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METEOROLOGICAL OBSERVATIONS AT JERUSALEM.

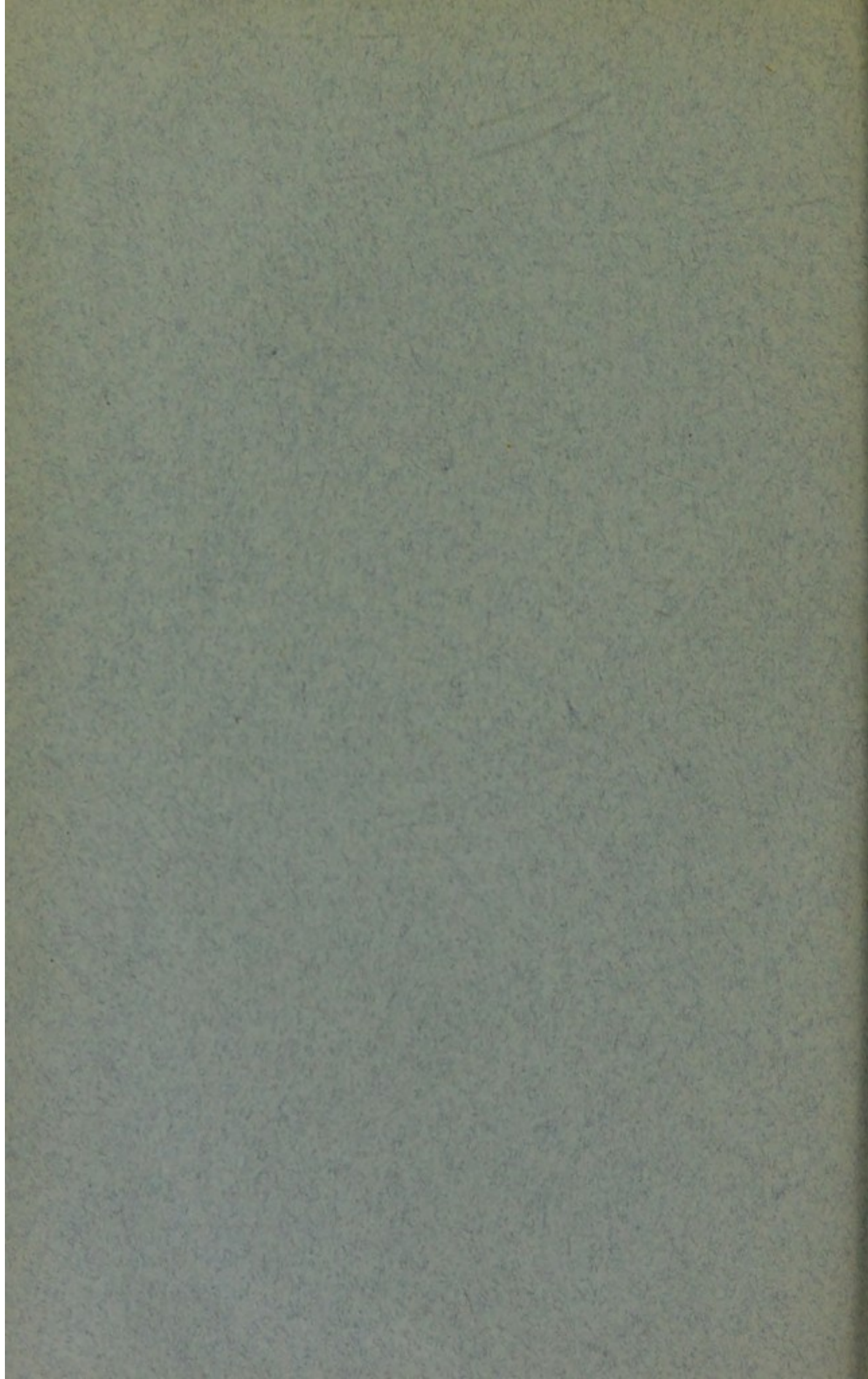
BY

JAMES GLAISHER, F.R.S.



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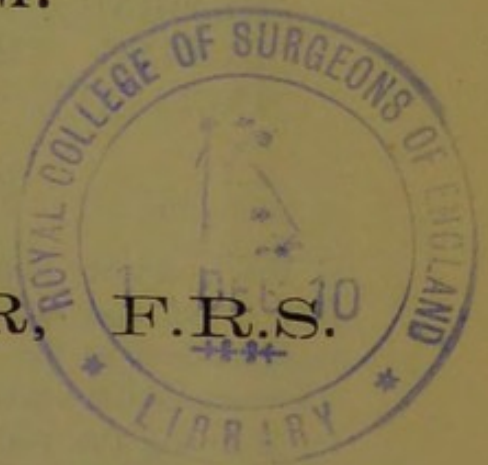
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METEOROLOGICAL OBSERVATIONS AT JERUSALEM.

BY

JAMES GLAISHER, F.R.S.



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ON THE HIGHEST AND LOWEST READINGS OF
THE BAROMETER, THE RANGE OF BAROMETER
READINGS, AND MONTHLY AND ANNUAL MEANS
DURING THE 20 YEARS, VIZ., 1882 TO 1901
INCLUSIVE, AT JERUSALEM.

By JAMES GLAISHER, F.R.S.

IN the Quarterly Reports of the Palestine Exploration Fund, beginning July, 1893, and ending July, 1902, the results of observations taken at Jerusalem in the 20 years ending 1901 have been published. The observations were taken under the auspices of the Palestine Exploration Fund during the years from 1882 to 1900 by Joseph Gamel, and during the year 1901 by Adolph Datzi, in a garden, well within the city, about 2,500 feet above the level of the Mediterranean Sea, open on all sides, in latitude $31^{\circ} 46' 40''$ N., longitude $35^{\circ} 13' 30''$ E. The observations have been reduced to 32° F.

TABLE I (*see facing p. 6*).

The numbers in Table I show the highest reading of the barometer in every month of 20 consecutive years, and from this table it will be seen that the maximum occurred in—

				The maximum was—	
January seven times, viz., in 1882, 1884, 1890, 1898,	ins.				
1899, 1900, and 1901 ....	....	....	....	27.795	in 1898
February once, viz., in 1887 ....	....	....	....	27.709	,, 1887
October once, viz., in 1894 ....	....	....	....	27.607	,, 1894
November three times, viz., in 1893, 1895, and 1897	27.735	,,	1897		
December seven times, viz., in 1883, 1886, 1888,					
1889, 1891, 1892, and 1896 ....	....	....	....	27.737	,, 1891
January and December once, viz., in 1885 ....	....	....	....	27.616	,, 1885

The lowest monthly maximum occurred in—

				The lowest was—	
July fifteen times, viz., 1882, 1883, 1886, 1887, 1888,	ins.				
1890, 1891, 1892, 1893, 1894, 1896, 1897, 1898,					
1899, 1900, and 1901 ....	....	....	....	27.268	in 1900
August five times, viz., 1884, 1885, 1889, 1891, and					
1895 ....	....	....	....	27.325	,, 1895

The highest barometer reading in the 20 years was 27.795 inches, in January, 1898, and the next in order were 27.757 inches, in January, 1900, and 27.737 inches, in December, 1891.

The numbers at the foot of the columns give the mean of each year. The largest was 27.561 inches, in 1901, being 0.035 inch larger than the mean of 20 years; and the smallest was 27.484 inches, in 1890, being 0.041 inch smaller than the mean of 20 years.

In the last column is shown the mean of the 20 highest readings in each month. The highest, 27.646 inches, was in January, and the lowest, 27.357 inches, in July.

The mean of all, as shown at the foot of the last column of this table, was 27.525 inches.

TABLE II (*see facing p. 6*).

The numbers in Table II show the lowest reading of the barometer in every month of the 20 years, and from this table it will be seen that the minimum occurred in—

	The lowest was— ins.
January twice, viz., 1887 and 1901	26.978 in 1887
February four times, viz., 1891, 1892, 1899, and 1900	27.025 „ 1891
March seven times, viz., 1885, 1886, 1889, 1895, 1896, 1897, and 1898	26.860 „ 1898
April four times, viz., 1882, 1884, 1890, and 1894....	26.997 „ 1884
December twice, viz., 1888 and 1893....	27.020 „ 1888
January and February once, viz., 1883	27.122 „ 1883

The highest minimum in the year occurred in—

	The highest was— ins.
October sixteen times, viz., 1882, 1883, 1885, 1887, 1888, 1889, 1890, 1891, 1892, 1894, 1895, 1896, 1897, 1898, 1899, and 1900	27.395 in 1894
November three times, 1886, 1893, and 1901	27.400 „ 1901
December once, viz., 1884	27.360 „ 1884

The lowest reading of the barometer in the 20 years was 26.860 inches, in March, 1898, and the next in order were 26.970 inches, in March, 1896, and 26.978 inches, in January, 1887.

The numbers at the foot of the columns give the mean of each year. The smallest was 27.177 inches, in 1896, being 0.031 inch smaller than the mean for 20 years; and the largest was 27.295 inches, in 1901, being 0.087 inch larger than the mean of 20 years.

In the last column is shown the mean of the 20 lowest readings in each month. The lowest was 27.101 inches, in March, and the highest 27.347 inches, in October.

The mean of all, as shown at the foot of the last column of this table, was 27.208 inches.

TABLE III (*see facing p. 6*).

Table III shows the range of barometer readings in each month in the 20 years.

The greatest ranges appear in the winter and spring months, and the least in the summer and autumn months.

The greatest monthly range in the year has occurred in—

							The largest was—
January seven times, viz., in 1884, 1887, 1890, 1896,							in.
1898, 1899, and 1901....	....	....	....	....	....	....	0·730 in 1887
February three times, viz., in 1883, 1891, and 1900							0·549 „ 1891
March five times, viz., in 1885, 1886, 1889, 1894, and							
1897 ....	....	....	....	....	....	....	0·641 „ 1897
April once, viz., in 1882							0·517 „ 1882
December four times, viz., in 1888, 1892, 1893, and							
1895 ....	....	....	....	....	....	....	0·714 „ 1888

The least monthly range in the year has occurred in—

							The least was—
							in.
June three times, viz., in 1883, 1885, and 1898							0·137 in 1898
July eight times, viz., in 1882, 1886, 1887, 1888,							
1890, 1893, 1896, and 1900 ....	....	....	....	....	....	....	0·094 „ 1900
August five times, viz., in 1884, 1889, 1891, 1892,							
and 1895 ....	....	....	....	....	....	....	0·131 „ 1892
September twice, viz., in 1894 and 1901							0·122 „ 1901
October once, viz., in 1897							0·159 „ 1897
July and September once, viz., in 1899							0·169 „ 1890

The greatest monthly range in the 20 years was 0·730 inch, in January, 1887; the next in order were 0·714 inch, in December, 1888, and 0·641 inch, in March, 1897.

The least monthly range in the 20 years was 0·094 inch, in July, 1900, and the next in order were 0·122 inch, in September, 1901, and 0·129 inch, in July, 1887, and July, 1893.

The mean monthly range in each year is shown at the foot of each column. The largest was 0·356 inch, in 1896, being 0·041 inch larger than the average of 20 years; and the smallest was 0·266 inch, in 1901, or 0·045 inch smaller than the average.

In the last column is shown the mean range in each month. The largest was in January, 0·479 inch, and the smallest 0·184 inch, in August.

The mean of all, as shown at the foot of the last column of this table, was 0·315 inch.

By taking the difference between the highest reading in each year in Table I, and the lowest reading in each year in Table II, the yearly range of atmospheric pressure is found.

In the year 1882 the yearly range was 0·613 inch.

1883	"	"	0·491	"
1884	"	"	0·671	"
1885	"	"	0·626	"
1886	"	"	0·570	"
1887	"	"	0·731	"
1888	"	"	0·714	"
1889	"	"	0·626	"
1890	"	"	0·528	"
1891	"	"	0·712	"
1892	"	"	0·517	"
1893	"	"	0·642	"
1894	"	"	0·574	"
1895	"	"	0·674	"
1896	"	"	0·701	"
1897	"	"	0·755	"
1898	"	"	0·935	"
1899	"	"	0·538	"
1900	"	"	0·714	"
1901	"	"	0·538	"

From the above table it will be seen that the greatest yearly range was 0·935 inch, in 1898, and the least 0·491 inch, in 1883.

TABLE IV (*see facing p. 6*).

Table IV shows the mean monthly reading of the barometer at 8 a.m. in every month in the 20 years. From this table it will be seen that the mean atmospheric pressure was highest in the winter and lowest in the summer months. The highest monthly mean in the year occurred in—

						The highest was—
January	four times, viz., in 1882, 1895, 1898, and 1900	....	....	....	....	ins. 27·529 in 1898
October	five times, viz., in 1883, 1885, 1887, 1890, and 1894	....	....	....	....	27·490 „ 1883
November	five times, viz., in 1889, 1891, 1893, 1897, and 1899	....	....	....	....	27·515 „ 1893
December	six times, viz., in 1884, 1886, 1888, 1892, 1896, and 1901	....	....	....	....	27·558 „ 1901

The lowest monthly mean occurred in—

						The lowest was—
July	seventeen times, viz., in 1882, 1883, 1884, 1886, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1896, 1897, 1898, 1899, 1900, and 1901	....	....	....	....	ins. 27·217 in 1899
August	three times, viz., in 1885, 1887, and 1895	....	....	....	....	27·247 „ 1895

The highest monthly mean reading in the 20 years was 27·558 inches in December, 1901, and the next in order was 27·529 inches, in both January, 1898, and November, 1901 ; and the lowest was 27·217 inches, in July, 1890, and the next in order were 27·236 inches, in July, 1889, and 27·239 inches, in July, 1893.

The numbers at the foot of the columns show the yearly mean reading of the barometer at 8 a.m. The highest was 27·436 inches, in 1901, being 0·063 inch above the mean of 20 years ; and the lowest yearly mean was 27·357 inches, in 1894, being 0·016 inch below the mean of 20 years.

The numbers in the last column show the mean of the 20 monthly mean readings. The month with the highest mean was November, 27·465 inches, being 0·092 inch above the average ; and the lowest was in July, 27·266 inches, being 0·107 inch below the average.

The mean atmospheric pressure at 8 a.m., as shown at the foot of the last column, was 27·381 inches.

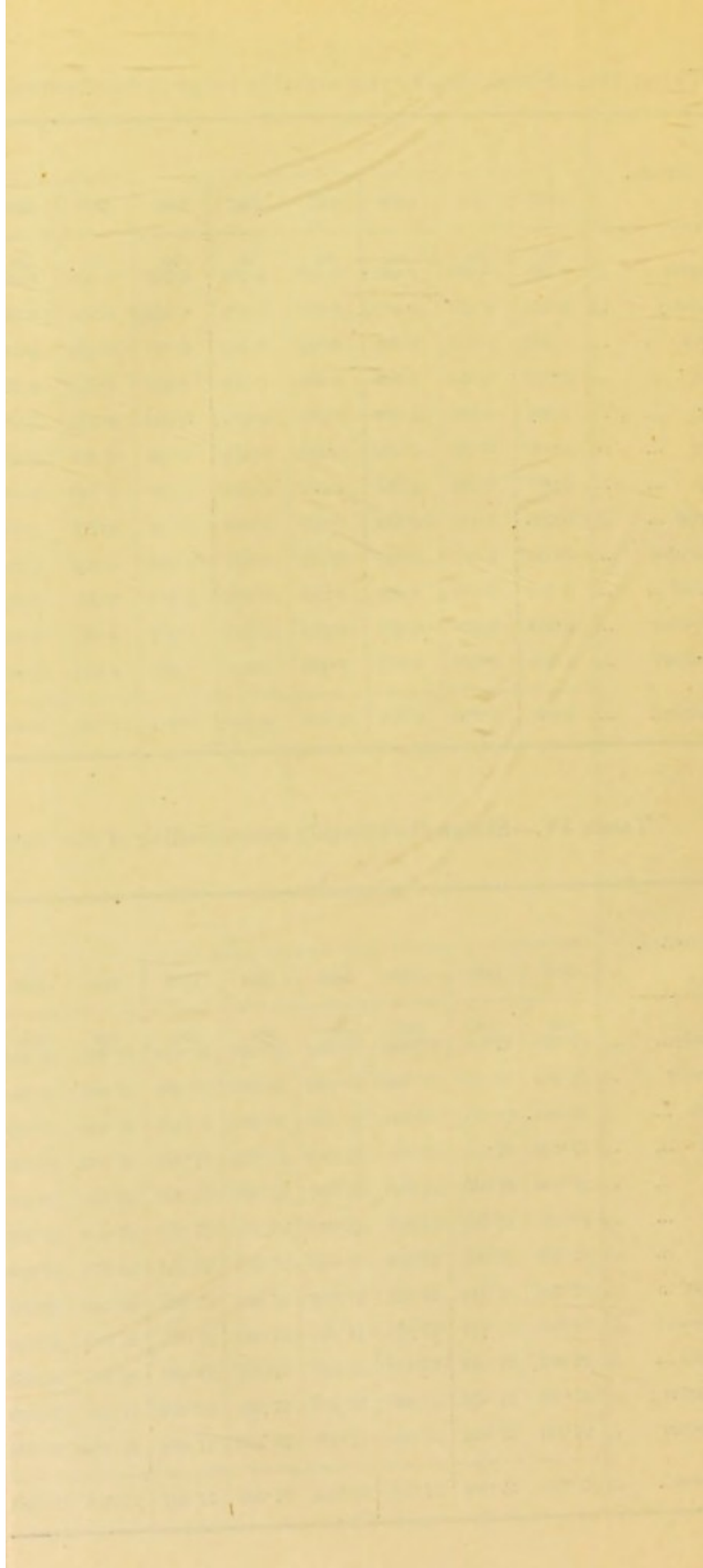
(To face p. 6.)

TABLE I.—Shows the highest reading of the barometer in every month during a period of 20 consecutive years (1882 to 1901 inclusive) at Jerusalem.

Months.	YEARS.																				Means of 20 years.
	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	
January...	ins. 27.721	ins. 27.542	ins. 27.668	ins. 27.616	ins. 27.587	ins. 27.708	ins. 27.602	ins. 27.561	ins. 27.613	ins. 27.599	ins. 27.604	ins. 27.538	ins. 27.563	ins. 27.687	ins. 27.598	ins. 27.680	ins. 27.795	ins. 27.690	ins. 27.757	ins. 27.722	ins. 27.646
February ...	27.693	27.574	27.630	27.582	27.582	27.709	27.600	27.621	27.546	27.574	27.521	27.569	27.528	27.509	27.620	27.672	27.565	27.559	27.559	27.668	27.592
March ...	27.618	27.609	27.619	27.557	27.573	27.557	27.627	27.562	27.489	27.555	27.496	27.612	27.578	27.455	27.438	27.621	27.435	27.572	27.530	27.592	27.555
April ...	27.625	27.527	27.510	27.506	27.502	27.551	27.491	27.519	27.485	27.557	27.458	27.531	27.512	27.537	27.594	27.510	27.531	27.501	27.558	27.531	27.527
May ...	27.504	27.467	27.434	27.446	27.594	27.635	27.472	27.523	27.407	27.424	27.522	27.449	27.435	27.551	27.481	27.493	27.450	27.515	27.495	27.504	27.490
June ...	27.482	27.403	27.460	27.410	27.434	27.430	27.396	27.466	27.423	27.455	27.421	27.480	27.420	27.478	27.443	27.426	27.406	27.458	27.468	27.507	27.444
July ...	27.358	27.346	27.443	27.403	27.345	27.315	27.329	27.381	27.292	27.475	27.317	27.296	27.378	27.345	27.375	27.334	27.361	27.375	27.268	27.403	27.357
August ...	27.399	27.409	27.378	27.364	27.368	27.321	27.372	27.356	27.349	27.374	27.342	27.420	27.395	27.325	27.439	27.354	27.381	27.397	27.362	27.410	27.376
September ...	27.560	27.530	27.453	27.515	27.501	27.586	27.486	27.469	27.496	27.462	27.463	27.402	27.472	27.493	27.491	27.570	27.538	27.488	27.474	27.480	27.497
October ..	27.537	27.530	27.599	27.575	27.513	27.578	27.558	27.626	27.598	27.501	27.544	27.556	27.607	27.508	27.589	27.541	27.569	27.616	27.555	27.579	27.563
November ...	27.573	27.580	27.631	27.582	27.623	27.576	27.600	27.616	27.577	27.619	27.537	27.668	27.499	27.692	27.656	27.735	27.715	27.619	27.566	27.629	27.615
December ...	27.617	27.613	27.637	27.616	27.656	27.615	27.734	27.673	27.533	27.737	27.617	27.583	27.526	27.647	27.671	27.639	27.731	27.599	27.555	27.706	27.635
Means...	27.556	27.511	27.538	27.512	27.523	27.548	27.522	27.531	27.484	27.528	27.487	27.509	27.493	27.519	27.533	27.548	27.540	27.532	27.512	27.561	27.525

TABLE II.—Shows the lowest reading of the barometer in every month during a period of 20 consecutive years (1882 to 1901 inclusive) at Jerusalem.

Months.	YEARS.																				Means of 20 years.
	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	
January...	ins. 27.314	ins. 27.122	ins. 27.137	ins. 27.134	ins. 27.182	ins. 26.978	ins. 27.174	ins. 27.268	ins. 27.133	ins. 27.096	ins. 27.132	ins. 27.102	ins. 27.268	ins. 27.236	ins. 27.036	ins. 27.119	ins. 27.170	ins. 27.192	ins. 27.289	ins. 27.184	ins. 27.163
February ...	27.177	27.122	27.217	27.221	27.103	27.231	27.046	27.262	27.116	27.025	27.100	27.279	27.060	27.163	27.152	27.132	27.177	27.152	27.043	27.355	27.186
March ...	27.182	27.198	27.110	26.990	27.086	26.995	27.194	27.047	27.127	27.283	27.158	27.060	27.071	27.018	26.970	26.990	26.860	27.219	27.163	27.318	27.101
April ...	27.108	27.172	26.997	27.043	27.146	27.078	27.169	27.246	27.085	27.271	27.192	27.162	27.033	27.079	27.126	27.189	27.175	27.251	27.212	27.294	27.149
May ...	27.118	27.198	27.193	27.245	27.301	27.253	27.259	27.207	27.226	27.164	27.130	27.093	27.223	27.252	27.120	27.182	27.206	27.292	27.268	27.226	27.208
June ...	27.202	27.259	27.298	27.211	27.189	27.246	27.220	27.207	27.218	27.251	27.224	27.195	27.242	27.260	27.220	27.231	27.269	27.224	27.301	27.326	27.240
July ...	27.161	27.189	27.182	27.191	27.149	27.186	27.189	27.099	27.127	27.169	27.125	27.167	27.173	27.161	27.153	27.156	27.180	27.206	27.174	27.210	27.167
August ...	27.191	27.260	27.234	27.155	27.103	27.174	27.200	27.190	27.180	27.200	27.211	27.220	27.192	27.162	27.212	27.152	27.153	27.179	27.217	27.246	27.191
September ...	27.298	27.236	27.234	27.268	27.264	27.253	27.280	27.224	27.321	27.273	27.246	27.265	27.297	27.245	27.266	27.231	27.256	27.319	27.298	27.361	27.272
October ...	27.323	27.370	27.311	27.360	27.310	27.377	27.353	27.389	27.329	27.323	27.286	27.313	27.395	27.313	27.357	27.382	27.328	27.355	27.369	27.393	27.347
November ...	27.320	27.217	27.359	27.348	27.331	27.339	27.090	27.353	27.271	27.174	27.271	27.393	27.303	27.237	27.282	27.310	27.291	27.265	27.296	27.400	27.293
December ...	27.213	27.238	27.360	27.275	27.280	27.263	27.020	27.257	27.170	27.252	27.126	27.026	27.282	27.173	27.226	27.347	27.184	27.171	27.175	27.225	27.214
Means...	27.217	27.215	27.219	27.203	27.204	27.197	27.183	27.229	27.192	27.207	27.183	27.190	27.212	27.191	27.177	27.201	27.188	27.235	27.234	27.295	27.208



ON THE HIGHEST AND LOWEST TEMPERATURES OF THE AIR AND EXTREME RANGE OF TEMPERATURE; ON THE MONTHLY MEAN HIGHEST AND MONTHLY MEAN LOWEST TEMPERATURES, AND MEAN DAILY RANGE OF TEMPERATURE; ALSO ON THE MONTHLY AND ANNUAL MEAN TEMPERATURE OF THE AIR DURING A PERIOD OF TWENTY CONSECUTIVE YEARS, 1882 TO 1901 (INCLUSIVE), AT JERUSALEM.

By JAMES GLAISHER, F.R.S.

THE observations at Jerusalem were taken under the auspices of the Palestine Exploration Fund, during the years 1882 to 1900, by Joseph Gamel, and during the year 1901 by Adolph Datzi, in a garden, well within the city, about 2,500 feet above the level of the Mediterranean Sea, open on all sides, in latitude $31^{\circ} 46' 40''$ N., and longitude $35^{\circ} 13' 30''$ E.

TABLE I (*see facing p. 18*).

Table I shows the highest temperature in every month in each of the 20 years, 1882 to 1901. The highest temperature was in—

1882 on August 28	....	....	....	....	99°·5
1883 „ June 2	....	....	....	....	98°·5
1884 „ August 6 and 9	....	....	....	....	105°·0
1885 „ „ 7	....	....	....	....	98°·0
1886 „ June 15	....	....	....	....	105°·0
1887 „ August 21	....	....	....	....	102°·0
1888 „ „ 12 and 13	....	....	....	....	106°·0
1889 „ „ 1	....	....	....	....	100°·5
1890 „ September 10	....	....	....	....	97°·0
1891 „ June 10 and August 8	....	....	....	....	97°·0
1892 „ September 17	....	....	....	....	101°·0
1893 „ July 19	....	....	....	....	104°·5
1894 „ June 18	....	....	....	....	108°·0
1895 „ „ 14 and September 22	....	....	....	....	97°·0
1896 „ August 14	....	....	....	....	103°·0
1897 „ September 23	....	....	....	....	99°·0

Highest temperature (*continued*)—

1898 on June 19	98°·5
1899 „ „ 25	99°·0
1900 „ September 1	98°·0
1901 „ August 30	98°·0

Thus the maximum temperature for the year has occurred—

Five times in June.

Once in July.

Eight times in August.

Four times in September.

Once in both June and August.

Once in both June and September.

The maximum temperature of the air reached or exceeded 100° in only nine out of the 20 years. The total number of days of this high temperature was 25, viz. :—

		When it was
In 1884 it reached or exceeded 100° on four days :—	July 6	105°·0
	„ 7	100°·0
	„ 9	105°·0
	„ 10	102°·0
In 1886 it reached or exceeded 100° on five days :—	June 14	100°·0
	„ 15	105°·0
	„ 18	100°·0
	Aug. 14	100°·5
	„ 15	101°·0
In 1887 it reached or exceeded 100° on three days :—	Aug. 16	100°·0
	„ 21	102°·0
	„ 22	101°·8
In 1888 it reached or exceeded 100° on seven days :—	Aug. 12	106°·0
	„ 13	106°·0
	„ 14	105°·0
	„ 15	104°·0
	„ 19	101°·2
	„ 20	103°·2
	„ 21	100°·8
In 1889 it reached or exceeded 100° on one day :—	Aug. 1	100°·5
In 1892 it reached or exceeded 100° on one day :—	Sept. 17	101°·0
In 1893 it reached or exceeded 100° on one day :—	July 19	104°·5
In 1894 it reached or exceeded 100° on three days :—	June 17	102°·5
	„ 18	108°·0
	July 16	104°·8

The highest temperature in the 20 years was 108°.0 , on June 18, 1894.

It reached or exceeded 90° in the year 1882 on 28 days.

"	"	90°	"	1883	"	36	"
"	"	90°	"	1884	"	33	"
"	"	90°	"	1885	"	33	"
"	"	90°	"	1886	"	55	"
"	"	90°	"	1887	"	73	"
"	"	90°	"	1888	"	51	"
"	"	90°	"	1889	"	54	"
"	"	90°	"	1890	"	36	"
"	"	90°	"	1891	"	28	"
"	"	90°	"	1892	"	23	"
"	"	90°	"	1893	"	30	"
"	"	90°	"	1894	"	36	"
"	"	90°	"	1895	"	35	"
"	"	90°	"	1896	"	29	"
"	"	90°	"	1897	"	16	"
"	"	90°	"	1898	"	12	"
"	"	90°	"	1899	"	20	"
"	"	90°	"	1900	"	19	"
"	"	90°	"	1901	"	29	"

Or, in the 20 years the temperature has reached or exceeded 90° on 676 days.

The earliest day during the 20 years on which the temperature was as high as 90° was March 25, in the year 1888, and the latest day October 23, in both 1887 and 1898.

TABLE II (*see facing p. 18*).

Table II shows the lowest temperature in every month in each of the 20 years. The lowest was in—

1882	on	February 3	....	....	....	....	28°.5
1883	"	March 1	....	....	....	....	31°.0
1884	"	January 23	....	....	....	....	28°.5
1885	"	January 7, March 19, December 30 and 31	....	....	....	....	34°.5
1886	"	March 28	....	....	....	....	28°.5
1887	"	January 23, 26, and 27	....	....	....	....	27°.0
1888	"	December 16	....	....	....	....	29°.5
1889	"	December 30	....	....	....	....	28°.0
1890	"	January 3	....	....	....	....	26°.5
1891	"	February 25 and December 26	....	....	....	....	30°.0
1892	"	January 26 and December 19 and 20	....	....	....	....	36°.0
1893	"	December 23	....	....	....	....	27°.5
1894	"	January 20 and 21	....	....	....	....	27°.0

Lowest temperature (*continued*)—

1895	on	January 19 and 20	....	....	....	....	30°·0
1896	,,	January 31	....	....	....	....	28°·0
1897	,,	January 31	....	....	....	....	25°·0
1898	,,	January 1	....	....	....	....	25°·0
1899	,,	January 18	....	....	....	....	31°·0
1900	,,	December 19 and 20	....	....	....	....	35°·0
1901	,,	January 18	....	....	....	....	31°·0

Thus the minimum temperature for the year has occurred—

Ten times in January.

Once in February.

Twice in March.

Four times in December.

Once in each of the months of January, March, and December.

Once in both January and December.

Once in both February and December.

The minimum temperature of the air was as low or below 30° in 14 out of the 20 years, the total number of days of this low temperature was 62, viz. :—

In 1882 it was as low or lower than 30° on three nights, viz. :—

February	3	....	28°·5
,,	4	....	29°·5
,,	12	....	28°·6

In 1884 it was as low or lower than 30° on two nights, viz. :—

January	22	....	29°·0
,,	23	....	28°·5

In 1886 it was as low or lower than 30° on three nights, viz. :—

March	27	....	30°·0
,,	28	....	28°·5
April	6	....	30°·0

In 1887 it was as low or lower than 30° on six nights, viz. :—

January	23	....	27°·0
,,	24	....	30°·0
,,	26	....	27°·0
,,	27	....	27°·0
,,	28	....	28°·0
December	15	....	28°·0

In 1888 it was as low or lower than 30° on two nights, viz. :—

January	9	....	30°·0
December	16	29°·5

In 1889 it was as low or lower than 30° on one night, viz. :—

December	30	30°·0
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In 1890 it was as low or lower than 30° on 12 nights, viz. :—

January	1	$29^{\circ}\cdot5$
"	2	$29^{\circ}\cdot5$
"	3	$26^{\circ}\cdot5$
"	4	....	$29^{\circ}\cdot5$
"	5	....	$28^{\circ}\cdot5$
"	6	....	$28^{\circ}\cdot5$
"	7	....	$28^{\circ}\cdot0$
"	8	....	$30^{\circ}\cdot0$
"	18	....	$29^{\circ}\cdot0$
"	19	....	$27^{\circ}\cdot5$
"	20	....	$30^{\circ}\cdot0$
"	27	....	$27^{\circ}\cdot5$

In 1891 it was as low or lower than 30° on two nights, viz. :—

February	25	....	$30^{\circ}\cdot0$
December	26	....	$30^{\circ}\cdot0$

In 1893 it was as low or lower than 30° on four nights, viz. :—

January	26	....	$30^{\circ}\cdot0$
February	3	....	$28^{\circ}\cdot0$
December	23	....	$27^{\circ}\cdot5$
"	24	....	$30^{\circ}\cdot0$

In 1894 it was as low or lower than 30° on 14 nights, viz. :—

January	19	....	$28^{\circ}\cdot0$
"	20	....	$27^{\circ}\cdot0$
"	21	....	$27^{\circ}\cdot0$
"	22	....	$28^{\circ}\cdot5$
"	23	....	$28^{\circ}\cdot0$
"	24	....	$28^{\circ}\cdot0$
February	18	....	$30^{\circ}\cdot0$
"	24	....	$28^{\circ}\cdot5$
"	25	....	$28^{\circ}\cdot0$
"	27	....	$30^{\circ}\cdot0$
December	20	....	$30^{\circ}\cdot0$
"	24	....	$29^{\circ}\cdot0$
"	25	....	$30^{\circ}\cdot0$
"	26	....	$30^{\circ}\cdot0$

In 1895 it was as low or lower than 30° on two nights, viz. :—

January	19	....	$30^{\circ}\cdot0$
"	20	....	$30^{\circ}\cdot0$

In 1896 it was as low or lower than 30° on three nights, viz. :—

January	30	....	$30^{\circ}\cdot0$
"	31	....	$28^{\circ}\cdot0$
February	19	....	$30^{\circ}\cdot0$

In 1897 it was as low or lower than 30° on two nights, viz. :—

December 30	....	$26^{\circ}\cdot 0$
" 31	....	$25^{\circ}\cdot 0$

In 1898 it was as low or lower than 30° on six nights, viz. :—

January 1	....	$25^{\circ}\cdot 0$
" 20	....	$30^{\circ}\cdot 0$
" 27	....	$28^{\circ}\cdot 0$
" 28	....	$26^{\circ}\cdot 0$
" 29	....	$30^{\circ}\cdot 0$
February 15	....	$29^{\circ}\cdot 0$

The lowest temperature in the 20 years was 25° , which occurred on both December 31, 1897, and January 1, 1898.

The temperature was as low or lower than 40° in the year—

1882 on 46 nights.	1892 on 19 nights.
1883 " 29 "	1893 " 65 "
1884 " 50 "	1894 " 113 "
1885 " 23 "	1895 " 57 "
1886 " 97 "	1896 " 61 "
1887 " 84 "	1897 " 36 "
1888 " 37 "	1898 " 56 "
1889 " 40 "	1899 " 54 "
1890 " 64 "	1900 " 18 "
1891 " 52 "	1901 " 18 "

Or in the 20 years the temperature has been as low or lower than 40° on 1,019 nights.

The earliest night during the 20 years on which the temperature was as low or lower than 40° was on November 3, 1886, and the latest night, May 25, 1882.

TABLE III (*see facing p. 18*).

Table III shows the extreme range of temperature in every month of the 20 years, and these numbers varied in—

January from $23^{\circ}\cdot 5$ in 1889 and			
		1899 to $35^{\circ}\cdot 5$ in 1893	
February	" $23^{\circ}\cdot 0$ "	1883 " $42^{\circ}\cdot 5$ "	1887
March	" $32^{\circ}\cdot 0$ "	1896 " $55^{\circ}\cdot 0$ "	1883
April	" $36^{\circ}\cdot 0$ "	1890 " $60^{\circ}\cdot 2$ "	1886
May	" $39^{\circ}\cdot 0$ "	1890 " $55^{\circ}\cdot 5$ "	1887
June	" $37^{\circ}\cdot 3$ "	1893 " $57^{\circ}\cdot 0$ "	1894
July	" $30^{\circ}\cdot 5$ "	1897 " $53^{\circ}\cdot 8$ "	1894
August	" $29^{\circ}\cdot 2$ "	1897 " $50^{\circ}\cdot 0$ "	1884
September	" $33^{\circ}\cdot 0$ "	1891 " $47^{\circ}\cdot 0$ "	1895
October	" $31^{\circ}\cdot 0$ "	1891 " $50^{\circ}\cdot 0$ "	1889
November	" $25^{\circ}\cdot 2$ "	1883 " $47^{\circ}\cdot 0$ "	1895
December	" $25^{\circ}\cdot 8$ "	1890 " $42^{\circ}\cdot 0$ "	1898

The smallest extreme range in the 20 years was 23° in February, 1883, and the largest $60^{\circ}\cdot 2$, in April, 1886.

The numbers in the last column of this table show the mean of the 20 monthly extreme ranges. The smallest mean was $28^{\circ}\cdot 5$, in January, and the largest $46^{\circ}\cdot 1$, in May. The mean for the 20 years was 39° .

TABLE IV (*see facing p. 18.*)

Table IV shows the monthly mean of the high day temperatures in every month in the 20 years. From this table it will be seen that the monthly mean of all the highest temperatures varied in—

January	from	$46^{\circ}\cdot 6$	in	1898	to	$53^{\circ}\cdot 9$	in	1886
February	"	$49^{\circ}\cdot 0$	"	1882	"	$65^{\circ}\cdot 1$	"	1901
March	"	$58^{\circ}\cdot 0$	"	1896	"	$68^{\circ}\cdot 7$	"	1901
April	"	$64^{\circ}\cdot 9$	"	1893	"	$75^{\circ}\cdot 2$	"	1887
May	"	$74^{\circ}\cdot 2$	"	1901	"	$84^{\circ}\cdot 2$	"	1899
June	"	$81^{\circ}\cdot 7$	"	1897	"	$88^{\circ}\cdot 6$	"	1886
July	"	$84^{\circ}\cdot 1$	"	1900	"	$93^{\circ}\cdot 2$	"	1888
August	"	$82^{\circ}\cdot 8$	"	1897	"	$93^{\circ}\cdot 8$	"	1890
September	"	$80^{\circ}\cdot 9$	"	1884 and				
				1900	"	$88^{\circ}\cdot 6$	"	1897
October	"	$75^{\circ}\cdot 9$	"	1895	"	$89^{\circ}\cdot 0$	"	1887
November	"	$56^{\circ}\cdot 9$	"	1888	"	$71^{\circ}\cdot 2$	"	1892 and 1893
December	"	$51^{\circ}\cdot 0$	"	1897	"	$61^{\circ}\cdot 3$	"	1896

Thus the mean high day temperature has varied, the most $16^{\circ}\cdot 1$ in February, the next in order $14^{\circ}\cdot 3$ in November, and $13^{\circ}\cdot 1$ in October; and the least $6^{\circ}\cdot 9$ in June, $7^{\circ}\cdot 3$ in January, and $7^{\circ}\cdot 7$ in September.

The lowest mean reading in the 20 years was $46^{\circ}\cdot 6$ in January, 1898, and the highest $93^{\circ}\cdot 8$ in August, 1890.

The highest monthly mean high day temperature in each year has been as follows :—

In 1882	in	August	....	....	....	....	$88^{\circ}\cdot 2$
1883	"	August	...	....	....	....	$87^{\circ}\cdot 2$
1884	"	August	....	....	....	....	$88^{\circ}\cdot 0$
1885	"	August	....	....	....	....	$89^{\circ}\cdot 3$
1886	"	August	....	....	....	....	$92^{\circ}\cdot 2$
1887	"	August	....	....	....	....	$91^{\circ}\cdot 7$
1888	"	July	....	....	....	....	$93^{\circ}\cdot 2$
1889	"	August	....	....	....	....	$90^{\circ}\cdot 0$
1890	"	August	....	....	....	....	$93^{\circ}\cdot 8$
1891	"	August	....	....	....	....	$89^{\circ}\cdot 6$
1892	"	September	....	....	....	....	$88^{\circ}\cdot 0$
1893	"	July	....	....	....	....	$90^{\circ}\cdot 8$
1894	"	June	....	....	....	....	$87^{\circ}\cdot 6$

Highest high day temperature (*continued*)—

In 1895	in	July and August	....	....	....	88°·2
1896	„	August	....	....	....	91°·3
1897	„	September	....	....	....	88°·6
1898	„	July	....	....	....	84°·7
1899	„	August	....	....	....	85°·4
1900	„	August	....	....	....	84°·8
1901	„	July and August	....	....	....	86°·1

So that the maximum has been—

Once in June.

Three times in July.

Twelve times in August.

Twice in September.

Twice in both July and August.

The numbers at the foot of the columns show the yearly mean high day temperature. The lowest was 69°·4, in 1897, and the highest 74°·3, in 1887. The mean high day temperature for the 20 years was 72°·0.

TABLE V (*see facing p. 18*).

Table V shows the monthly mean of the low night temperatures in every month in the 20 years. From this table it will be seen that the monthly mean of all the lowest temperatures varied in—

January	from	32°·3	in	1890	to	43°·0	in	1900
February	„	35°·7	„	1894	„	49°·3	„	1901
March	„	39°·4	„	1886	„	51°·3	„	1901
April	„	44°·0	„	1894	„	54°·3	„	1900
May	„	50°·8	„	1886	„	59°·9	„	1885
June	„	58°·5	„	1897	„	67°·0	„	1893
July	„	58°·2	„	1886	„	69°·0	„	1888
August	„	58°·4	„	1886	„	69°·5	„	1896
September	„	56°·8	„	1894	„	67°·3	„	1897
October	„	51°·9	„	1895	„	64°·3	„	1898
November	„	42°·8	„	1886	„	54°·1	„	1898
December	„	36°·7	„	1894	„	49°·7	„	1896

Thus the mean low night temperature has varied the most in February, 13°·6; the next in order, 13°·0 in December, and 12°·4 in October; and the least, 8°·5 in June, 9°·1 in May, and 10°·3 in April.

The lowest mean reading in the 20 years was 32°·3, in January, 1890 and the highest 69°·5, in August, 1896.

The lowest monthly mean low night temperature in each year has been as follows:—

In 1882 in February	....	....	....	....	36°·1
1883 „ February	....	....	....	....	40°·2
1884 „ January	....	....	....	....	38°·0
1885 „ January	....	....	....	....	40°·3
1886 „ December	....	....	....	....	37°·8
1887 „ January	....	....	....	....	34°·5
1888 „ January	....	....	....	....	37°·0
1889 „ December	....	....	....	....	39°·2
1890 „ January	....	....	....	....	32°·3
1891 „ February	....	....	....	....	38°·2
1892 „ January	....	....	....	....	41°·3
1893 „ December	....	....	....	....	39°·3
1894 „ January	....	....	....	....	34°·1
1895 „ January	....	....	....	....	36°·2
1896 „ January	....	....	....	....	37°·9
1897 „ February	...	....	....	....	41°·1
1898 „ January	....	....	....	....	35°·6
1899 „ January	....	....	....	....	38°·2
1900 „ January	....	....	....	....	43°·0
1901 „ January	....	....	....	....	39°·2

So that the minimum has been—

Thirteen times in January.

Four times in February.

Three times in December.

The numbers at the foot of the columns show the yearly mean low night temperature. The lowest was 48°·2, in 1894, and the highest 55°·7, in 1901. The mean low night temperature for the 20 years was 52°·9.

TABLE VI (*see facing p. 18*).

Table VI shows the mean daily range in each month in every year for 20 years. The mean daily range in each month has varied in the 20 years as follows :—

In January from	9°·3	in 1883 to	17°·6	in 1895
February „	11°·0	„ 1884 „	21°·2	„ 1895
March „	13°·8	„ 1898 „	21°·1	„ 1894
April „	15°·0	„ 1882 „	24°·7	„ 1887
May „	19°·2	„ 1901 „	26°·5	„ 1894
June „	16°·7	„ 1893 „	28°·9	„ 1886
July „	18°·4	„ 1900 „	28°·9	„ 1886
August „	19°·1	„ 1900 „	33°·8	„ 1886
September „	19°·1	„ 1900 „	29°·9	„ 1886
October „	17°·0	„ 1899 „	29°·0	„ 1894
November „	11°·0	„ 1888 „	24°·1	„ 1887
December „	9°·4	„ 1897 „	19°·6	„ 1887

The smallest range in any month was $9^{\circ}3$, in January, 1883, and the largest $33^{\circ}8$, in August, 1886.

The greatest monthly mean daily range of temperature was in—

1882 in August	....	....	....	....	$22^{\circ}9$
1883 „ May ....	....	....	....	....	$23^{\circ}4$
1884 „ August	....	....	....	....	$24^{\circ}5$
1885 „ August	....	....	....	....	$27^{\circ}0$
1886 „ August	....	....	....	....	$33^{\circ}8$
1887 „ August	....	....	....	....	$30^{\circ}1$
1888 „ September	....	....	....	....	$24^{\circ}4$
1889 „ August	....	....	....	....	$25^{\circ}0$
1890 „ August	....	....	....	....	$25^{\circ}1$
1891 „ June ....	....	....	....	....	$26^{\circ}4$
1892 „ August	....	....	....	....	$22^{\circ}5$
1893 „ August	....	....	....	....	$25^{\circ}8$
1894 „ June ....	....	....	....	....	$28^{\circ}4$
1895 „ August	....	....	....	....	$25^{\circ}3$
1896 „ August	....	....	....	....	$21^{\circ}8$
1897 „ June ....	....	....	....	....	$23^{\circ}2$
1898 „ September	....	....	....	....	$21^{\circ}5$
1899 „ May ....	....	....	....	....	$24^{\circ}5$
1900 „ June ....	....	....	....	....	$20^{\circ}2$
1901 „ June ....	....	....	....	....	$21^{\circ}6$

The greatest monthly mean of the daily range, therefore, has occurred—

Twice in May.

Five times in June.

Eleven times in August.

Twice in September.

The numbers at the foot of the columns show the yearly mean of the daily range; the smallest was $16^{\circ}3$, in 1900, and the largest $24^{\circ}3$, in 1886. The mean for the 20 years was $19^{\circ}1$.

TABLE VII (*see facing p. 18*).

Table VII shows the mean temperature of the air in every month in each of the 20 years. By selecting in each month the lowest and highest numbers in Table VII, the mean temperature has varied in—

January	from $39^{\circ}8$ in 1890 to $47^{\circ}8$ in 1900.
February	„ $42^{\circ}5$ „ 1882 „ $57^{\circ}2$ „ 1901.
March	„ $49^{\circ}5$ „ 1886 „ $60^{\circ}0$ „ 1901.
April	„ $55^{\circ}1$ „ 1894 „ $63^{\circ}5$ „ 1900.
May	„ $63^{\circ}6$ „ 1886 „ $71^{\circ}4$ „ 1885.
June	„ $70^{\circ}1$ „ 1897 „ $75^{\circ}4$ „ 1893.

Mean temperature (*continued*)—

July	from 72°·6 in 1886 to 81°·1 in 1888.
August	„ 72°·8 „ 1894 „ 81°·2 „ 1890.
September	„ 69°·3 „ 1884 „ 77°·9 „ 1897.
October	„ 63°·9 „ 1895 „ 74°·7 „ 1887.
November	„ 51°·1 „ 1898 „ 60°·8 „ 1896.
December	„ 46°·2 „ 1894 „ 55°·5 „ 1896.

The month of lowest mean temperature in the 20 years was January, 1890, and was 39°·8, and that of the highest was August, 1890, and was 81°·2.

By taking the differences between the lowest and highest temperature in each month, and the mean of the 20 years, in Table VII, the greatest departures in each month from the mean of 20 years are in—

	Below the mean of 20 years.	Above the mean of 20 years.
January	4°·9 in 1890	and 3°·1 in 1900
February....	5°·2 „ 1882	„ 9°·5 „ 1901
March	4°·2 „ 1886	„ 6°·3 „ 1901
April	5°·4 „ 1894	„ 3°·0 „ 1900
May	3°·7 „ 1886	„ 4°·1 „ 1885
June	2°·9 „ 1897	„ 2°·4 „ 1893
July	3°·3 „ 1886	„ 5°·2 „ 1888
August	3°·4 „ 1894	„ 5°·0 „ 1890
September	4°·0 „ 1884	„ 4°·6 „ 1897
October	5°·6 „ 1895	„ 5°·2 „ 1887
November	6°·4 „ 1898	„ 3°·3 „ 1896
December	3°·6 „ 1894	„ 5°·7 „ 1896

The largest departure below the mean was 6°·4, in November, 1898 ; and the smallest departure below the mean was 2°·9, in June, 1897.

The largest departure above the mean was 9°·5, in February, 1901 ; and the smallest departure above the mean was 2°·4, in 1893.

The mean temperature in June was the most uniform, the next in order were May and January, the departure in these months from the mean being in—

June	2°·9 below to 2°·4 above the mean.
May	3°·7 „ 4°·1 „ „
January	4°·9 „ 3°·1 „ „

The mean temperature in February was the most variable, and the next in order were October and March, the departure in these months from the mean being in—

February	5°·2 below to 9°·5 above the mean.
October	5°·6 „ 5°·2 „ „
March	4°·2 „ 6°·3 „ „

The month of the lowest mean temperature and the month of the
(2734)

highest mean temperature in each year are shown in the following table :—

The lowest was—			The highest was—		
In 1882	42°·5	in February	and 76°·8	in August.	
1883	46°·1	„ February	„ 76°·1	„ August.	
1884	43°·7	„ January	„ 75°·8	„ August.	
1885	45°·5	„ January	„ 75°·8	„ August.	
1886	46°·5	„ January	„ 75°·3	„ August.	
1887	42°·5	„ January	„ 76°·8	„ August.	
1888	43°·4	„ January	„ 81°·1	„ July.	
1889	46°·2	„ January	„ 78°·2	„ July.	
1890	39°·8	„ January	„ 81°·2	„ August.	
1891	44°·4	„ February	„ 78°·2	„ August.	
1892	46°·8	„ January	„ 77°·0	„ September.	
1893	46°·3	„ February	„ 79°·3	„ July.	
1894	42°·3	„ January	„ 73°·7	„ July.	
1895	45°·0	„ January	„ 76°·3	„ July.	
1896	43°·8	„ January	„ 80°·4	„ August.	
1897	46°·3	„ December	„ 77°·9	„ September.	
1898	41°·1	„ January	„ 74°·6	„ July.	
1899	44°·2	„ January	„ 75°·0	„ September.	
1900 ...	47°·8	„ January	„ 75°·2	„ August.	
1901	44°·7	„ January	„ 77°·4	„ July.	

Thus the month of lowest mean temperature in each year has been—

Fifteen times in January.

Four times in February.

Once in December.

The three coldest months in the year are January, February, and December ; their mean value for the 20 years was 47°·4, being 15°·0 below the mean temperature of 20 years.

The month of highest mean temperature in each year has been—

Seven times in July.

Ten times in August.

Three times in September.

The three hottest months in the year are July, August, and September ; their mean value for the 20 years was 75°·1, being 12°·7 above the mean temperature of 20 years.

The coldest month on the mean of the 20 years was January, when the mean temperature was 44°·7, and the mean temperature increases monthly until August, the warmest month, viz., 76°·2, and then decreases, the greatest change from month to month being from October to November, which is as large as 12°, and further sinks 7°·7 to December.

The numbers at the foot of the columns show the mean annual temperature. The lowest was 60°, in 1894, and the highest was 64°·4, 1901. The mean of the 20 years was 62°·4.

(To face p. 18.)

TABLE I.—Shows the highest temperature of the air in every month during a period of 20 consecutive years (1882 to 1901 inclusive) at Jerusalem.

Months.	YEARS.																				Means of 20 years.
	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	
January...	56.5	60.5	62.0	60.0	63.5	62.0	64.8	61.0	54.5	61.0	62.0	65.5	57.0	59.2	57.0	62.0	55.0	54.5	60.8	60.0	59.9
February...	70.5	58.5	58.0	69.5	65.5	73.5	73.0	71.5	64.8	60.0	70.0	68.8	62.0	72.8	68.0	68.0	64.5	65.2	64.5	77.5	67.3
March...	75.0	86.0	75.0	84.0	74.0	79.8	90.5	82.5	77.0	85.0	76.0	77.0	78.5	80.5	68.0	69.8	77.0	82.5	81.0	91.5	79.5
April...	78.0	83.0	84.0	87.0	90.2	85.5	86.2	94.8	80.8	86.5	86.0	78.0	84.8	81.2	85.0	83.8	86.0	86.0	86.0	93.5	85.3
May...	90.0	93.5	94.0	96.0	93.0	94.0	91.5	97.0	89.0	89.0	90.5	90.8	95.5	93.8	89.0	85.5	89.8	96.0	96.0	90.0	92.2
June...	93.3	98.5	99.0	93.5	105.0	97.8	93.0	95.5	96.2	97.0	54.5	90.8	108.0	97.0	98.2	98.8	98.5	99.0	97.8	97.5	97.4
July...	89.8	96.5	99.5	91.0	96.0	97.8	106.0	97.8	93.8	95.5	94.5	104.5	104.8	96.5	97.8	90.5	93.0	91.0	93.5	96.0	96.3
August...	99.5	98.0	105.0	98.0	101.0	102.0	97.5	100.5	95.5	97.0	91.0	99.0	96.0	95.8	103.0	89.2	90.5	91.8	92.5	98.0	97.0
September...	97.0	94.5	90.3	97.0	96.5	96.5	97.0	93.5	97.0	92.0	101.0	95.5	95.0	97.0	91.8	99.0	92.0	94.0	98.0	94.0	95.4
October...	90.0	96.5	91.5	88.5	88.0	94.0	94.5	92.0	90.0	86.0	89.8	89.0	91.5	85.5	89.0	90.0	90.0	88.2	88.0	86.5	89.9
November...	75.5	70.5	72.0	78.0	76.0	82.5	68.5	80.8	82.0	83.0	71.5	77.0	81.0	86.0	77.8	67.5	83.8	74.5	80.5	86.0	77.7
December...	70.0	66.0	68.5	69.0	63.5	65.0	64.5	66.0	63.8	71.8	67.0	68.0	66.0	66.5	72.0	59.5	73.0	64.8	75.5	70.0	67.5
Means...	82.1	83.5	83.2	84.2	84.4	85.9	85.6	86.0	82.0	83.7	82.8	83.7	85.0	84.3	83.1	80.3	82.8	82.3	84.5	86.7	83.8

TABLE II.—Shows the lowest temperature of the air in every month during a period of 20 consecutive years (1882 to 1901 inclusive) at Jerusalem.

Months.	YEARS.																				Means of 20 years.
	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	
January...	31.0	36.5	28.5	34.5	35.0	27.0	30.0	37.5	26.5	31.5	36.0	30.0	27.0	30.0	28.0	36.0	25.0	31.0	37.0	31.0	31.5
February...	28.5	35.5	34.5	38.5	34.0	31.0	38.5	38.0	31.0	30.0	36.5	28.0	28.0	32.0	30.0	32.0	29.0	33.0	39.0	43.0	33.5
March...	38.0	31.0	34.0	34.5	28.5	30.5	37.5	38.0	32.0	32.0	39.0	31.0	31.0	32.5	36.0	35.5	35.0	34.0	38.0	42.0	34.5
April...	38.5	40.0	41.5	41.0	30.0	40.5	40.5	42.0	44.8	43.0	43.0	40.0	37.0	43.5	36.0	45.0	39.0	37.0	44.0	44.0	40.5
May...	40.0	47.5	44.0	48.5	41.0	38.5	48.0	47.0	50.0	49.5	49.0	46.0	40.5	45.0	47.0	44.0	49.0	47.0	52.0	48.0	46.1
June...	48.5	56.0	53.0	51.0	50.0	52.0	53.0	56.0	52.0	52.0	55.0	53.5	51.0	50.0	52.0	51.0	54.0	56.0	52.0	57.0	52.8
July...	58.5	58.0	56.0	58.0	53.0	54.0	58.5	60.0	60.0	61.0	59.0	60.0	51.0	58.5	59.0	60.0	61.0	60.0	62.0	60.0	58.4
August...	60.0	60.5	55.0	58.0	52.5	56.0	58.0	62.0	64.0	62.0	61.5	56.0	55.0	58.0	62.5	60.0	60.0	60.0	60.0	62.0	59.2
September...	59.0	59.5	54.5	55.5	52.5	51.0	58.0	54.0	53.0	59.0	60.0	52.0	51.0	50.0	56.0	60.0	56.0	58.5	59.0	60.0	55.9
October...	52.5	54.5	48.0	51.5	41.5	51.0	53.0	42.0	55.0	55.0	51.0	47.0	49.0	45.0	56.0	50.0	54.0	51.0	55.0	56.0	50.9
November...	47.5	45.3	41.0	44.0	35.5	38.0	38.5	34.0	44.5	41.0	44.0	45.0	38.0	39.0	47.0	35.0	42.0	39.0	43.0	48.0	41.5
December...	40.0	36.0	41.0	34.5	32.0	28.0	29.5	28.0	38.0	30.0	36.0	27.5	29.0	34.5	39.5	25.0	31.0	37.0	35.0	39.0	33.0
Means...	45.2	46.7	44.2	45.8	40.5	41.5	45.3	44.9	45.9	45.5	47.5	43.0	40.6	43.2	45.8	44.5	44.6	45.3	47.9	49.2	44.8

TABLE III.—Shows the extreme range of temperature in every month during a period of 20 consecutive years (1882 to 1901 inclusive) at Jerusalem.

Months.	YEARS.																				Means of 20 years.
	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	
January...	25.5	24.0	33.5	25.5	28.5	35.0	34.8	23.5	28.0	29.5	26.0	35.5	30.0	29.2	29.0	26.0	30.0	23.5	23.8	29.0	28.5
February...	42.0	23.0	23.5	31.0	31.5	42.5	34.5	33.5	33.8	30.0	33.5	40.8	34.0	40.8	38.0	36.0	35.5	32.2	25.5	34.5	33.8
March...	37.0	55.0	41.0	49.5	45.5	49.3	53.0	44.5	45.0	53.0	37.0	46.0	47.5	48.0	32.0	34.3	42.0	48.5	43.0	49.5	45.0
April...	39.5	43.0	42.5	46.0	60.2	45.0	45.7	52.8	36.0	43.5	43.0	38.0	47.8	37.7	49.0	38.8	47.0	49.0	42.0	49.5	44.8
May...	50.0	46.0	50.0	47.5	52.0	55.5	43.5	50.0	39.0	39.5	41.5	44.8	55.0	48.8	42.0	41.5	40.8	49.0	44.0	42.0	46.1
June...	44.8	42.5	46.0	42.5	55.0	45.8	40.0	39.5	44.2	45.0	39.8	37.3	57.0	47.0	46.2	47.8	44.5	43.0	45.8	40.5	44.7
July...	31.3	38.5	43.5	33.0	43.0	43.8	47.5	37.8	33.8	34.5	35.5	44.5	53.8	38.0	38.8	30.5	32.0	31.0	32.5	36.0	37.9
August...	39.5	37.5	50.0	40.0	48.5	46.0	39.5	38.5	31.5	35.0	29.5	43.0	41.0	37.8	40.5	29.2	30.5	31.8	32.5	36.0	37.9
September...	38.0	35.0	35.8	41.5	44.0	45.5	39.0	39.5	44.0	33.0	41.0	43.5	44.0	47.0	35.8	39.0	36.0	35.5	39.0	34.0	39.5
October...	37.5	42.0	43.5	37.0	46.5	43.0	41.5	50.0	35.0	31.0	38.8	42.0	42.5	40.5	33.0	40.0	36.0	37.2	33.0	30.5	39.0
November...	28.0	25.2	31.0	34.0	40.5	44.5	30.0	46.8	37.5	42.0	27.5	32.0	43.0	47.0	30.8	32.5	41.8	35.5	37.5	36.0	36.2
December...	30.0	30.0	27.5	34.5	31.5	37.0	35.0	38.0	25.8	41.8	31.0	40.5	37.0	32.0	32.5	34.5	42.0	27.8	40.5	31.0	34.0
Means...	36.9	36.8	39.0	38.5	43.8	44.4	40.3	41.1	36.1	38.2	35.3	40.7	44.4	41.1	37.3	35.8	38.2	37.0	36.6	37.0	39.0

TABLE IV.—Shows the monthly mean of the daily maximum temperature of the air in every month during a period of 20 consecutive years (1882 to 1901 inclusive) at Jerusalem.

Months.	YEARS.																				Means of 20 years.
	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	
January...	49.8	51.8	49.4	50.8	53.9	50.5	49.7	51.5	47.3	51.2	52.4	52.4	50.5	53.8	49.8	52.2	46.6	50.3	52.7	50.2	50.8
February...	49.0	52.0	49.7	56.4	56.5	55.2	57.4	55.7	54.2	50.5	56.7	53.0	52.9	60.8	52.0	52.8	54.1	55.9	55.1	65.1	54.7
March...	63.5	63.5	60.2	64.1	59.5	61.9	67.2	67.1	64.5	63.2	63.3	60.5	61.2	60.3	58.0	58.8	59.6	62.6	63.0	68.7	62.5
April...	68.3	68.9	73.2	66.8	69.5	75.2	70.3	71.6	69.8	72.0	74.9	64.9	66.2	70.8	66.4	68.8	71.7	71.0	72.6	72.7	70.2
May...	75.4	78.4	77.2	82.9	76.4	76.9	75.8	80.4	80.7	80.4	77.5	77.0	79.9	79.8	76.8	75.9	77.3	84.2	78.7	74.2	78.3
June...	82.7	85.0	85.5	82.9	88.6	86.9	83.0	85.2	84.9	86.6	83.9	83.7	87.6	88.2	86.7	85.5	84.7	84.7	84.1	86.1	87.2
July...	85.5	85.5	85.7	85.7	87.1	89.0	93.2	89.8	91.3	86.8	85.6	90.8	87.4	88.2	86.7	85.5	84.6	84.1	83.7	84.9	84.5
August...	88.2	87.2	88.0	89.3	92.2	91.9	89.3	90.0	93.8	89.6	87.1	86.9	86.7	88.2	91.3	82.8	83.7	85.4	84.8	86.1	88.1
September...	86.9	86.3	80.9	86.4	87.3	87.0	87.2	84.6	83.5	84.9	83.0	83.5	85.1	83.8	84.5	88.6	82.7	85.3	80.9	83.3	85.0
October...	76.2	79.7	77.9	81.0	81.0	89.0	82.5	81.9	80.5	78.6	82.2	78.2	83.9	75.9	81.0	77.6	83.6	77.5	79.6	78.0	80.3
November...	67.0	64.0	64.9	70.3	64.0	70.7	56.9	63.6	67.0	66.3	63.9	71.2	84.1	66.1	67.7	57.3	66.7	65.1	66.7	67.4	65.5
December...	58.6	55.0	58.4	58.9	56.3	57.0	53.4	54.6	54.1	55.4	56.0	55.6	55.8	58.1	61.3	51.0	55.7	55.3	58.1	60.3	56.4
Means...	70.9	71.4	70.9	72.9	72.7	74.3	72.2	73.0	72.6	72.1	72.4	71.5	71.8	72.3	71.5	69.4	70.9	71.8	71.7	73.1	72.0

TABLE V.—Shows the monthly mean of the nightly minimum temperature of the air in every month during a period of 20 consecutive years (1882 to 1901 inclusive) at Jerusalem.

(To face p. 18.)

Months.	YEARS.																				Means of 20 years.
	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	
January...	37.4	42.5	38.0	40.3	39.1	34.5	37.0	41.0	32.3	40.5	41.3	40.6	34.1	36.2	37.9	41.9	35.6	38.2	43.0	39.2	38.5
February...	36.1	40.2	38.7	42.5	39.4	40.3	44.1	43.1	36.9	38.2	43.2	39.6	35.7	39.6	38.6	41.1	41.7	42.0	43.6	49.3	40.7
March...	45.4	46.2	43.2	46.7	39.4	42.5	49.8	48.8	46.8	42.3	46.0	41.7	40.1	41.2	42.2	44.3	45.8	46.2	47.0	51.3	44.8
April...	53.3	49.8	53.3	49.1	45.8	50.5	51.6	50.8	52.3	52.7	52.2	46.7	44.0	51.6	49.1	51.1	52.8	51.2	54.3	53.1	50.7
May...	54.0	55.0	55.5	59.9	50.8	52.3	54.5	58.6	57.7	58.7	57.9	55.4	53.4	58.2	57.5	56.4	56.3	59.7	58.8	55.0	56.3
June...	60.6	61.8	62.4	60.5	59.7	59.1	61.0	62.5	63.5	60.2	61.9	67.0	59.2	59.3	61.3	58.5	63.4	62.9	63.5	63.3	61.6
July...	63.5	64.3	61.6	62.6	58.2	62.0	69.0	66.7	68.7	66.0	63.7	67.9	60.1	64.3	65.4	66.0	64.6	64.0	65.7	66.7	64.6
August...	65.3	65.1	63.5	62.3	58.4	61.8	65.0	65.0	68.7	66.9	64.6	61.1	58.9	62.9	69.5	63.1	62.8	64.4	65.7	65.8	64.5
September...	65.0	63.2	57.8	60.5	57.4	57.6	62.8	60.6	62.1	62.4	65.9	57.9	56.8	58.6	63.5	67.3	61.2	64.8	61.8	62.8	61.5
October...	56.4	60.2	57.9	57.5	52.5	60.4	63.8	59.5	59.3	59.9	61.9	53.6	54.9	51.9	63.1	59.9	64.3	60.5	61.8	60.5	59.0
November...	52.4	51.9	48.7	49.6	42.8	46.6	45.9	44.9	52.9	52.3	51.1	50.2	44.1	46.4	54.0	44.9	54.1	51.3	53.0	53.9	49.5
December...	47.2	43.1	46.3	42.6	37.8	37.4	42.4	39.2	44.4	44.4	44.3	39.3	36.7	44.8	49.7	41.6	43.5	44.1	46.1	47.9	43.1
Means...	53.0	53.6	52.2	52.8	48.4	50.4	53.9	53.4	53.8	53.7	54.5	51.8	48.2	51.2	54.3	53.0	53.8	54.1	55.4	55.7	52.9

TABLE VI.—Shows the monthly mean of the daily range of temperature of the air in every month during a period of 20 consecutive years (1882 to 1901 inclusive) at Jerusalem.

Months.	YEARS.																				Means of 20 years.
	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	
January...	12.4	9.3	11.4	10.5	14.8	16.0	12.7	10.5	15.0	10.7	11.1	11.8	16.4	17.6	11.9	10.3	11.0	12.1	9.7	11.0	12.3
February...	12.9	11.8	11.0	13.9	17.1	14.9	13.3	12.6	17.3	12.3	13.5	13.4	17.2	21.2	13.4	11.7	12.4	13.9	11.5	15.8	14.1
March...	18.1	17.3	17.0	17.4	20.1	19.4	17.4	18.3	17.7	20.9	17.3	18.8	21.1	19.1	16.8	14.5	13.8	16.4	16.0	17.4	17.7
April...	15.0	19.1	19.9	17.7	23.7	24.7	18.7	20.8	17.5	19.3	20.2	18.2	22.2	19.2	17.3	17.7	18.9	19.8	18.3	19.6	19.9
May...	21.4	23.4	21.7	23.0	25.6	24.6	21.3	21.8	23.0	21.7	19.6	21.6	26.5	21.6	19.3	19.5	21.0	24.5	19.9	19.2	22.0
June...	22.1	23.2	23.1	22.4	28.9	27.8	22.0	22.7	21.4	26.4	22.0	16.7	28.4	22.9	21.1	23.2	21.2	21.2	20.2	21.6	22.9
July...	22.0	21.2	24.1	23.1	28.9	27.0	24.2	23.1	22.6	20.8	21.9	22.9	27.3	23.9	21.3	19.5	20.1	20.7	18.4	19.4	22.6
August...	22.9	22.1	24.5	27.0	33.8	30.1	24.3	25.0	25.1	22.7	22.5	25.8	27.8	25.3	21.8	19.7	20.9	21.0	19.1	20.3	24.1
September...	21.9	23.1	23.1	25.9	29.9	29.4	24.4	24.0	21.4	22.5	22.1	25.6	28.3	25.2	21.0	21.3	21.5	20.5	19.1	20.5	23.5
October...	19.8	19.5	20.0	23.5	28.5	28.6	18.7	22.4	21.2	18.7	20.3	24.6	29.0	24.0	17.9	17.7	19.3	17.0	17.8	17.5	21.3
November...	14.6	12.1	16.2	20.7	21.2	24.1	11.0	18.7	14.1	14.0	12.8	21.0	20.0	19.7	13.7	12.4	12.6	13.8	13.7	13.5	16.0
December...	11.4	11.9	12.1	16.3	18.5	19.6	11.0	15.4	9.7	11.0	11.7	16.3	19.1	13.3	11.6	9.4	12.2	11.2	12.0	12.4	13.3
Means...	17.9	17.8	18.7	20.1	24.3	23.9	18.3	19.6	18.8	18.4	17.9	19.7	23.6	21.1	17.2	16.4	17.1	17.7	16.3	17.4	19.1

TABLE VII.—Shows the mean monthly temperature of the air in every month during a period of 20 consecutive years (1882 to 1901 inclusive) at Jerusalem. (To face p. 18.)

Months.	YEARS.																				Means of 20 years.
	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	
January ..	43.6	47.2	43.7	45.5	46.5	42.5	43.4	46.2	39.8	45.9	46.8	46.5	42.3	45.0	43.8	47.1	51.1	44.2	47.8	44.7	44.7
February ...	42.5	46.1	44.2	49.5	47.9	47.8	50.7	49.4	45.5	44.4	50.0	46.3	44.3	50.2	45.3	47.0	47.9	49.0	49.4	57.2	47.7
March	54.4	54.9	51.7	55.4	49.5	52.2	58.5	57.9	55.7	52.7	54.7	51.1	50.6	50.7	50.1	51.5	52.7	54.4	55.0	60.0	53.7
April	60.8	59.8	63.3	57.5	57.6	62.8	61.0	61.2	61.0	62.4	62.3	55.8	55.1	61.2	57.8	60.0	62.2	61.1	63.5	62.9	60.5
May	64.7	66.7	66.3	71.4	63.6	64.6	65.1	69.5	69.2	69.5	67.7	66.2	66.7	69.0	67.2	66.2	66.8	71.9	68.8	64.6	67.3
June	71.7	73.4	73.9	71.7	74.1	73.0	72.0	73.9	74.2	73.4	72.9	75.4	73.4	70.8	71.9	70.1	74.0	73.5	73.6	74.4	73.0
July	74.5	74.9	73.7	74.1	72.6	75.5	81.1	78.2	80.0	76.4	74.7	79.3	73.7	76.3	76.0	76.8	74.6	74.3	74.9	77.4	75.9
August ...	76.8	76.1	75.8	75.8	75.3	76.8	77.2	77.5	81.2	78.2	75.8	74.0	72.8	75.5	80.4	73.0	73.3	74.9	75.2	76.0	76.2
September ..	76.0	74.8	69.3	73.4	72.3	72.3	75.0	72.6	72.8	73.6	77.0	70.7	71.0	71.2	74.0	77.9	71.9	75.0	71.4	73.0	73.3
October ...	66.3	67.0	67.9	69.3	66.8	74.7	73.1	70.7	69.9	69.3	72.0	65.9	69.4	63.9	72.0	68.8	74.0	69.0	70.7	69.2	69.5
November ...	59.7	58.0	56.8	60.0	53.4	58.6	51.4	54.2	60.0	59.3	57.5	60.7	54.1	56.2	60.8	51.1	60.4	58.2	59.8	60.6	57.5
December ...	52.9	49.1	52.3	50.7	47.0	47.2	47.9	46.9	49.3	49.9	50.2	47.5	46.2	51.5	55.5	46.3	49.6	49.7	52.1	54.1	49.8
Means ..	62.0	62.3	61.6	63.0	60.5	62.3	63.0	63.2	63.2	62.9	63.5	61.7	60.0	61.8	62.9	61.3	62.4	62.9	63.5	64.4	62.4

ON THE FALL OF RAIN AT JERUSALEM IN THE 41 YEARS FROM 1861 TO 1901 INCLUSIVE.

By JAMES GLAISHER, F.R.S.

THE series of daily observations of rain was begun by Dr. Chaplin in the year 1861, and was continued by him for the long period of 22 years till the end of 1882: they have, since 1883, been continued under the auspices of the Palestine Exploration Fund.

The rain gauge used during the first six years was a float gauge by Newman, and since then a certified 8-inch gauge by Negretti and Zambra. During four years the gauges were placed side by side; the float gauge registered during these four years 88·83 inches, and Negretti and Zambra's gauge 93·25 inches, and the readings by Newman's gauge have been corrected so as to give results in accordance with the 8-inch gauge.

Dr. Chaplin says the position of the gauges was in a garden, within the city, about 2,500 feet above the level of the Mediterranean Sea, open on all sides, the houses which bound it on the south and west being too far removed to influence the fall of rain on the pluviometer.

The results of the observations during the 22 years ending in 1882 have been discussed by Dr. Chaplin in seasons, and the results were published in the *Quarterly Statement* of the Palestine Exploration Fund for January, 1883.

The observations for the 10 years ending 1892 have been discussed by myself, and were published in the *Quarterly Statement* of the Palestine Exploration Fund for January, 1894, under the title of "On the Fall of Rain at Jerusalem in the 32 years from 1861 to 1892."

Since 1883 the observations have all been made by the 8-inch gauge placed in the same position as that adopted by Dr. Chaplin.

TABLE I (*see facing p. 24*).

Table I shows the fall of rain in every month during the 41 years ending with 1901; and from this table it will be seen that the heaviest monthly fall of rain in—

1861 was in January	....	....	9·66 inches.
1862 " January	....	....	12·41 "
1863 " January	....	....	9·11 "
1864 " January	....	....	6·89 "
1865 " December	....	....	5·45 "

Heaviest monthly fall of rain in—

1866	was in January	....	....	5.06 inches.
1867	„ January	....	....	9.25 „
1868	„ February	....	....	10.93 „
1869	„ January	....	....	7.72 „
1870	„ March....	....	....	3.99 „
1871	„ March....	....	....	6.75 „
1872	„ December	....	....	6.24 „
1873	„ December	....	....	9.30 „
1874	„ March....	....	....	10.02 „
1875	„ March....	....	....	10.52 „
1876	„ February	....	....	4.14 „
1877	„ February	....	....	8.75 „
1878	„ January	....	....	13.39 „
1879	„ March....	....	....	7.52 „
1880	„ December	....	....	13.00 „
1881	„ February	....	....	4.43 „
1882	„ February	....	....	12.59 „
1883	„ January	....	....	10.93 „
1884	„ February	....	....	8.26 „
1885	„ January	....	....	7.79 „
1886	„ February	....	....	9.51 „
1887	„ January	....	....	12.45 „
1888	„ December	....	....	16.40 „
1889	„ January	....	....	6.13 „
1890	„ January	....	....	11.59 „
1891	„ December	....	....	11.09 „
1892	„ December	....	....	8.70 „
1893	„ January	....	....	7.54 „
1894	„ March....	....	....	8.45 „
1895	„ December	....	....	7.24 „
1896	„ January	....	....	9.61 „
1897	„ January	....	....	14.46 „
1898	„ March....	....	....	7.29 „
1899	„ January	....	....	6.46 „
1900	„ February	....	....	10.72 „
1901	„ January	....	....	7.42 „

Therefore the heaviest monthly fall of rain has occurred—

Eighteen times in January.

Eight times in February.

Seven times in March.

Eight times in December.

Table II shows the three heaviest and the three lightest falls of rain in every month (excepting June, July, and August) in the 41 years :—

TABLE II.

Showing the three heaviest falls of rain at Jerusalem in each month in the years 1861 to 1901 inclusive.

January	....	14.46 ins.	in 1897.
		13.39	„ 1878.
		12.45	„ 1887.
February	....	12.59	„ 1882.
		11.49	„ 1878.
		10.93	„ 1868.
March	....	12.35	„ 1893.
		10.52	„ 1875.
		10.02	„ 1874.
April	....	6.52	„ 1885.
		4.74	„ 1888.
		4.41	„ 1890.
May	....	1.25 inch	in 1887.
		1.04	„ 1892.
		0.99	„ 1901.
June	....	0.20	„ 1888.
		0.08	„ 1885.

July.—No rain fell in this month during the 41 years.

August.—0.08 inch in 1890, and no rain fell in this month in the other 40 years.

September		0.79 inch	in 1878.
		0.27	„ 1869.
		0.09	„ 1864.
October	....	2.29 ins.	in 1870.
		2.18	„ 1877.
		1.90 inch	in 1863.
November		7.99 ins.	in 1888.
		7.59	„ 1883.
		6.87	„ 1894.
December....		16.40	„ 1888.
		13.00	„ 1880.
		11.09	„ 1891.

Showing the three lightest falls of rain at Jerusalem in each month in the years 1861 to 1901 inclusive.

January	....	0.13 inch	in 1873.
		0.90	„ 1895.
		0.98	„ 1879.
February	....	0.15	„ 1901.
		0.69	„ 1870.
		0.83	„ 1889.
March	....	0.42	„ 1865.
		0.63	„ 1862.
		0.89	„ 1877.
April.	No rain fell in this month in 1897.		
		0.13 inch	in 1874.
		0.14	„ 1900.
May.	No rain fell in this month in 13 different years.		
June.	No rain fell in this month in the remaining 39 years.		

September.—No rain fell in this month in 36 out of the 38 remaining years.

October.—No rain fell in this month in 15 different years.

November		0.01 inch	in 1870.
		0.03	„ 1878.
		0.10	„ 1871.
December....		0.49	„ 1876.
		1.17	„ 1869.
		1.44	„ 1874.

These differences are remarkable, and it will be noticed that in every month of the rainy season there are instances of the fall being less than 1 inch. These small falls, especially when occurring in the autumnal months, must be very serious for the husbandmen, for the ground cannot then be in a fit state for the reception of seed. In the same months in other years the falls have been large, the heaviest falls in the 41 years being in—

December, 1888	....	....	....	16.40 inches.
January, 1897	....	....	....	14.46 „
January, 1878	....	....	....	13.39 „

and there were 13 other instances of the monthly fall of rain being larger than 10 inches, viz. :—

December, 1880	....	....	....	....	13.00 inches.
February, 1882	....	....	....	....	12.59 "
January, 1887	....	....	....	....	12.45 "
January, 1862	....	....	....	....	12.41 "
March, 1893	....	....	....	....	12.35 "
January, 1890	....	....	....	....	11.59 "
February, 1878	....	....	....	....	11.49 "
December, 1891	....	....	....	....	11.09 "
February, 1868	....	....	....	....	10.93 "
February, 1900	....	....	....	....	10.72 "
March, 1875	....	....	....	....	10.52 "
January, 1891	....	....	....	....	10.23 "
March, 1874	....	....	....	....	10.02 "

Of these heavy falls, six were in January, four in February, three in March, and three in December. There were, however, a good many other heavy falls; there were seven exceeding 9 inches, of which four were in January in the years 1861, 1863, 1867, and 1896; one in February, 1886; and two in December in the years 1873 and 1890; eight exceeding 8 inches, viz., one in January, 1874, three in February in the years 1877, 1884, and 1896, two in March in the years 1894 and 1897, and two in December in 1868 and 1892; there were 16 exceeding 7 inches, all between November and March, and 26 exceeding 6 inches.

The largest fall of rain in three consecutive months was 32.23 inches in the three months ending February, 1878, and the next in order was 30.52 inches in the three months ending January, 1889; the smallest fall in three consecutive months was 2.07 inches in the three months ending May, 1900, and the next in order was 2.46 inches in the same months of 1901.

The numbers in the last column of Table I show the average fall of rain in every month; the largest was in January, 6.41 inches; and the next in order were in December 5.67 inches, and in February 5.11 inches. The numbers at the foot of each column shows the fall of rain in the year; the three smallest were 13.39 inches in 1870, 13.56 inches in 1889, and 14.41 inches in 1876. The three largest were 41.62 inches in 1897, 37.79 inches in 1888, and 35.51 inches in 1890. The mean of the three smallest falls for the year was 13.79 inches, or 12.08 inches below the average, and the mean of the three largest was 38.31 inches, or 12.44 inches above the average of 41 years.

It is remarkable that the falls of rain in the years 1864, 1870, 1876, and 1889, were all less than the fall in the month of December, 1888, and that the falls in 1870, 1876, and 1889, were all less than the fall in the month of January, 1897. The fall in the month of January, 1878, was the same in amount as the fall in the year 1870.

The average annual fall of rain, which is shown at the foot of the

last column, is 25·87 inches, being very nearly the same as the fall in London, though the annual fluctuations are very much greater.

By taking the annual falls and laying them down as a diagram the results can be seen at a glance. The first thing noticeable is the evident increase of the fall of rain in the later years of the series: up to the year 1878 no fall of rain had reached 30 inches, the nearest approach being 29·75 inches in 1874, but on the diagram in the years from 1878 to 1897 the points in 12 years, viz., 1878, 1880, 1883, 1886, 1888, 1890, 1891, 1892, 1893, 1894, 1896, and 1897, were all well above 30 inches. It is remarkable that the largest fall of all, 41·62 inches in 1897, should be followed by a fall so small as 28·66 inches in 1898, and this fall was followed by a decreasing fall in each of the succeeding years, the last year shown on the diagram recording a fall of 17·42 inches only; the second largest yearly fall in the 41 years was 37·99 inches in 1888, which was followed by a fall in 1889 of only 13·56 inches, being the smallest but one in the 41 years.

By taking the means of the annual falls in four parts, viz., the 10 years from 1861 to 1870, 10 years from 1871 to 1880, 10 years, 1881 to 1890, and 11 years from 1891 to 1901, the means of the four periods were found to be:—

In the 10 years, 1861 to 1870	....	....	21·84 inches.
" " 1871 " 1880	....	....	24·61 "
" " 1881 " 1890	....	....	27·69 "
" 11 " 1891 " 1901	....	....	29·03 "

Therefore, the mean fall in the second period was 2·77 inches larger than the first, in the third 3·08 inches larger than in the second, and in the fourth period 1·34 inches larger than in the third. This is very remarkable, for it shows that the yearly fall of rain, though not distributed over a greater number of days than was the case at the beginning of the series, becomes larger with each succeeding period.

By comparing the average rainfall for each month, as shown in the last column of Table I, with the monthly fall of the same month in every year it will be found that in—

January	in 21 years the fall was above, and in 20 years below, the mean.
February	" 17 " " " 24 " "
March	" 15 " " " 26 " "
April	" 18 " " " 23 " "
October	" 11 " " " 30 " "
November	" 17 " " " 24 " "
December	" 21 " " " 20 " "

In January of those above the mean there were two groups of four successive years, viz., 1861, 1862, 1863, and 1864; and 1890, 1891, 1892, and 1893. Of those below the mean there was one group of four, viz., 1870, 1871, 1872, and 1873.

In February above the mean there were two groups of three successive

years, viz., 1872, 1873, 1874, and 1896, 1897, and 1898. Of those below there was one group of five, viz., 1862, 1863, 1864, 1865, and 1866, and one group of four, viz., 1887, 1888, 1889, and 1890.

In March above the mean there was one group of five successive years, viz., 1893, 1894, 1895, 1896, 1897, and 1898. Of those below the mean there was one group of 10 successive years, viz., 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868, 1869, and 1870, and one group of six, viz., 1887, 1888, 1889, 1890, 1891, and 1892.

In April above the mean there was one group of four successive years, viz., 1867, 1868, 1869, and 1870. Of those below the mean there were two groups of five successive years, viz., 1871, 1872, 1873, 1874, and 1875; and 1897, 1898, 1899, 1900, and 1901.

In May there was no instance of three successive years above the mean. Of those below the mean there was one group of six successive years, viz., 1870, 1871, 1872, 1873, 1874, and 1875.

In October there was no instance of three successive years above the mean. Of those below the mean there was two groups of five and two groups of four successive years, viz., 1872, 1873, 1874, 1875, and 1876; 1881, 1882, 1883, 1884, and 1885; 1887, 1888, 1889, and 1890; and 1898, 1899, 1900, and 1901.

In November above the mean there were two groups of three successive years, viz., 1872, 1873, and 1874; and 1890, 1891, and 1892. Of those below the mean there was one group of seven successive years, viz., 1865, 1866, 1867, 1868, 1869, 1870, and 1871.

In December above the mean there was one group of six successive years, viz., 1890, 1891, 1892, 1893, 1894, and 1895; of those below the mean there was one group of four successive years, viz., 1881, 1882, 1883, and 1884.

Therefore it will be seen that the largest number of years in succession of any month above the mean was six in December, and of those in succession below the mean, 10 in March.

Comparing the yearly falls with the average, viz., 25.87 inches, we find there was one group of five successive years above the average, viz., 1890, 1891, 1892, 1893, and 1894; one group of four, viz., 1885, 1886, 1887, and 1888; and one group of three, viz., 1896, 1897, and 1898. Of those below the mean there was one group of five successive years, viz., 1869, 1870, 1871, 1872, and 1873; and two groups of three, viz., 1864, 1865, and 1866, and 1899, 1900, and 1901.

Subsequent to the long group of deficient rainfall ending in 1873 no two dry years have come together until 1899—a period of exactly 30 years. It will therefore be interesting to note whether there will be a similar period of deficient rainfall in the years commencing 1899 to that which commenced in 1869 and ended in 1873; and future observations will have to decide whether the years ending 1873 were the lowest of a cycle or whether the climate is changing. The mean of the five yearly falls from 1869 to 1873 was 19.71 inches, that for the three years ending 1901 was 20.35 inches.

TABLE I.—Showing the fall of rain in inches at Jerusalem in every month in the years 1861 to 1901.

(To face p. 24.)

Months.	YEARS.																																								Mean of 41 years.									
	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890		1891	1892	1893	1894	1895	1896	1897	1898	1899
January...	in. 3.66	in. 12.41	in. 9.11	in. 6.89	in. 4.54	in. 5.06	in. 9.25	in. 3.57	in. 7.72	in. 1.24	in. 2.94	in. 3.11	in. 0.33	in. 8.43	in. 6.79	in. 3.42	in. 1.60	in. 13.29	in. 0.98	in. 6.00	in. 1.28	in. 3.98	in. 10.93	in. 6.89	in. 7.79	in. 6.55	in. 12.45	in. 4.63	in. 6.13	in. 11.50	in. 10.23	in. 7.42	in. 7.54	in. 4.90	in. 6.90	in. 9.61	in. 14.46	in. 4.40	in. 6.46	in. 7.50	in. 7.42	in. 6.41								
February...	6.50	2.27	2.40	1.50	5.08	3.18	6.07	10.03	3.27	0.69	4.42	5.25	6.03	7.22	4.09	4.14	8.75	11.49	2.27	4.04	4.43	12.59	3.79	8.26	2.90	9.51	4.16	1.25	0.83	4.18	6.22	4.09	2.12	6.54	3.97	8.65	7.18	6.19	3.36	10.72	0.15	5.11								
March...	2.40	0.63	3.70	1.08	0.42	3.46	2.14	3.29	1.90	3.99	6.75	1.43	1.94	10.92	10.52	2.27	0.89	2.35	7.52	5.64	4.36	0.97	5.74	3.75	5.47	5.09	3.78	2.52	3.21	1.97	3.38	1.73	12.35	8.45	5.94	5.10	8.18	7.29	3.21	1.85	1.24	4.19								
April...	0.32	1.00	2.11	1.65	0.77	0.29	2.01	1.33	2.36	3.72	1.10	0.42	0.39	0.13	1.01	1.97	0.21	0.51	1.52	2.07	2.21	3.65	0.35	2.08	6.52	1.31	0.93	4.74	0.74	4.41	0.25	1.58	0.91	1.94	1.84	2.14	0.40	0.35	1.29	0.14	0.23	1.55								
May...	0.48	0.00	0.00	0.00	0.37	0.30	0.73	0.14	2.40	0.00	0.19	0.11	0.01	0.00	0.23	0.35	0.00	0.65	0.00	0.10	0.07	0.57	0.00	0.62	0.24	0.43	1.25	0.23	0.00	0.00	0.35	1.54	0.06	0.07	0.12	0.42	0.28	0.00	0.00	0.08	0.99	0.26								
June...	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
July...	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
August...	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
September...	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
October...	0.00	0.00	1.50	0.00	0.00	1.75	0.00	0.00	0.00	0.00	2.29	1.58	0.31	0.01	0.00	0.00	0.08	2.18	0.00	0.82	0.40	0.00	0.07	0.31	0.56	0.57	0.43	0.00	0.32	0.00	0.07	0.40	0.03	0.11	0.00	0.41	0.01	0.78	0.00	0.35	0.19	0.28	0.37							
November...	0.18	2.96	0.19	2.65	1.56	1.84	2.21	1.19	1.47	0.01	0.10	3.39	4.41	2.51	1.12	1.69	5.02	0.93	0.69	0.86	2.43	0.80	7.59	1.08	0.13	5.93	0.69	7.99	0.57	3.48	2.90	6.64	0.60	6.97	3.73	2.08	3.32	3.93	1.47	0.49	1.69	2.37								
December...	7.76	2.59	7.13	1.65	5.45	2.97	6.98	8.05	1.17	1.45	6.49	6.24	9.30	1.44	3.19	0.49	7.35	3.00	4.24	13.00	1.72	4.99	3.21	2.02	6.27	3.51	6.72	16.40	2.06	9.83	11.09	8.70	6.83	6.71	7.24	4.16	7.42	6.00	6.35	5.32	5.42	5.67								
Means...	27.00	21.86	26.54	15.31	18.79	18.55	29.42	29.10	18.61	18.39	23.57	20.26	22.72	29.75	27.01	14.41	26.00	32.21	18.84	32.11	16.50	26.72	31.92	23.96	29.47	31.80	29.81	37.79	13.56	35.51	34.72	31.23	30.54	35.38	23.25	32.30	41.62	28.06	22.43	21.20	17.42	25.97								

TABLE III.—Showing the number of days of rain in every month in the years 1861 to 1901.

Months.	YEARS.																																				Mean of 41 years.						
	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896		1897	1898	1899	1900	1901	
January...	14	14	10	8	7	14	11	9	15	9	9	6	4	15	14	7	9	14	6	15	3	11	19	10	19	15	12	12	13	15	16	17	12	14	6	19	14	12	14	6	11	12	
February...	7	7	7	5	8	9	12	18	12	1	11	17	10	12	12	10	13	13	6	12	12	16	13	18	9	10	6	7	4	15	11	11	9	14	7	12	15	8	11	17	3	10	
March...	5	3	8	4	5	9	8	7	4	9	10	17	11	20	14	7	5	7	17	7	10	4	9	10	11	9	8	6	5	9	9	2	15	8	13	14	11	13	8	11	4	8	
April...	1	4	7	6	3	4	2	13	8	13	3	4	2	3	4	8	3	2	3	6	8	12	3	3	7	5	2	8	3	8	5	6	5	6	7	6	0	2	5	1	4	5	
May...	4	0	0	0	3	0	5	1	2	0	1	3	1	0	1	4	0	3	0	1	2	4	0	3	1	5	2	2	0	0	3	5	1	1	1	3	2	0	0	1	4	2	
June...	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
July...	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
August...	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
September...	0	0	0	2	0	0	0	0	1	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
October...	0	0	7	0	0	5	0	0	0	4	2	4	1	0	0	1	5	0	3	1	0	1	3	1	1	2	0	3	0	1	3	1	3	0	2	2	5	0	3	2	2	2	
November...	3	9	1	4	11	8	4	7	6	1	1	7	7	6	6	7	11	1	5	5	5	4	11	7	1	9	4	13	5	7	6	12	2	12	10	9	8	13	7	3	8	7	
December...	13	7	12	7	11	13	10	13	5	4	13	7	13	6	9	3	13	4	6	15	8	11	12	2	8	8	12	13	10	17	15	9	15	10	6	6	17	11	11	11	4	10	
Means...	47	44	52	36	48	62	53	68	53	41	56	55	49	62	61	47	59	46	46	62	48	63	70	54	58	63	46	65	41	73	68	63	62	65	52	71	72	59	59	52	40	56	

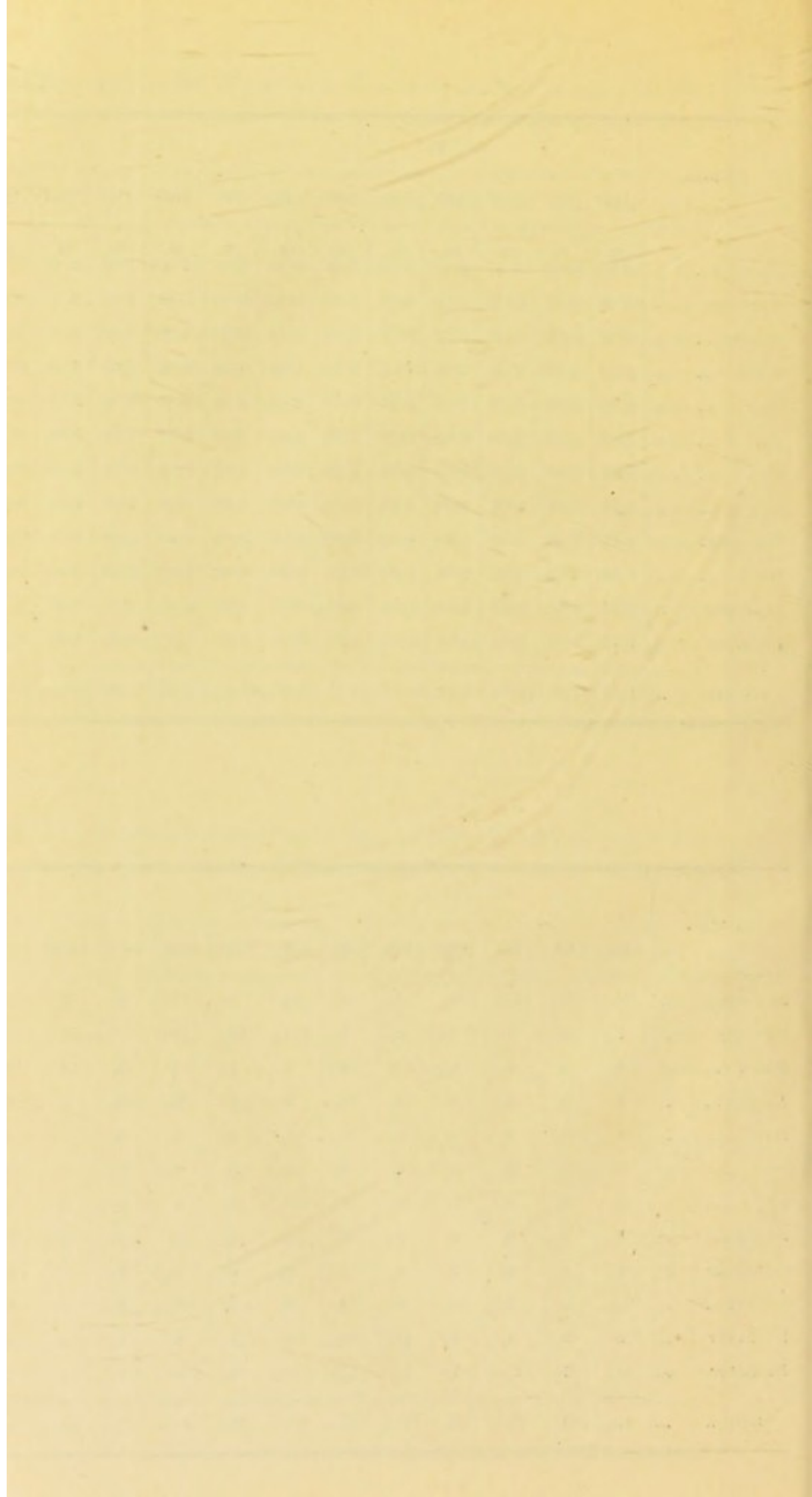


TABLE III (*see facing p. 24*).

Table III shows the number of days on which rain fell in each month. It will be seen that the number of rainy days has varied in—

January	from 3 in 1881 to 19 in 1883, 1885, and 1896.
February	„ 1 in 1870 to 18 in 1868 and 1884.
March	„ 2 in 1892 to 20 in 1874.
April	„ 0 in 1897 to 13 in 1868 and 1870.
May	„ 0 in several years to 5 in 1867, 1886, and 1892.
October	„ 0 in several years to 7 in 1863.
November	„ 1 in 1863, 1870, 1871, 1878, and 1885 to 13 in 1888 and 1898.
December	„ 2 in 1884 to 17 in 1890 and 1897.

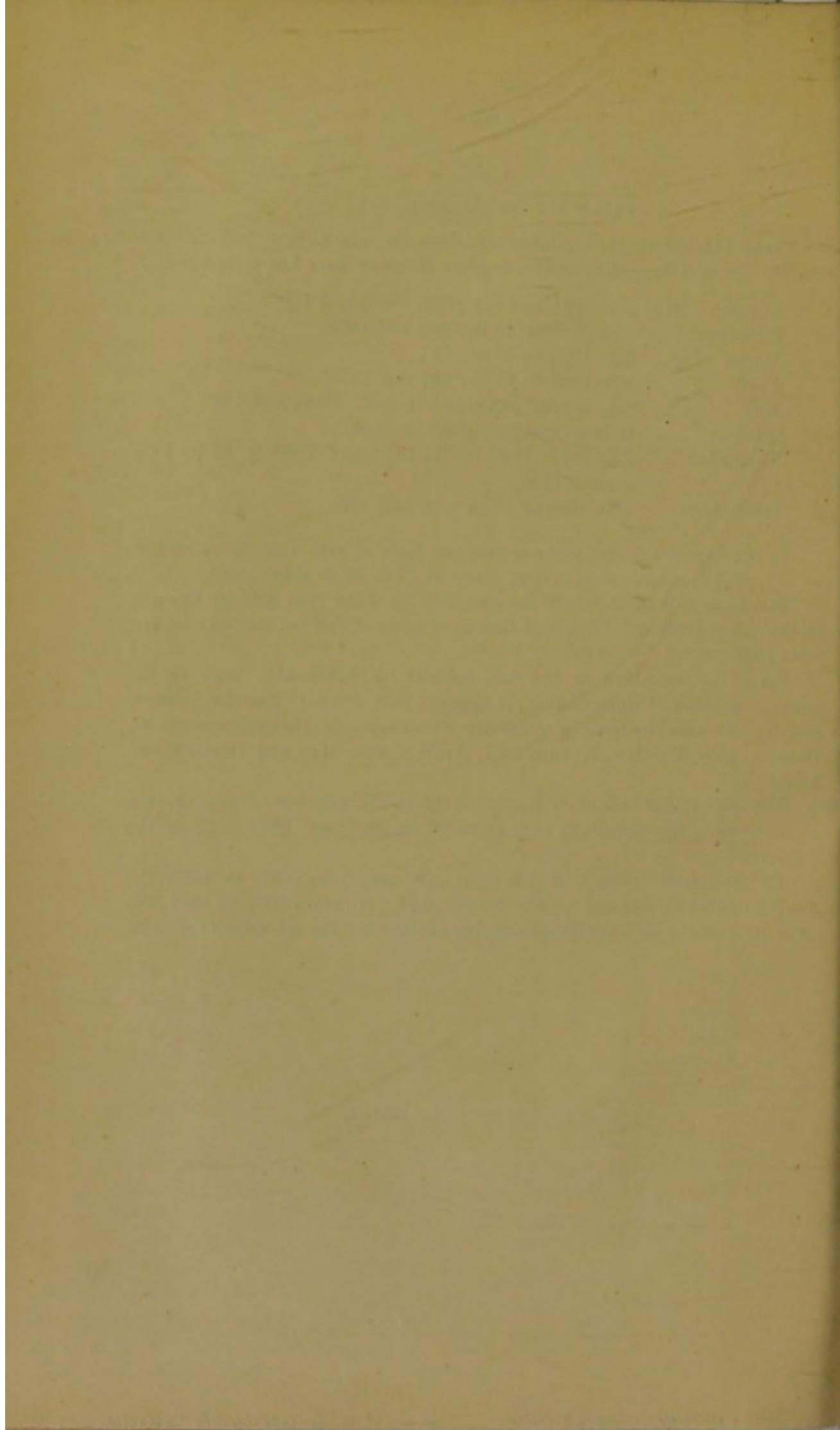
In the months of the rainy season the days of rain have been as few as 1, 2, or 3 in some years, and as many as 17 to 20 in other years.

Also from this table it will be seen that in June rain fell on one day in the years 1885 and 1888, and that in August it fell on one day in the year 1890.

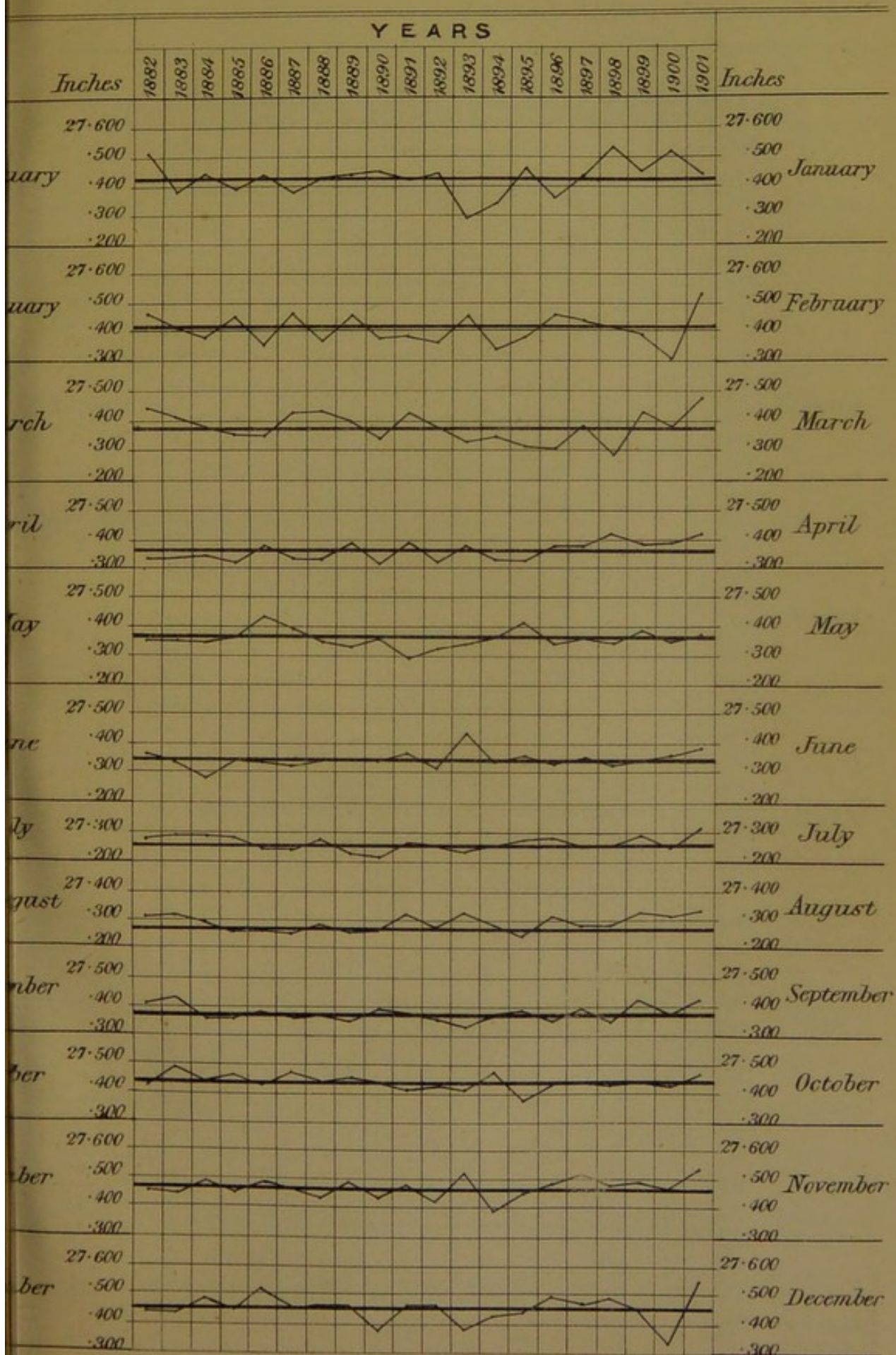
From the numbers in the last column of Table III, showing the average number of days of rain, it appears that January has the greatest number, 12, and the next in order are February and December, each 10, then in order March 8, November 7, April 5, and May and October two each.

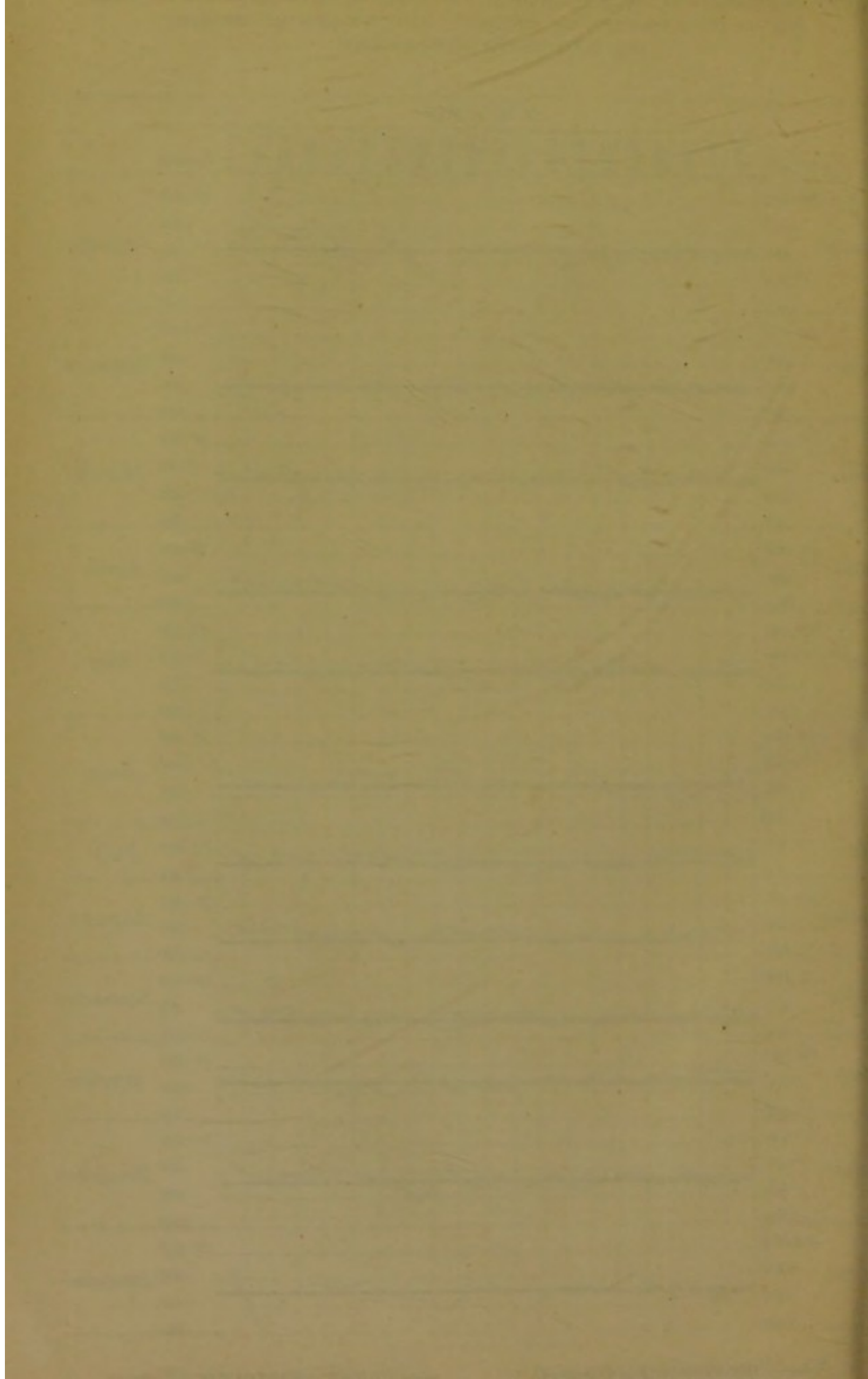
The sum at the foot of each column shows the number of days of rain in that year; the numbers vary from 36 in the year 1864 to 73 in the year 1890.

By taking the means of the first half, viz., from 1861 to 1880, the average value is 52, and of the second half, viz., from 1881 to 1901, the average value is 59; the mean number of days for the whole period is 56.

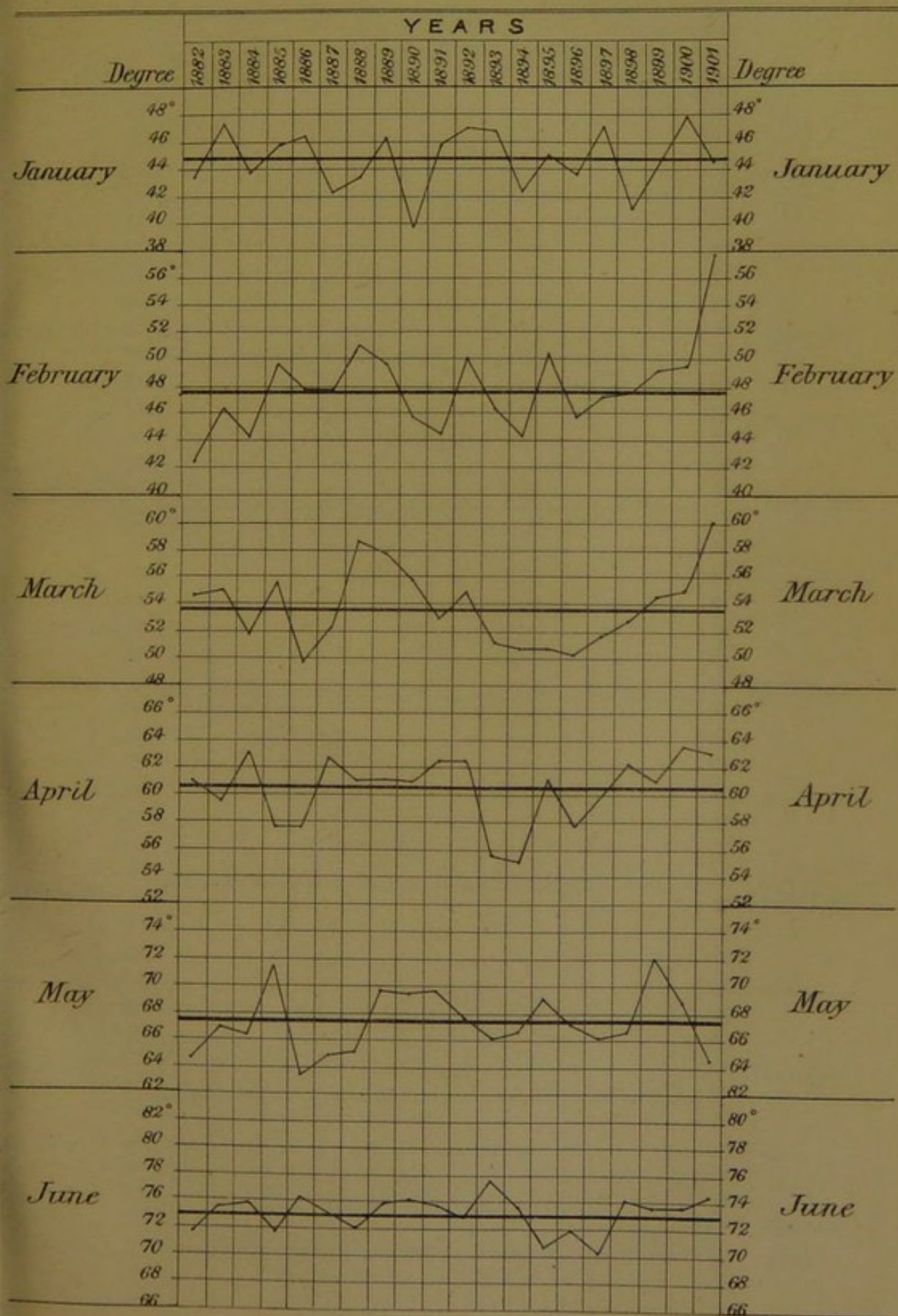


DIAGRAMS SHOWING THE MEAN READING OF THE BAROMETER IN EACH MONTH DURING THE 20 YEARS (1882 TO 1901, INCLUSIVE), AND THE MONTHLY AVERAGE FOR EACH MONTH AT JERUSALEM.



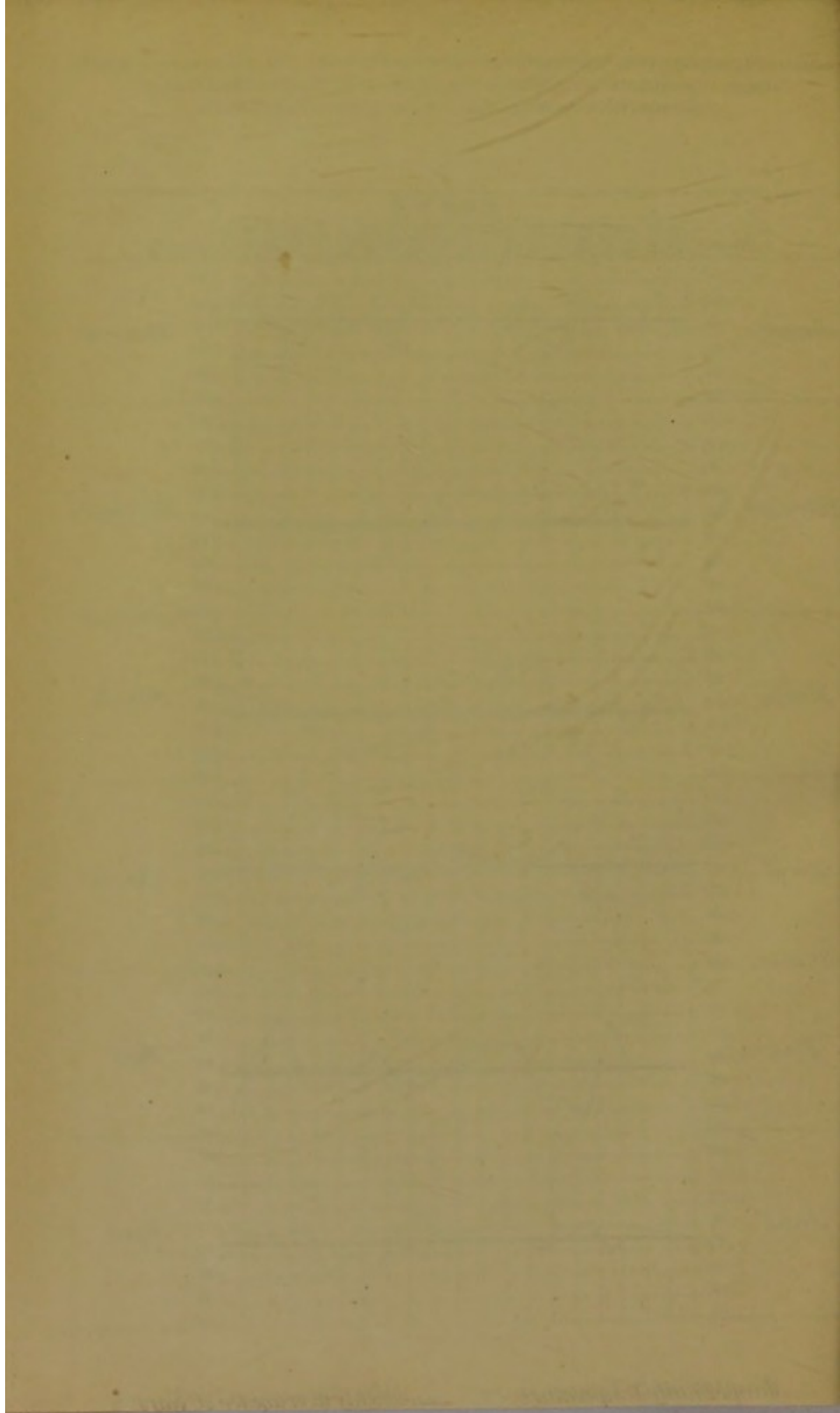


DIAGRAMS SHOWING THE MEAN MONTHLY TEMPERATURE OF THE AIR IN EVERY MONTH DURING A PERIOD OF 20 CONSECUTIVE YEARS, 1882 TO 1901, INCLUSIVE, AND THE MONTHLY AVERAGE FOR THE 20 YEARS AT JERUSALEM.

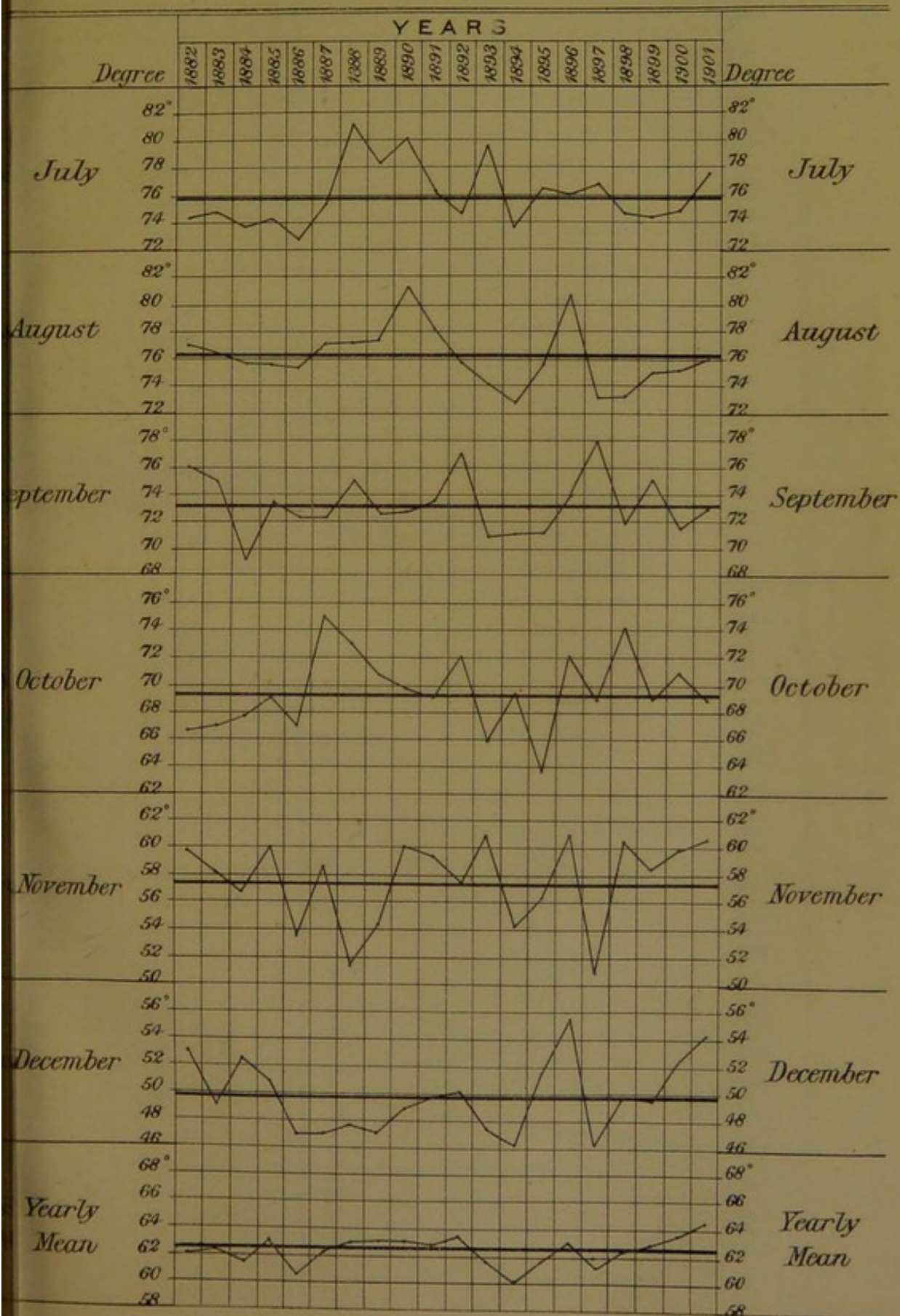


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— Mean Monthly Temperature. — Monthly average for 20 years*



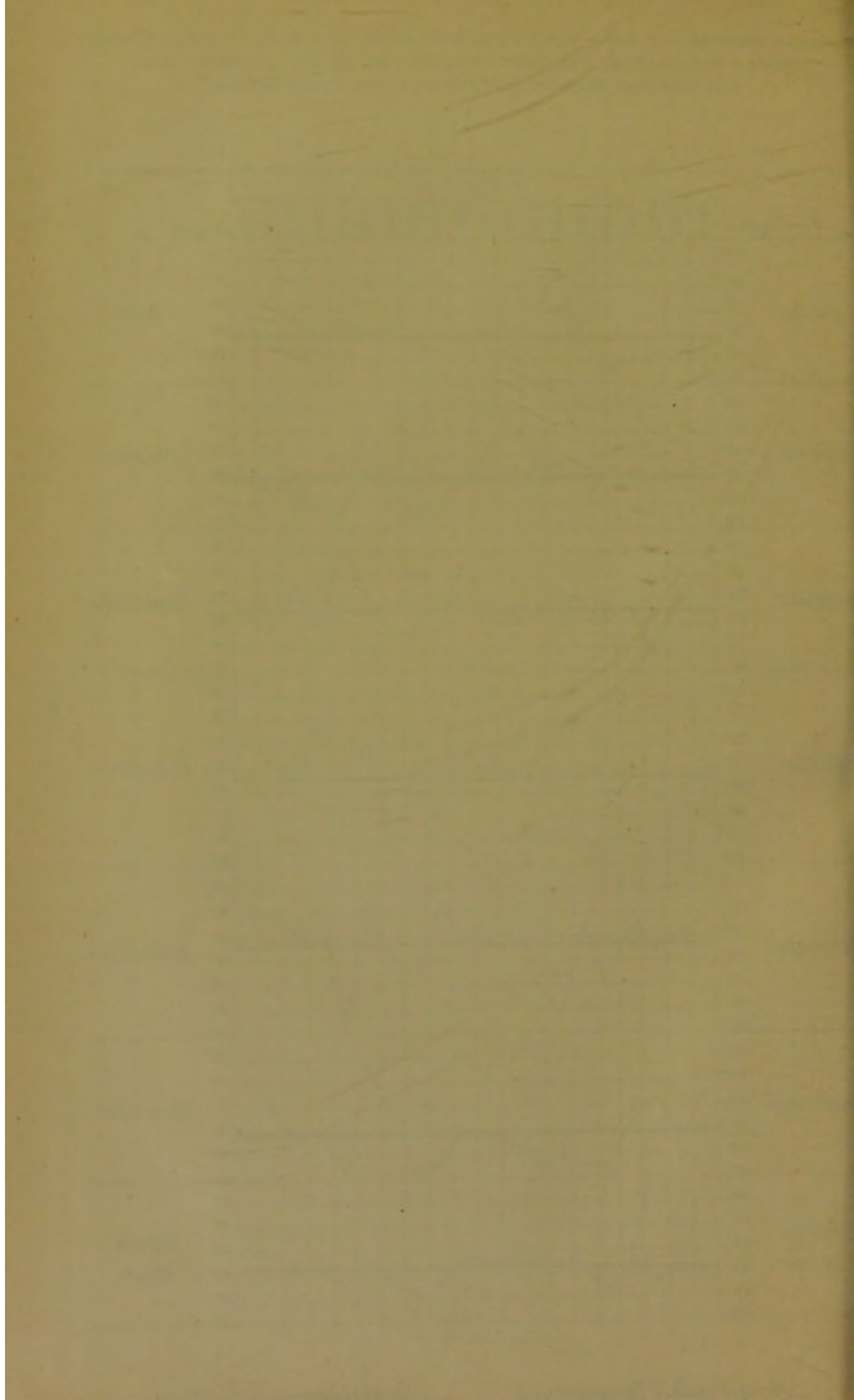
DIAGRAMS SHOWING THE MEAN MONTHLY TEMPERATURE OF THE AIR IN EVERY MONTH DURING A PERIOD OF 20 CONSECUTIVE YEARS, 1882 TO 1901, INCLUSIVE, AND THE MONTHLY AVERAGE FOR THE 20 YEARS AT JERUSALEM.



HARRISON & SONS, LITH, ST MARTIN'S LANE, W.C.

— Mean Monthly Temperature.

— Monthly average for 20 years.



(4)

DIAGRAM SHOWING THE FALL OF RAIN IN INCHES AT JERUSALEM IN EVERY YEAR FROM 1861 TO 1901.

— Yearly Fall. — Average of 41 years.

