frac{b''}{15}$.

Let c'' be the error of collimation, or the displacement of the mean wire to the East of the plane of collimation when the illumination is West, and let $c = \frac{c''}{15}$.

Then the following table gives the values of a, b and c, obtained by reversing during the transit of a polar star, and reading the level at the same time.

1898	a	b	c.
	sec.	sec.	sec.
March 11 -	— 0.42	+ 0.65	— 0.66
June 19 -	— 0.75	+ 0.11	— 0.22
Oct. 13 -	— 0.07	— 0.05	— 0.88
Dec. 13 -	— 0.40	+ 0.24	— 0.45
Means -	— 0.41	+ 0.24	— 0.55

The following were the equatoreal reductions of the five wires to the mean wire:—

I.	+ 23.21 sec.
II.	+ 11.51
III.	+ 0.04
IV.	— 11.69
V.	— 23.14

Their order is for the Upper transit, illumination west.

MEAN TIME CHRONOMETER : ERROR AND RATE.

1898.	Hour.	Error.	Rate.	Notes.
		Sec.	Sec.	
January 6	8 p.m.	48.5 fast	0.9	Rate gaining.
14	6 ,,	56.0	0.9	
24	7 ,,	63.6	0.8	
30	8 ,,	68.7	0.8	
February 5	10 ,,	75.0	1.0	Mean Rate during Jan., Feb. and March was 1.0 gaining
11	6 ,,	82.7	1.3	
18	7 ,,	90.2	1.1	
26	7 ,,	100.7	1.3	
March 2	7 ,,	104.4	0.9	
6	10 ,,	107.5	0.8	
11	9 ,,	111.8	0.9	
20	8 ,,	124.8	1.4	
27	7 ,,	130.9	0.9	
April 5	Noon.	136.5	0.6	
9	9 ,,	138.4	0.4	
16	9 ,,	142.2	0.5	
24	9 ,,	148.0	0.7	
29	7 ,,	150.2	0.4	
May 14	9 ,,	154.9	0.3	
19	Noon.	155.5	0.1	
28	10 ,,	161.2	0.6	
June 14	9 ,,	168.6	0.4	Mean rate April to Aug. was 0.5 gaining.
19	8 ,,	170.8	0.4	
24	7 ,,	170.4	— 0.1	
July 2	9 ,,	172.3	0.2	
15	7 ,,	181.9	0.7	
24	9 ,,	189.0	0.8	
29	Noon.	189.2	0.0	
August 5	7 ,,	194.5	0.7	
8	9 ,,	61.8	--	Chronometer ran down : reset.
16	9 ,,	66.1	0.5	
24	6 ,,	70.5	0.6	
Sept. 1	6 ,,	74.5	0.5	Mean rate 0.5 gaining.
8	7 ,,	77.3	0.4	
16	6 ,,	83.2	0.7	
27	7 ,,	6.6 Slow.	--	Chronometer ran down : reset : rate altered by watch-maker. Rate losing.
October 1	7 ,,	20.6	3.5	
13	6 ,,	59.5	3.2	
21	6 ,,	86.2	3.2	
November 13	7 ,,	148.8	2.7	
21	5 ,,	182.1	4.2	
29	6 ,,	207.4	3.2	Mean rate Oct. Nov. and Dec. was 3.3 losing.
December 5	6 ,,	226.1	3.1	
13	10 ,,	252.7	3.3	
19	7 ,,	273.1	3.4	
29	7 ,,	312.3	3.9	

These tables show the care which has been taken by my assistant, Mr. John D'Aeth, of the Public Works Department, in the management of the instruments ; and they also show that the Time supplied was more than sufficiently accurate for the clocks of the various Departments and Institutions in Kingston.

The Time thus supplied to the Post Office was telegraphed all round and through the Island; and the Post Office clocks were thus daily set to Kingston mean time. For a month or so during 1898 I used to test the Time as shown by the Post Office clock at Montego Bay by the Time-signal through St. Ann's Bay and Falmouth and as shown by the Post Office clock at Sav.-la-Mar by the Time-signal through Mandeville and Black River ; and these clocks were always correct to the nearest minute. But as this test did not apply to the east end of the Island and to the various branch lines, I communicated with the Postmaster for Jamaica, and I was assured that the clocks along the Telegraph lines were checked from time to time by the simple process of calling upon the Stations to report every now and then to the Head Office the time as shown by their clocks. This checking may therefore very well be left to the Telegraph Department for the future : and I feel convinced that during 1898 Kingston mean time was shown by all the Post Office clocks along the lines of Telegraph.

But on the other hand time was very badly kept by Church and Market clocks ; and this matter requires the attention of the various Parochial Boards.

As in 1897, only four chronometers were sent to the Transit-room to have their Errors and Rates accurately taken.

MAXWELL HALL

Govt. Meteorologist.