

SMITHSONIAN MISCELLANEOUS COLLECTIONS
VOLUME 111, NUMBER 5

Roebling Fund

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27.0074-DAY CYCLE IN WASHINGTON
PRECIPITATION

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(PUBLICATION 3980)

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION
MARCH 8, 1949

The Lord Baltimore Press
BALTIMORE, MD., U. S. A.

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1948-1949 REPORT ON THE 27.0074-DAY CYCLE IN WASHINGTON PRECIPITATION

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In Smithsonian Miscellaneous Collections¹ I have set forth an apparent cycle of precipitation at Washington associated with the sun's rotation. In 1948, for the fifteenth consecutive year, the average precipitation for predicted favorable days has exceeded the average precipitation on all other days of the year. The results for 1948 precipitation are given in table I.

TABLE I.—*Statistics of Washington precipitation, 1948*

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
Average per day { Pfd.	0.292	0.049	0.274	0.146	0.386	0.123	0.095	0.173	0.086	0.022	0.190	0.221	0.175
Other	0.038	0.091	0.087	0.007	0.161	0.140	0.136	0.338	0.151	0.165	0.195	0.084	0.137
Ratio	7.68	0.54	3.15	20.8	2.40	0.88	0.70	0.51	0.60	0.13	0.97	2.63	1.28
Total ppt.	4.99	2.05	5.31	2.44	8.59	3.98	3.60	8.00	3.63	3.11	5.78	4.93	56.41
Normal	3.55	3.37	3.75	3.27	3.70	4.13	4.71	4.01	3.24	2.84	2.37	3.32	42.26
Percent	141	61	142	75	232	96	76	200	112	110	244	153	133

Lines 1 and 2 give the average precipitation in inches per day for preferred and all other days of the year 1948. Line 3 gives the ratio: "preferred" / other. Lines 4 and 5 give the total precipitation and normal precipitation in inches, and line 6 gives the percentage of normal precipitation falling in the several months, and in the entire year.

Preferred days had a higher average precipitation than other days in the 5 months January, March, April, May, and December, and in the year as a whole. The other 7 months went the other way, but November had almost an exact balance between preferred and other days. However, if on June 19, August 1, September 21, October 5, and November 28 precipitation had been delayed a few hours and occurred on the next following days, these 5 months would also have been favorable to the preferred days.

Statistically, the ratio: "preferred" / other is expected to be 1.42. The ratio for the 15 years ending with 1948 has actually been 1.46.

Table 2 gives the dates for 1949 when the average daily precipitation is expected to exceed the average daily precipitation on all other days of the year. In the first column are given in Roman numerals the day number of the 27 days of the cycle when higher precipitation is expected. The remainder of the table gives the actual dates in the different months which correspond to these Roman

¹ Smithsonian Misc. Coll., vol. 104, Nos. 3 and 5, 1944; vol. 110, No. 4, 1948.

numerals, in other words the "preferred days" for 1949. These preferred days should give, on the average, higher precipitation per day than all the other days of the year, but there is no high probability that precipitation will actually fall on any individual day among "preferred days," or will not fall on any individual other day.

TABLE 2.—*Predicted dates when average daily precipitation should exceed average daily precipitation for all other dates in Washington, D. C., for the year 1949*

"Preferred" cycle places	Jan.	Feb.	Mar.	Apr.	May	June
I	24	20	19	15	12	8
II	25	21	20	16	13	9
III	26	22	21	17	14	10
IV	27	23	22	18	15	11
V	1, 28	24	23	19	16	12
XII	8	4	3	26	23	19
XIII	9	5	4, 31	27	24	20
XV	11	7	6	2, 29	26	22
XVII	13	9	8	4	1, 28	24
XVIII	14	10	9	5	2, 29	25
XXII	18	14	13	9	6	2, 29
XXVI	22	18	17	13	10	6
XXVII	23	19	18	14	11	7

"Preferred" cycle places	July	Aug.	Sept.	Oct.	Nov.	Dec.
I	5	1, 28	24	21	17	14
II	6	2, 29	25	22	18	15
III	7	3, 30	26	23	19	16
IV	8	4, 31	27	24	20	17
V	9	5	1, 28	25	21	18
XII	16	12	8	5	1, 28	25
XIII	17	13	9	6	2, 29	26
XV	19	15	11	8	4	1, 28
XVII	21	17	13	10	6	3, 30
XVIII	22	18	14	11	7	4, 31
XXII	26	22	18	15	11	8
XXVI	3, 30	26	22	19	15	12
XXVII	4, 31	27	23	20	16	13

The statistical tabulation of 27-day cycles, on which table 2 is based, began January 1, 1924, and it indicated that the true cycle is 27.0074 days. In 25 years since December 31, 1923, there were 9.132 days. In 339 cycles of 27.0074 days there are 9,155.50 days, or in round numbers 23 days more than in the years 1924-1948. Hence the first day of the 340th cycle begins on January 24, 1949, as given in table 2, corresponding to Roman numeral I.

It should be emphasized that this prediction relates only to Washington, D. C.²

² This paper was finished on January 18, 1949, immediately after receipt of Weather Bureau data for December 1948.