

This inscription has a close family likeness to one given in the C. I. Gr. 8,662, where the same titles of *μεγαλοπρεπέστατος κόμης* and *λαμπρότατος πατήρ* are cited, and where the word *πλάκωσις* (= inlaid marble) is applied to a gate (*πύλη*). I have translated *ψήφωσις* as "tessellated" work, but it may more exactly have meant a pavement of pebbles (*ψήφοι*) such as was very common in late classical buildings. For the use of the letter *ς* as a sign of abbreviation in lines 1, 3, 4, 5, compare the inscription from Cæsarea in Waddington, 2,124.

## RESULTS OF METEOROLOGICAL OBSERVATIONS TAKEN AT JERUSALEM IN THE YEAR 1890.

By JAMES GLAISHER, F.R.S.

THE numbers in column 1 of this table show the highest reading of the barometer in each month; of these the highest, as usual, are in the winter, and the lowest in the summer months; the maximum for the year was 27·613 inches, in January, and the next in order was 27·598 inches, in October. The highest reading in the preceding 29 years, 1861 to 1889 inclusive, was 27·816 inches, in December, 1879.

In column 2 the lowest reading in each month is shown; the minimum for the year was 27·085 inches, in April, the next in order was 27·116 inches, in February. The lowest reading in the preceding 29 years was 26·972 inches, in April, 1863, and in February, 1865.

The range of readings in the year was 0·528 inch. The largest range in the preceding 29 years was 0·742 inch, in 1876; and the smallest was 0·491 inch, in 1883.

The numbers in the 3rd column show the extreme range of readings in each month; the smallest, 0·165 inch, was in July, and the next in order, 0·169 inch, in August; the largest was 0·480 inch in January, and the next in order, 0·430 inch, in February. The mean monthly range for the year was 0·292 inch. The mean for the preceding 29 years was 0·310 inch.

The numbers in the 4th column show the mean monthly pressure of the atmosphere; the highest was 27·465 inches, in October; and the next in order, 27·439 inches, in November; the lowest was 27·217 inches, in July; and the next in order, 27·262 inches, in August. The mean yearly pressure was 27·359 inches. The highest mean yearly pressure in the preceding 29 years was 27·443 inches, in 1861, and the lowest 27·367 inches, in 1864. The mean for 29 years was 27·394 inches.

The temperature of the air reached 90° on June 2nd. In the preceding 8 years, the earliest day in the year the temperature was 90° was March 25th, in the year 1888; there were three other days in June when the temperature was or exceeded 90°; in July 8 days; in August 20 days; in September 4 days; and in October 1 day, the 2nd. In the

## MONTHLY METEOROLOGICAL TABLE

Deduced from observations taken at Jerusalem, by JOSEPH GAMEL, in a garden, well within the city, about 2,500 feet above the level of the Mediterranean Sea, open on all sides.  
Latitude, 31° 46' 40" N., Longitude, 35° 13' 30" E.

Months.	Pressure of atmosphere in month— Corrected to 32° Fahrenheit.				Temperature of the air in month at 9 a.m.							Mean reading at 9 a.m.			Vapour at 9 a.m.			Degree of humidity.	Weight of a cubic foot of air.	Wind. Relative proportions of.								Mean amount of cloud.	Rain.			
	Highest.	Lowest.	Range.	Mean.	Highest.	Lowest.	Range.	Mean of all highest.	Mean of all lowest.	Mean daily range.	Mean.	Dry bulb.	Wet bulb.	Dew point.	Elastic force of vapour.	Weight in a cubic foot of air.	Additional weight required for saturation.			N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.		Number of days on which it fell.	Amount collected.		
1890.	in.	in.	in.	in.	°	°	°	°	°	°	°	°	°	grs.	grs.	grs.	°	grs.														in.
January	27·613	27·133	0·480	27·436	51·5	26·5	28·0	47·3	32·3	15·0	39·8	44·2	41·0	37·3	·222	2·6	0·7	76	505	0	6	1	3	1	8	3	9	6·0	15	11·59		
February	27·546	27·116	0·430	27·380	61·8	31·0	33·8	54·2	36·9	17·3	45·5	49·5	45·7	41·7	·266	3·1	1·1	76	498	0	4	1	3	0	8	3	9	5·8	15	4·18		
March	27·489	27·127	0·362	27·331	77·0	32·0	45·0	61·5	46·8	17·7	55·7	58·8	51·7	45·4	·304	3·4	2·1	61	488	1	9	0	5	0	2	6	8	5·5	9	1·87		
April	27·485	27·085	0·400	27·309	80·8	44·8	36·0	69·8	52·3	17·5	61·0	61·1	55·9	51·4	·379	4·3	1·9	71	485	2	4	2	3	0	9	1	9	6·1	8	4·41		
May	27·407	27·226	0·181	27·365	89·0	50·0	39·0	80·7	57·7	23·0	69·2	75·0	60·5	50·1	·361	4·0	5·5	42	474	1	6	2	2	0	1	5	14	2·3	0	0·00		
June	27·423	27·218	0·205	27·322	96·2	52·0	44·2	84·9	63·5	21·4	74·2	78·2	65·1	56·0	·450	4·8	5·5	47	469	2	5	0	1	0	2	4	16	0·6	0	0·00		
July	27·292	27·127	0·165	27·217	93·8	60·0	33·8	91·3	68·7	22·6	80·0	81·1	65·6	55·1	·434	4·7	6·7	40	465	0	0	0	0	0	10	6	15	0·1	0	0·00		
August	27·349	27·190	0·169	27·262	95·5	64·0	31·5	93·8	68·7	25·1	81·2	83·7	70·4	61·6	·548	5·8	6·5	48	463	1	2	0	0	1	1	6	20	1·0	1	0·08		
September	27·496	27·321	0·175	27·398	97·0	53·0	41·0	83·5	62·1	21·4	72·8	75·9	64·6	56·6	·458	5·0	4·7	51	473	5	0	0	1	0	0	0	24	0·3	0	0·00		
October	27·598	27·329	0·269	27·465	90·0	55·0	35·0	89·5	59·3	21·2	69·9	74·1	60·9	51·3	·379	4·2	5·1	45	476	4	5	0	2	0	0	3	17	2·6	1	0·07		
November	27·577	27·271	0·306	27·439	82·0	44·5	37·5	67·0	52·9	14·1	60·0	62·7	57·9	53·8	·416	4·6	1·7	73	486	2	8	2	3	0	5	3	7	4·2	7	3·48		
December	27·533	27·170	0·363	27·386	63·8	38·0	25·8	54·1	44·4	9·7	49·3	49·9	46·6	43·1	·279	3·2	0·9	78	498	1	6	5	1	0	12	3	3	7·9	17	9·83		
Means	27·484	27·192	0·292	27·359	82·0	45·9	36·1	72·6	53·8	18·8	63·2	66·2	57·1	50·3	·375	4·1	3·5	59	482	sum. 19	sum. 55	sum. 13	sum. 24	sum. 2	sum. 58	sum. 43	sum. 151	3·6	sum. 73	sum. 35·51		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		

preceding 8 years the latest day in the year this temperature reached  $90^{\circ}$  was October 23rd in the year 1887. The temperature reached or exceeded  $90^{\circ}$  on 37 days during the year. In the year 1882 the number of days of this high temperature was 28, and in 1887 was 73; the average of the 8 years was 45. The highest temperature in the year was  $97^{\circ}$  on September 10th. The highest in the preceding 8 years, 1882-1889, was  $106^{\circ}$ , in July, 1888.

The temperature of the air was as low as  $26^{\circ}5$  on January 3rd, and on 15 nights was at or below  $32^{\circ}$ , and on every night in this month it was below  $40^{\circ}$ ; in February it was as low or below  $40^{\circ}$  on 25 nights; in March on 5 nights; and in December on 3 nights. Thus the temperature was as low or lower than  $40^{\circ}$  on 64 nights during the year. In the year 1885 the number of nights of this low temperature was 23, and in 1886 was 97; the average for the 8 years was 51. The lowest temperature in the preceding 8 years was  $27^{\circ}$ , in January, 1887.

The highest temperature of the air in each month is shown in column 5. In January it was  $54^{\circ}5$ , being the lowest of any high day temperature in the preceding 8 years, and was  $6^{\circ}7$  below the mean of the 8 high day temperatures in January. With the exception of September and November, the high day temperature was below its average in every month. The mean for the year was  $82^{\circ}0$ , being  $2^{\circ}4$  below the average of 8 years. The highest for the year was  $97^{\circ}$ , in September.

The lowest temperature of the air in each month is shown in column 6. In January it was  $26^{\circ}5$ , being  $6^{\circ}$  below the average of the preceding 8 years; in February it was  $31^{\circ}0$ , being  $3^{\circ}8$  below the average; and in March it was  $32^{\circ}$ , being  $2^{\circ}$  below; in the remaining months it was generally above. The mean for the year was  $45^{\circ}9$ , being  $1^{\circ}7$  above the average of 8 years.

The range of temperature in each month is shown in column 7; the numbers vary from  $25^{\circ}8$  in December, to  $45^{\circ}$  in March. In the months of April, May, and August the ranges were small, owing to the low high day, and high night temperatures, being  $10^{\circ}8$ ,  $10^{\circ}3$ , and  $10^{\circ}9$  respectively less than their averages. The mean range for the year is  $36^{\circ}1$ , being  $4^{\circ}0$  less than the average of 8 years.

The range of temperature in the year was  $70^{\circ}5$ . The largest in the preceding 8 years was  $76^{\circ}5$ , in each of the years 1884, 1886, and 1888, and the smallest was  $63^{\circ}5$ , in year 1885.

The mean of all the high day temperatures in each month is shown in column 8. The lowest was  $47^{\circ}3$  in January, being  $3^{\circ}6$  below the average, and was the lowest mean high day temperature in any month in the preceding 8 years, the nearest approach was  $49^{\circ}$  in February, 1882. The highest was  $93^{\circ}8$ , in August, the next in order was  $91^{\circ}3$ , in July. The mean for the year was  $72^{\circ}6$ , exceeding the average of 8 years by  $0^{\circ}3$ .

The mean of all the low night temperatures in each month is shown in column 9. The lowest was  $32^{\circ}3$ , in January, being  $6^{\circ}4$  below the average, and lower than in any month in the preceding 8 years; the nearest approach was  $34^{\circ}5$ , in January, 1887. The highest was  $68^{\circ}7$ , in

both July and August. The mean for the year was  $53^{\circ}8$ , being  $1^{\circ}6$  above the average of 8 years.

In column 10, the mean daily range of temperature in each month is shown; the smallest was  $9^{\circ}7$ , in December; and the next in order  $14^{\circ}1$ , in November; the greatest was  $25^{\circ}1$ , in August, and the next in order  $23^{\circ}0$ , in May. The mean for the year was  $18^{\circ}8$ , being  $1^{\circ}3$  less than the average. The smallest ranges in the preceding 8 years were  $9^{\circ}3$ , in January, 1883, and  $10^{\circ}5$ , in January, 1885 and 1889; the greatest were  $33^{\circ}8$ , in August, 1886, and  $30^{\circ}1$ , in the same month of 1887. The smallest mean for the year was  $17^{\circ}8$  in 1883, and the greatest,  $24^{\circ}3$ , in 1886.

The mean temperature of the air, as found from the maximum and minimum temperatures only, is shown in each month in column 11; the lowest was  $39^{\circ}8$ , in January; and the next in order  $45^{\circ}5$ , in February; the highest was  $81^{\circ}2$ , in August, and the next in order  $80^{\circ}0$ , in July. The mean for the year was  $63^{\circ}2$ , exceeding the average of 8 years by  $0^{\circ}9$ . The lowest mean temperature in the preceding 8 years were  $42^{\circ}0$ , in December, 1886, and  $42^{\circ}5$  in both February, 1882, and January, 1887; the highest were  $81^{\circ}1$ , in July, 1888, and  $79^{\circ}3$ , in October, 1885. The highest mean for the year was  $63^{\circ}7$ , in 1885, and the lowest,  $60^{\circ}1$ , in 1886.

January was the coldest month during the 8 years of observation; by reference to columns 5 and 6 it will be seen that it was below the average both by day and night. The nights of February were cold, but from March to the end of the year they were above their average, particularly so in the months of July, August, and November.

The numbers in the 12th column are the mean readings of a dry bulb thermometer. If those in column 12 be compared with those in column 11, it will be seen that those in column 12 are a little higher in every month, the difference of the means for the year being  $3^{\circ}0$ . The mean difference between the mean temperature of the air and that at 9 a.m. for the 8 years is  $3^{\circ}2$ .

For a few days in the winter months the dry and wet-bulb thermometers read alike, or nearly so, but in the months from May to November the difference between the readings often exceeded  $20^{\circ}$ , and was as large as  $29^{\circ}$  on June 7th at 9 a.m. In column 13 the mean monthly readings of the wet bulb thermometer are shown; the smallest differences between these and those of the dry bulb were  $3^{\circ}2$ , in January, and  $3^{\circ}3$ , in December; the largest were  $15^{\circ}5$ , in July, and  $14^{\circ}5$ , in May. The mean for the year was  $57^{\circ}1$ ; that of the dry was  $66^{\circ}2$ ; the mean difference was  $9^{\circ}1$ .

In column 14, the temperature of the dew-point, or that temperature at which the air would be saturated by the quantity of vapour mixed with it, is shown; the smallest differences between these numbers and those in column 12 were  $6^{\circ}8$ , in December, and  $6^{\circ}9$  in January; and the largest,  $26^{\circ}0$ , in July, and  $24^{\circ}9$  in May. The mean temperature of the dew-point for the year was  $50^{\circ}3$ ; the mean for 8 years was  $50^{\circ}2$ .

The numbers in column 15 show the elastic force of vapour, or the

length of a column of mercury in inches corresponding to the pressure of vapour; the smallest was 0.222 inch, in January, and the largest, 0.548 inch, in August. The mean for the year was 0.375 inch; the average of 8 years was 0.378 inch.

In column 16 the weight in grains of the water in a cubic foot of air is shown; it was a little more than  $2\frac{1}{2}$  grains in January, and more than  $5\frac{1}{2}$  grains in August. The mean for the year was 4.1 grains; the average of 8 years was 4.2 grains.

In column 17 the additional quantity of water required to saturate a cubic foot of air is shown; it was less than one grain in the months of January and December, and more than 6 grains in both July and August. The mean for the year was 3.5 grains; the average of 8 years was 3.3 grains.

The numbers in column 18 show the degree of humidity of the air, saturation being represented by 100; the largest numbers appear from December to February, and the smallest from March to November; the smallest of all was 40 in July. The mean for the year was 59; that of 8 years was 60.

The numbers in column 19 show the weight in grains of a cubic foot of air under its mean atmospheric pressure, temperature, and humidity; the largest number was in January, decreasing to the smallest in August, and then increasing to December. The mean for the year was 482 grains; that of the 8 years was 483 grains.

The most prevalent winds in January were N.W. and S.W., and the least prevalent wind was N. In February the most prevalent were N.W. and S.W., and the least were N. and S. In March the most prevalent were N.E. and N.W., and the least were E. and S. In April the most prevalent were S.W. and N.W., and the least was S. In May the most prevalent was N.W., and the least was S. In June the most prevalent was N.W., and the least were E. and S. In July the most prevalent were N.W. and S.W., and the least were N., N.E., E., S.E., and S. In August the most prevalent was N.W., and the least were E. and S.E. In September the most prevalent was N.W., and the least were N.E., E., S., and S.E. In October the most prevalent was N.W., and the least were E., S., and S.W. In November the most prevalent winds were N.E. and N.W., and the least was S. And in December the most prevalent wind was S.W., and the least prevalent was S. The most prevalent wind for the year was N.W., which occurred on 151 times, of which 24 were in September, 20 in August, and 17 in October; and the least prevalent wind was S., which occurred only twice during the year.

The total number of times of each wind are shown in the last line of columns 20 to 27; those winds less in number than the average of the preceding 8 years were—

N.	by 14
E.	” 23
S.E.	” 6
S.	” 11
W.	” 26

and those winds greater in number than the average of the 8 years were—

N.E.	by	21
S.W.	„	9
N.W.	„	51

The numbers in column 28 show the mean amount of cloud in each month; the month with the smallest amount is July, and the largest December. Of the cumulus or fine weather cloud there were 3 instances; of the nimbus or rain cloud there were 26 instances, of which 9 were in January, and 7 in February, and only one instance from April to October; of the cirrus there were 4 instances; of the stratus 3 instances; of the cirro cumulus there were 90 instances, of which 13 were in October, and 10 in each of the months of April, November, and December; of the cumulus stratus there were 54 instances; of the cirro stratus 18 instances, and 171 instances of cloudless skies, of which 30 were in July, 25 in August, and 23 in June, and only 2 in December.

The largest fall of rain for the month in the year was in January, 11·59 inches, of which 2·45 inches fell on the 18th and 1·90 inch on the 27th. The next largest fall for the month was 9·83 inches in December, of which 2·40 inches fell on the 17th, and 1·83 inch on the 9th. No rain fell from April 25th till August 29th, making a period of 125 consecutive days without rain. The total fall of rain for the year was 35·51 inches, being 10·28 inches above the average for 32 years, viz., 1861 to 1892. The number of days on which rain fell was 73, being 18 more than the average.

## RESULTS OF METEOROLOGICAL OBSERVATIONS TAKEN AT TIBERIAS UNDER THE DIRECTION OF DR. TORRANCE IN THE YEAR 1890.

By JAMES GLAISHER, F.R.S.

THE observatory at Tiberias is situated in 35° 34' east longitude, and 32° 48' north latitude, at about 652 feet below the level of the Mediterranean, and 30 feet above the level of the Sea of Galilee, from which it is distant about 150 feet, and is pretty open on all sides.

The barometer was made by Negretti and Zambra. The dry and wet-bulb thermometers and rain-gauge were made by Casella. The diameter of the receiving surface of the rain-gauge is 5 inches. The observations have been taken by Mr. Najub Nassar, Dr. Torrance's dispenser, and who has been instructed and directed by him.

The observations were began on February 1st, 1890; their reductions have been deferred till we had those of the years 1891, 1892, and 1893, at both Tiberias and Jerusalem, in the hopes by comparing their January

MONTHLY METEOROLOGICAL TABLE

Deduced from observations taken at Tiberias, by NAJUB NASSAR, at about 652 feet below the Mediterranean, and 30 feet above the level of the Sea of Galilee, open on all sides. Latitude, 32° 48' N.; Longitude, 35° 34' E.

Table with 32 columns: Months, Pressure of atmosphere in month—corrected to 32° Fahrenheit, Temperature of the air in month, 8 a.m. (Mean reading, Vapour, Degree of humidity, Weight of a cubic foot of air), 4 p.m. (Mean reading, Vapour, Degree of humidity, Weight of a cubic foot of air), Rain (Number of days on which rain fell, Amount collected). Rows include months from 1890 and a Means row.

means a sufficiently close agreement might be found year by year to authorise deducing approximately from the Jerusalem observations, January, 1890, those for Tiberias for January, 1890, and thus complete the year.

The table on p. 98 shows the process adopted in detail in deducing the inferred values for January, 1890.

The numbers in column 1 of the general table show the highest reading of the barometer in each month; the highest appear in the winter, and the lowest in the summer months, as at Jerusalem; the maximum for the year observed was 31·064 inches in November, and the next in order 30·970 inches in December.

In column 2 the lowest reading in each month is shown; the minimum for the year was 30·219 inches in July; and the next in order 30·282 inches in August.

The range of readings in the year observed was 0·845 inch. The range in the morning observations was 0·757 inch, being 0·229 inch greater than the range at Jerusalem.

The numbers in the 3rd column show the extreme range of readings in each month; the smallest was 0·272 inch in August, and the next in order 0·315 inch in July. The largest observed was 0·523 inch in November, and the next in order 0·515 inch in February.

The numbers in columns 4 and 5 show the mean monthly reading of the barometer at 8 a.m. and at 4 p.m.; and those in column 6 the lower reading at 4 p.m. than at 8 a.m.; the smallest difference between these two readings was 0·050 inch in December, and the next in order 0·056 inch in February; the largest was 0·108 inch in May, and the next in order 0·104 inch in October. In England in January the readings at 8 a.m. and 4 p.m. are practically the same; in all other months the reading at 4 p.m. is lower than at 8 a.m.; the greatest difference is in June, 0·025 inch. The mean for the year at Tiberias was 0·081 inch, being four times greater than in England.

The numbers in column 7 show the mean monthly pressure of the atmosphere; the highest observed was 30·749 inches in February, and the next in order 30·748 inches in both November and December; the lowest was 30·394 inches in July, and the next in order 30·425 inches in August. The mean for the year was 30·628 inches.

The highest temperature of the air in each month is shown in column 8. The first day in the year the temperature reached 90° was March 2nd; and there were 3 other days in this month when the temperature reached or exceeded 90°; in May 26 days; in June, July, August, and September it reached or exceeded 90° on every day; in October on 24 days; and in November on 4 days; thus the temperature reached or exceeded 90° on 180 days during the year. At Jerusalem the temperature did not reach 90° till June 2nd, and there were only 37 days in the year on which the temperature was so high as 90°. At Tiberias the temperature was 104° on May 4th, and reached or exceeded 100° on 4 other days in May; on 14 days in June; on 22 days in July; on every day



in August ; on 10 days in September ; on 4 days in October ; and once in November, on the 1st ; thus on 87 days in the year the temperature reached or exceeded  $100^{\circ}$ . The highest temperature in the year at Tiberias was  $111^{\circ}$  on September 10th ; at Jerusalem the highest in the year was  $97^{\circ}$  on the same day, viz., September 10th.

The lowest temperature of the air in each month is shown in column 9. The lowest in the year was  $34^{\circ}\cdot 3$  in January, as inferred from the lowest at Jerusalem,  $26^{\circ}\cdot 5$ , by the application of  $7^{\circ}\cdot 8$ , being the mean difference in the years 1891, 1892, and 1893. The next lowest was  $43^{\circ}$  in March, on the 10th ; from March 11th to the end of the year there was no temperature as low as  $43^{\circ}$ , the nearest approach being  $47^{\circ}$  on March 11th. At Jerusalem the lowest in the year was  $26^{\circ}\cdot 5$  on January 3rd ; and there were 64 nights in the year when the temperature was as low or lower than  $40^{\circ}$ .

The yearly range of temperature was  $76^{\circ}\cdot 7$  ; at Jerusalem it was  $70^{\circ}\cdot 5$ .

The range of temperature in each month is shown in column 10 ; and these numbers vary from  $31^{\circ}$  in February to  $52^{\circ}$  in March. At Jerusalem the range varied from  $25^{\circ}\cdot 8$  in December to  $45^{\circ}$  in March.

In column 11 the mean of all the high day temperatures in each month is shown. The lowest was  $62^{\circ}\cdot 1$  in January (being  $14^{\circ}\cdot 8$  higher than at Jerusalem) ; the next in order were  $67^{\circ}\cdot 2$  in December, and  $67^{\circ}\cdot 8$  in February ; the highest was  $102^{\circ}\cdot 9$  in August, and the next in order were  $101^{\circ}\cdot 1$  in July, and  $98^{\circ}\cdot 4$  in June. At Jerusalem the lowest were  $47^{\circ}\cdot 3$  in January,  $54^{\circ}\cdot 1$  in December, and  $54^{\circ}\cdot 2$  in February ; the highest were  $93^{\circ}\cdot 8$  in August,  $91^{\circ}\cdot 3$  in July, and  $84^{\circ}\cdot 9$  in June. The mean for the year at Tiberias was  $85^{\circ}\cdot 2$  ; at Jerusalem it was  $72^{\circ}\cdot 6$ .

In column 12 the mean of all the low night temperatures in each month is shown ; the lowest was  $40^{\circ}\cdot 3$  in January, as inferred from the lowest at Jerusalem,  $32^{\circ}\cdot 3$ , by the application of  $8^{\circ}$ , being the mean difference in the years 1891, 1892, and 1893 ; the next in order were  $49^{\circ}\cdot 2$  in February, and  $53^{\circ}\cdot 7$  in December ; the highest was  $77^{\circ}\cdot 8$  in August ; the next in order were  $74^{\circ}\cdot 9$  in July, and  $73^{\circ}\cdot 6$  in September. At Jerusalem the lowest were  $32^{\circ}\cdot 3$  in January,  $36^{\circ}\cdot 9$  in February, and  $44^{\circ}\cdot 4$  in December ; the highest were  $68^{\circ}\cdot 7$  in both July and August, and  $63^{\circ}\cdot 5$  in June. At Tiberias the yearly value was  $62^{\circ}\cdot 7$  ; at Jerusalem it was  $53^{\circ}\cdot 8$ .

In column 13 the mean daily range of temperature is shown in each month ; the smallest was  $13^{\circ}\cdot 5$  in December, and the next in order were  $17^{\circ}\cdot 9$  in November, and  $18^{\circ}\cdot 6$  in February ; the greatest was  $28^{\circ}\cdot 3$  in May ; the next in order were  $27^{\circ}\cdot 7$  in June, and  $26^{\circ}\cdot 2$  in July. At Jerusalem the smallest were  $9^{\circ}\cdot 7$  in December,  $14^{\circ}\cdot 1$  in November, and  $15^{\circ}$  in January ; the greatest were  $25^{\circ}\cdot 1$  in August,  $23^{\circ}$  in May, and  $22^{\circ}\cdot 6$  in July. At Tiberias the mean daily range for the year was  $22^{\circ}\cdot 5$  ; at Jerusalem it was  $18^{\circ}\cdot 8$ .

The mean temperature of the air, as found from the maximum and minimum temperatures only, is shown in each month in column 14. The

lowest was  $51^{\circ}2$  in January; the next in order were  $58^{\circ}5$  in February, and  $60^{\circ}5$  in December; the highest was  $90^{\circ}4$  in August; the next in order were  $88^{\circ}$  in July and  $85^{\circ}3$  in September. At Jerusalem the lowest temperatures were  $39^{\circ}8$  in January,  $45^{\circ}5$  in February, and  $49^{\circ}3$  in December; and the highest were  $81^{\circ}2$  in August,  $80^{\circ}$  in July, and  $74^{\circ}2$  in June. At both Tiberias and Jerusalem the mean temperature increased month by month from the minimum in January to the maximum in August, then decreased month by month to the end of the year. At Tiberias the yearly value was  $74^{\circ}$ ; at Jerusalem it was  $63^{\circ}2$ .

The numbers in the 15th and 16th columns are the mean readings of a dry and wet-bulb thermometer, taken daily at 8 a.m. If those in column 15 be compared with these in column 14, it will be seen that those in column 15 were a little higher till April, and a little lower from May, the mean for the year being  $72^{\circ}9$ , differing by  $1^{\circ}1$  from the mean of the year as determined by the use of the maximum and minimum thermometers; should this be the case in future years, the mean temperature may be approximately determined, by a single reading of the thermometers taken daily at 8 a.m. For a few days in February, at 8 a.m. the dry and wet-bulb thermometers read alike, showing that the air at these times was saturated with moisture.

The numbers in column 17 are the temperature of the dew point, or that temperature at which the air would be saturated by the quantity of vapour mixed with it; the smallest difference between these numbers and those in column 15 was  $6^{\circ}6$  in April; from May to October the smallest difference was  $15^{\circ}1$  in May, and the largest  $18^{\circ}1$  in September.

The numbers in column 18 show the elastic force of vapour, or the length of a column of mercury in inches corresponding to the pressure of vapour; the smallest was  $0.300$  inch in January, and the largest  $0.757$  inch in August.

In column 19 the weight in grains of the water in a cubic foot of air is shown; it was less than  $4\frac{1}{2}$  grains in both February and December, and more than 7 grains in July and August.

In column 20 the additional quantity of water required to saturate a cubic foot of air is shown; it was less than 2 grains in the months of January, February, April, and December, and more than 5 grains in the months of June, July, and August.

The numbers in column 21 show the degree of humidity of the air, saturation being represented by 100; the largest numbers appear from December to April, and the smallest from May to November, the smallest of all was 54 in September.

The numbers in column 22 show the weight in grains of a cubic foot of air, under the mean atmospheric pressure, temperature, and humidity of the air; the largest number was in January, decreasing to the smallest in August, and then increasing to December.

In columns 23 and 24 are the mean readings of a dry and wet-bulb thermometer taken daily at 4 p.m. By comparing the numbers in column 15 with those in column 23, the increase of temperature from 8 a.m. to

4 p.m. is shown; in May and June the increase was  $11^{\circ}3$  and  $11$  respectively, and from July to October was  $9^{\circ}$  or more than  $9^{\circ}$ .

In column 25 the temperature of the dew point at 4 p.m. is shown. By comparing these numbers with those in column 17, it will be seen that the temperature of the dew point in May was lower than at 8 a.m.  $3^{\circ}1$ , increasing to  $7^{\circ}3$  in August, then decreasing to  $1^{\circ}8$  in October. The numbers in this column are smaller than those in column 23 by  $12^{\circ}7$  April,  $29^{\circ}5$  in May, increasing to  $33^{\circ}6$  in August, then decreasing  $10^{\circ}8$  in December; these differences between the temperature of the air and that of the dew point are very much larger than those at 8 a.m., August it was more than twice as large.

Frequently in the months from May to October at 4 p.m. the reading of the dry-bulb thermometer exceeds that of the wet by  $25^{\circ}$  or more, and the temperature of the dew point was from  $40^{\circ}$  to nearly  $49^{\circ}$  lower than the temperature of the air, as shown by the following table:—

Month and Day.	Reading of		Temperature of the Dew Point.	Temperature of Dew Point below Dry.
	Dry.	Wet.		
	°	°	°	°
May 4 .. ..	102·0	74·0	58·3	43·7
5 .. ..	101·0	72·0	55·5	45·5
15 .. ..	100·0	72·0	56·0	44·0
25 .. ..	98·0	70·0	53·8	44·2
31 .. ..	100·0	73·0	57·6	42·4
June 1 .. ..	102·0	75·0	59·9	42·1
6 .. ..	100·0	75·0	60·7	39·3
8 .. ..	103·0	75·0	59·3	43·7
14 .. ..	101·0	72·0	55·5	45·5
15 .. ..	99·0	74·0	59·5	39·5
29 .. ..	101·0	75·0	60·2	40·8
July 6 .. ..	101·0	76·0	61·7	39·3
7 .. ..	99·0	74·0	59·5	39·5
9 .. ..	100·0	75·0	60·7	39·3
19 .. ..	99·0	74·0	59·5	39·5
23 .. ..	101·0	74·0	58·6	42·4
24 .. ..	103·0	74·0	58·8	44·2
Aug. 9 .. ..	100·0	75·0	60·7	39·3
17 .. ..	103·0	72·0	54·6	48·4
18 .. ..	100·0	71·0	54·5	45·5
19 .. ..	103·0	71·0	54·5	45·5
20 .. ..	97·0	71·0	55·7	41·3
29 .. ..	105·0	80·0	66·5	38·5
Sep. 9 .. ..	107·0	79·0	64·2	42·8
10 .. ..	107·0	76·0	59·6	47·4
22 .. ..	88·0	61·0	43·7	44·3
Oct. 24 .. ..	95·0	69·0	53·4	41·6
26 .. ..	93·0	68·0	52·7	40·3

In column 26 the elastic force of vapour is shown, and by comparing the values with those in the same month at 8 a.m., we find that in May it was 0.061 inch less, increasing to 0.167 inch less in August, and then decreasing to 0.034 inch less in October.

In column 27 the amount of water in a cubic foot of air is shown, and the amount was less in every month from May to October than that at 8 a.m.

In column 28 the amount of water required to saturate a cubic foot of air, was as large as 11.3 grains in June, 11.9 in July, and 12.1 grains in August.

In column 29 the degree of humidity is shown; the driest months were June, July, August, and September, the value for these months being either 33 or 34.

In column 30 the weight of a cubic foot of air is shown; the smallest was 503 grains in both July and August.

In column 31 are given the number of days of rain in each month, of the 11 months; the greatest was 21 in December; the total number in the 11 months was 70. At Jerusalem the total number in the same 11 months was 58.

In column 32 the fall of rain monthly from February to December is given. The heaviest fall of rain on one day in the months of February, March, and April was 1.18 inch on April 2nd; and the next in order 0.93 inch on April 1st. No rain fell from April 28th to November 17th, excepting a slight fall of 0.01 inch on November 6th; neglecting this, no rain fell for 203 days; the fall on November 17th was 0.10 inch; on November 18th was 0.88 inch; on November 19th was 0.85 inch; on November 20th was 0.78 inch; on November 21st was 1.02 inch; on November 22nd was 1.15 inch; and on November 23rd was 1.01 inch, or 5.79 inches out of the 6.21 inches, the total fall for the month. In December the fall was 8.75 inches—the heaviest monthly fall in the 11 months; on December 9th the fall was 1.82 inch; and on December 12th it was 1.94 inch. The total fall for the 11 months was 22.38 inches. At Jerusalem the fall in the same months was 23.92 inches.

MONTHLY MEANS of the morning observations at Tiberias and Jerusalem in the month of January, in the years 1891, 1892, and 1893, and determination of the difference between them in each year.

In the month of January at	Barometric Readings.				Temperature of the Air.							Dry Bulb.	Wet Bulb.
	Highest.	Lowest.	Range.	Mean.	Highest.	Lowest.	Range.	Mean of all Highest.	Mean of all Lowest.	Mean Daily Range.	Mean.		
Tiberias, 1891 ... ..	in. 31·087	in. 30·458	in. 0·629	in. 30·815	° 73·0	° 41·0	° 32·0	° 65·7	° 49·9	° 15·8	° 57·8	° 55·4	° 52·3
Jerusalem, 1891 ... ..	27·599	27·096	0·503	27·415	61·0	31·5	29·5	51·2	40·5	10·7	45·9	46·7	44·7
Difference ... ..	3·488	3·362	0·126	3·400	12·0	9·5	2·5	14·5	9·4	5·1	11·9	8·7	7·6
Tiberias, 1892 ... ..	30·118	30·431	0·687	30·538	74·0	44·0	30·0	69·4	48·9	20·5	59·1	55·7	52·4
Jerusalem, 1892 ... ..	27·604	27·132	0·472	27·432	62·0	36·0	36·0	52·4	41·3	11·1	46·8	48·7	45·5
Difference ... ..	3·514	3·299	0·215	3·406	12·0	8·0	4·0	17·0	7·6	9·4	12·3	7·0	6·9
Tiberias, 1893 ... ..	31·084	30·426	0·638	30·693	76·0	36·0	40·0	65·3	47·7	17·6	66·5	56·1	52·7
Jerusalem, 1893 ... ..	27·538	27·102	0·436	27·298	65·5	30·0	35·5	52·4	40·6	11·8	46·5	48·0	44·5
Difference ... ..	3·546	3·324	0·222	3·395	10·5	6·0	4·5	12·9	7·1	5·8	10·0	8·1	8·2

By collecting these differences and taking their means the average differences have been found as follows :—

Month and Year.	The readings at Tiberias higher than those at Jerusalem.													
	January, 1891 ... ..	3·488	3·362	0·126	3·400	12·0	6·5	2·5	14·5	9·4	5·1	11·9	8·7	7·6
January, 1892 ... ..	3·514	3·299	0·215	3·406	12·0	8·0	4·0	17·0	7·6	9·4	12·3	7·0	6·9	
January, 1893 ... ..	3·546	3·324	0·222	3·395	10·5	6·0	4·5	12·9	7·1	5·8	10·0	8·1	8·2	
Means ... ..	3·516	3·328	0·188	3·400	11·5	7·8	3·7	14·8	8·0	6·8	11·4	7·9	7·6	

These differences agree pretty well with each other, and therefore their means applied additively to the readings at Jerusalem in January, 1890, will give moderately approximate values for Tiberias for January, 1890.

Jerusalem, January, 1890	27·613	27·133	0·480	27·436	54·5	26·5	28·0	47·3	32·3	15·0	39·8	44·2	41·0
Add means as above ...	3·516	3·328	0·188	3·400	11·5	7·8	3·7	14·8	8·0	6·8	11·4	7·9	7·6
Tiberias, January, 1890	31·129	30·461	0·668	30·836	66·0	34·3	31·7	62·1	40·3	21·8	51·2	52·1	48·6

These values thus found have been inserted for January in the table, but all are marked with an asterisk to denote that they have been inferred. They must be considered as approximate only, and therefore of not the same weight as if they had been found directly from observation. The annual means may, however, be considered as very near the truth.