

RESULTS OF METEOROLOGICAL OBSERVATIONS TAKEN AT JERUSALEM IN THE YEAR 1891.

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 27·737 inches, in December, and the next in order, 27·619 inches, in November. The highest reading in the preceding 30 years, viz., 1861 to 1890 inclusive, was 27·816 inches, in December, 1879, and the next in order, 27·800 inches, in November, 1870.

In column 2 the lowest reading in each month is shown; the minimum for the year was 27·025 inches, in February, and the next in order, 27·096 inches, in January. The lowest reading in the preceding 30 years was 26·972 inches, in April, 1863, and again in February, 1865, and the next in order, 26·978 inches, in January, 1887.

The range of readings in the year was 0·712 inch. The largest range in the preceding 30 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, 0·174 inch, was in August, and the next in order, 0·178 inch, in October; and the largest, 0·549 inch, in February, and the next in order, 0·503 inch, in January. The mean monthly range for the year was 0·321 inch. The mean for the preceding 30 years was 0·309 inch.

The numbers in the 4th column show the mean monthly pressure of the atmosphere; the highest was 27·472 inches, in November, and the next in order, 27·463 inches, in December; the lowest was 27·268 inches, in July, and the next in order, 27·299 inches, in May. The mean yearly pressure was 27·382 inches. The highest mean yearly pressure in the preceding 30 years was 27·443 inches, in 1861, and the lowest, 27·359 inches, in 1890. The mean for the 30 years was 27·392 inches.

The temperature of the air reached 90° on June 9th (in the preceding 9 years, the earliest day in the year the temperature was 90° was March 25th in the year 1888); there were 8 other days in June when the temperature was or exceeded 90°; in July there were 4 days; in August 13 days; and in September 2 days, the 4th and 22nd. In the preceding 9 years the latest day in the year this temperature reached 90° was October 23rd in the year 1887. The temperature reached or exceeded 90° on 28 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 9 years was 44. The highest temperature in the year was 97° on both June 10th and August 8th. The highest in the preceding 9 years, 1882 to 1890, was 106°, in July, 1888.

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. | | | |
| 1891. | in. | in. | in. | in. | ° | ° | ° | ° | ° | ° | ° | ° | ° | ° | in. | grs. | grs. | ° | grs. | | | | | | | | | | | | | | in. |
| January ... | 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 | 42·5 | ·272 | 3·2 | 0·6 | 86 | 502 | 2 | 5 | 2 | 2 | 0 | 10 | 2 | 8 | 7·3 | 16 | 10·23 | | | |
| February ... | 27·574 | 27·025 | 0·549 | 27·387 | 60·0 | 30·0 | 30·0 | 50·5 | 38·2 | 12·3 | 44·4 | 46·5 | 43·1 | 39·3 | ·241 | 2·8 | 0·9 | 77 | 501 | 2 | 8 | 1 | 0 | 0 | 6 | 3 | 8 | 4·8 | 11 | 6·22 | | | |
| March ... | 27·555 | 27·283 | 0·272 | 27·417 | 85·0 | 32·0 | 53·0 | 63·2 | 42·3 | 20·9 | 52·7 | 56·4 | 49·4 | 42·9 | ·278 | 3·1 | 1·9 | 60 | 492 | 1 | 6 | 4 | 4 | 0 | 4 | 8 | 4 | 4·6 | 9 | 3·38 | | | |
| April ... | 27·557 | 27·271 | 0·286 | 27·398 | 86·5 | 43·0 | 43·5 | 72·0 | 52·7 | 19·3 | 62·4 | 65·2 | 54·1 | 45·0 | ·299 | 3·3 | 3·5 | 48 | 483 | 1 | 6 | 4 | 6 | 0 | 1 | 6 | 6 | 4·3 | 5 | 0·25 | | | |
| May ... | 27·424 | 27·164 | 0·260 | 27·290 | 89·0 | 49·5 | 39·5 | 80·4 | 58·7 | 21·7 | 69·5 | 73·2 | 59·3 | 49·0 | ·348 | 3·8 | 5·1 | 42 | 475 | 0 | 7 | 1 | 5 | 3 | 4 | 8 | 3 | 4·4 | 3 | 0·35 | | | |
| June ... | 27·455 | 27·251 | 0·204 | 27·364 | 97·0 | 52·0 | 45·0 | 86·6 | 60·2 | 26·4 | 73·4 | 78·9 | 62·3 | 50·9 | ·373 | 4·0 | 6·6 | 38 | 470 | 4 | 3 | 3 | 0 | 0 | 1 | 10 | 9 | 0·7 | 0 | 0·00 | | | |
| July ... | 27·475 | 27·169 | 0·306 | 27·268 | 95·5 | 61·0 | 34·5 | 86·8 | 66·0 | 29·8 | 76·4 | 80·7 | 66·6 | 57·0 | ·465 | 5·0 | 6·2 | 44 | 466 | 5 | 4 | 0 | 0 | 0 | 5 | 4 | 13 | 0·4 | 0 | 0·00 | | | |
| August ... | 27·374 | 27·200 | 0·174 | 27·306 | 97·0 | 62·0 | 35·0 | 89·6 | 66·9 | 22·7 | 78·2 | 82·9 | 66·2 | 55·1 | ·434 | 4·7 | 7·3 | 39 | 465 | 3 | 1 | 2 | 2 | 0 | 6 | 4 | 13 | 0·9 | 0 | 0·00 | | | |
| September ... | 27·462 | 27·273 | 0·189 | 27·387 | 92·0 | 59·0 | 33·0 | 84·9 | 62·4 | 22·5 | 73·6 | 76·8 | 65·9 | 58·2 | ·484 | 5·3 | 4·6 | 52 | 472 | 5 | 2 | 0 | 0 | 0 | 0 | 6 | 17 | 2·2 | 0 | 0·00 | | | |
| October ... | 27·501 | 27·323 | 0·178 | 27·407 | 86·0 | 55·0 | 31·0 | 78·6 | 59·9 | 18·7 | 69·3 | 72·8 | 61·8 | 53·6 | ·413 | 4·6 | 4·0 | 51 | 476 | 4 | 5 | 2 | 5 | 0 | 5 | 1 | 9 | 3·3 | 3 | 0·40 | | | |
| November ... | 27·619 | 27·174 | 0·445 | 27·472 | 83·0 | 41·0 | 42·0 | 66·3 | 52·3 | 14·0 | 59·3 | 61·9 | 55·3 | 49·7 | ·356 | 4·3 | 2·2 | 64 | 487 | 1 | 5 | 3 | 3 | 1 | 5 | 4 | 8 | 4·0 | 6 | 2·80 | | | |
| December ... | 27·737 | 27·252 | 0·485 | 27·463 | 71·8 | 30·0 | 41·8 | 55·4 | 44·4 | 11·0 | 49·9 | 51·4 | 47·6 | 43·7 | ·286 | 3·2 | 1·0 | 76 | 498 | 2 | 4 | 1 | 0 | 0 | 7 | 10 | 7 | 6·7 | 15 | 11·09 | | | |
| Means ... | 27·528 | 27·207 | 0·321 | 27·392 | 83·7 | 45·5 | 38·2 | 72·1 | 53·7 | 18·4 | 62·9 | 66·1 | 56·4 | 48·9 | ·354 | 3·9 | 3·7 | 56 | 483 | sum. 30 | sum. 56 | sum. 23 | sum. 27 | sum. 4 | sum. 54 | sum. 66 | sum. 105 | 3·6 | sum. 68 | sum. 34·72 | | | |
| | 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 | | | |

The temperature of the air was as low as $30^{\circ}0$ on February 25th, and again on December 26th. In January it was at or below 32° on 2 nights, and as low or lower than 40° on 13 other nights. In the months of February, March, and December it was at or below 32° on 2, 1, and 2 nights respectively, and as low or lower than 40° on 21, 5, and 6 other nights respectively. Thus the temperature was as low or lower than 40° on 52 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 9 years was 52. The lowest temperature in the preceding 9 years was $26^{\circ}5$, in January, 1890.

The highest temperature of the air in each month is shown in column 5. In February it was $60^{\circ}0$, being $7^{\circ}2$ below the mean of the nine high day temperatures in February in the preceding 9 years. The high day temperature was above its average in January, March, April, June, November, and December, and below in the other months. The mean for the year was $83^{\circ}7$, being $0^{\circ}4$ below the average of 9 years. The highest in the year was 97° , in both June and August.

The lowest temperature of the air in each month is shown in column 6. In both February and December it was $30^{\circ}0$, being $4^{\circ}4$ and $4^{\circ}1$ respectively below their averages; in January it was $31^{\circ}5$, or $0^{\circ}4$ below its average; and in March 32° , or $1^{\circ}8$ below its average; in the remaining months it was generally above. The mean for the year was $45^{\circ}5$, being $1^{\circ}1$ above the average of 9 years.

The range of temperature in each month is shown in column 7; the numbers vary from $29^{\circ}5$ in January to 53° in March. In the months of May, September, and October the ranges were small, owing to the low high day and high night temperatures, being $8^{\circ}7$, $7^{\circ}3$, and $10^{\circ}8$ respectively less than their averages. The mean range for the year was $38^{\circ}2$, being $1^{\circ}5$ less than the average of 9 years.

The range of temperature in the year was $67^{\circ}0$. The largest in the preceding 9 years was $76^{\circ}5$, in each of the years 1884, 1886, and 1888, and the smallest, $63^{\circ}5$, in the year 1885.

The mean of all the high day temperatures in each month is shown in column 8. The lowest was $50^{\circ}5$ in February, being $3^{\circ}5$ lower than the average. The highest was $89^{\circ}6$, in August, being $0^{\circ}4$ below the average of 9 years, and the next in order $86^{\circ}8$, in July. The mean for the year was $72^{\circ}1$, being $0^{\circ}2$ below the average of 9 years.

The mean of all the low night temperatures is shown in column 9. The lowest was $38^{\circ}2$, in February, being $1^{\circ}9$ lower than the average. The highest was $66^{\circ}9$, in August, being $3^{\circ}0$ higher than the average. The mean for the year was $53^{\circ}7$, or $1^{\circ}3$ above the average of 9 years.

In column 10 the mean daily range of temperature in each month is shown; the smallest was $10^{\circ}7$, in January, and the next in order, $11^{\circ}0$, in December; the greatest was $26^{\circ}4$, in June, and the next in order $22^{\circ}7$, in August. The mean for the year was $18^{\circ}4$, being $1^{\circ}5$ less than the average. The smallest ranges in the preceding 9 years were $9^{\circ}3$, in January, 1883, and $9^{\circ}7$, in December, 1890; 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 $44^{\circ}4$, in February; and the next in order $45^{\circ}9$, in January; the highest was $78^{\circ}2$, in August, and the next in order $76^{\circ}4$, in July. The mean for the year was $62^{\circ}9$, exceeding the average of 9 years by $0^{\circ}5$. The lowest mean temperatures in the preceding 9 years were $39^{\circ}8$, in January, 1890, and $42^{\circ}0$, in December, 1886; the highest were $81^{\circ}2$, in August, 1890; and $81^{\circ}1$, in July, 1888. The highest mean for the year was $63^{\circ}7$, in 1885, and the lowest, $60^{\circ}1$, in 1886.

February was the coldest month of the year, 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 March and December were cold, but from April to November they were generally above their average, particularly so in the month of May, and from July to October.

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 $3^{\circ}2$. The mean difference between the mean temperature of the air and that at 9 a.m. for the 9 years was $3^{\circ}1$.

For a few days in the winter months the dry and wet-bulb thermometers read alike, or nearly so, but in the months from April to October the difference between the readings often exceeded 20° , and was as large as 26° on June 9th, and on August 5th and 8th.

In column 13 the mean monthly readings of the wet-bulb are shown; the smallest differences between these and those of the dry bulb were $2^{\circ}0$, in January, and $3^{\circ}4$, in February; the largest were $16^{\circ}7$, in August, and $16^{\circ}6$, in June. The mean for the year was $56^{\circ}4$; that of the dry was $66^{\circ}1$; the mean difference was $9^{\circ}7$.

The numbers in column 14 are the temperature of the dew-point, or that of the temperature at which the air would be saturated by the quantity of vapour mixed with it; the smallest differences between these numbers and those in column 12, were $4^{\circ}2$, in January, and $7^{\circ}2$ in February; and the largest, $28^{\circ}2$, in June, and $27^{\circ}8$ in August. The mean temperature of the dew-point for the year was $48^{\circ}9$; the mean for 9 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 0.241 inch, in February, and the largest, 0.484 inch, in September. The mean for the year was 0.354 inch; the average of 9 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 $2\frac{3}{4}$ grains in February, and more than 5 grains in both July and September. The mean for the year was 3.9 grains; the average of 9 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 both January and February, and more than 7 grains in August. The mean for the year was 3·7 grains; the average of 9 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 in January, February, March, November, and December; and the smallest from April to October; the smallest of all was 38 in June. The mean for the year was 56; that of the 9 years was 59.

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 month by month to the smallest in August, and then increasing to December. The mean for the year was 483 grains; that of the 9 years was 483 grains.

The most prevalent winds in January were S.W. and N.W., and the least prevalent wind was S.; in February the most prevalent were N.E. and N.W., and the least were S.E. and S.; in March the most prevalent were W. and N.E., and the least was S.; in April the most prevalent were N.E., S.E., W., and N.W., and the least was S.; in May the most prevalent were W. and N.E., and the least was N.; in June the most prevalent were W. and N.W., and the least were S.E. and S.; in July the most prevalent were N.W., N., and S.W., and the least were E., S.E., and S.; in August the most prevalent were N.W. and S.W., and the least was S.; in September the most prevalent was N.W., and the least were E., S.E., S., and S.W.; in October the most prevalent was N.W., and the least was S.; in November the most prevalent were N.W., N.E., and S.W., and the least were N. and S.; and in December the most prevalent winds were W., S.W., and N.W., and the least were S.E. and S. The most prevalent wind for the year was N.W., which occurred on 105 times, of which 17 were in September, and 13 in both July and August; and the least prevalent wind was S., which occurred on only 4 times 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 9 years were—

| | | |
|------|----|----|
| N. | by | 1 |
| E. | „ | 10 |
| S.E. | „ | 3 |
| S. | „ | 8 |
| N.W. | „ | 1 |

and those winds greater in number than the average of 9 years were—

| | | |
|------|----|----|
| N.E. | by | 20 |
| S.W. | „ | 4 |

The numbers in column 28 show the mean amount of cloud in each month; the month with the smallest amount was July, and the largest,

January. Of the cumulus or fine weather cloud there was only one instance; of the nimbus or rain cloud there were 28 instances, of which 7 were in January, 6 in February, and 5 in December, and only one instance from May to October; of the cirrus there were 18 instances; of the stratus 4 instances; of the cirro cumulus 84 instances; of the cumulus stratus 70 instances; of the cirro stratus 2 instances; and 148 instances of cloudless skies, of which 27 were in July, 24 in August, and 21 in June, and only 2 in January.

The largest fall of rain for the month in the year was 11·09 inches, in December, of which 3·32 inches fell on the 25th, 2·22 inches on the 24th, and 2 inches on the 17th. The next largest fall for the month was 10·23 inches, in January, of which 2·71 inches fell on the 26th, and 1·75 inch on the 25th. No rain fell from May 31st till October 26th, making a period of 147 consecutive days without rain. The total fall of rain for the year was 34·72 inches, being 9·49 inches above the average for 32 years, viz., 1861 to 1892. The number of days on which rain fell was 68, being 13 more than the average.

RESULTS OF METEOROLOGICAL OBSERVATIONS TAKEN AT TIBERIAS IN THE YEAR 1891.

By JAMES GLAISHER, F.R.S.

THE numbers in column 1 of this table show the highest reading of the barometer in each month; the highest appear in the winter, and the lowest in the summer months; the maximum for the year was 31·175 inches, in December, and the next in order 31·087 inches, in January.

In column 2 the lowest reading in each month is shown; the minimum for the year was 30·309 inches, in July; and the next in order 30·324 inches, in April.

The range of readings in the year was 0·866 inch. The range in the morning observations was 0·837 inch, being 0·125 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 0·277 inch, in August, and the next in order 0·278 inch, in September. The largest was 0·683 inch, in February, and the next in order 0·675 inch, in April.

The numbers in columns 4 and 5 show the mean monthly reading of the barometer at 8 a.m. and 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 0·041 inch, in January, and the next in order 0·062 inch, in February; the largest was 0·106 inch, in June, and the next in order 0·096 inch, in April. In England in January the readings at 8 a.m. and 4 p.m. are practically the same; in all other months the reading

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 columns for Months, Pressure of atmosphere in month—corrected to 32° Fahrenheit, Temperature of the air in month, 8 a.m., 4 p.m., and Rain. Rows include months from January to December 1891, and a Means row. Columns are numbered 1 to 32.

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 0·082 inch, being four times greater than in England.

The numbers in column 7 show the mean monthly pressure of the atmosphere; the highest was 30·830 inches, in December, and the next in order 30·795 inches, in January; the lowest was 30·453 inches, in July, and the next in order 30·506 inches, in August. The mean for the year was 30·668 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 April 2nd; and there were 8 other days in April when the temperature reached or exceeded 90°; in May 17 days; in June 27 days; in July, August, and September it reached or exceeded 90° on every day; in October 23 days; and in November 2 days; thus the temperature reached 90° on 170 days during the year. At Jerusalem the temperature did not reach 90° till June 9th, and there were only 28 days in the year on which the temperature was so high as 90°. At Tiberias the temperature was 101° on April 30th, it reached or exceeded 100° in May on 4 days; in June on 15 days; in July on 24 days; in August on 28 days; in September on 7 days; and in October on one day; thus on 80 days in the year the temperature reached or exceeded 100°. The highest temperature in the year at Tiberias was 110°, on June 9th; at Jerusalem the highest in the year was 97°, on June 10th and August 8th.

The lowest temperature of the air in each month is shown in column 9. The lowest in the year was 41°, on both January 30th and December 26th. The next lowest was 42°·0, on February 5th, 25th, and 26th, and on December 25th; and from February 27th till the 25th of December there was no temperature as low as 42°, the nearest approach being 45° on February 27th, and March 1st, 2nd, and 3rd. At Jerusalem the lowest in the year was 30°·0, on the nights of February 25th and December 26th; and there were 52 nights in the year when the temperature was as low or lower than 40°.

The yearly range of temperature was 69°·0; at Jerusalem it was 67°·0.

The range of temperature in each month is shown in column 10; and these numbers vary from 27° in February, to 49° in April.

In column 11 the mean of all the high day temperatures in each month is shown. The lowest was 63°·4 in February, being 12°·9 higher than that at Jerusalem; the next in order were 65°·7 in January, and 73°·9 in March; the highest was 101° in July, and the next in order were 100°·5 in August, and 98°·4 in June. At Jerusalem the lowest were 50°·5 in February, 51°·2 in January, and 55°·4 in December; the highest were 89°·6 in August, 86°·8 in July, and 86°·6 in June. The mean for the year at Tiberias was 85°·5; at Jerusalem it was 72°·1.

In column 12 the mean of all the low night temperatures in each month is shown; the lowest was 46°·9 in February, the next in order were 49°·9 in January, and 52°·3 in March; the highest was 76°·9 in

August, and the next in order were $76^{\circ}1$ in July, and $73^{\circ}7$ in September. At Jerusalem the lowest were $38^{\circ}2$ in February, $40^{\circ}5$ in January, and $42^{\circ}3$ in March; the highest were $66^{\circ}9$ in August, $66^{\circ}0$ in July, and $62^{\circ}4$ in September. At Tiberias the yearly value was $63^{\circ}0$; at Jerusalem it was $53^{\circ}7$.

In column 13 the mean daily range of temperature is shown in each month; the smallest was $15^{\circ}8$ in January, and the next in order were $16^{\circ}5$ in February, and $21^{\circ}6$ in both March and November; the greatest was $27^{\circ}5$ in June, and the next in order were $25^{\circ}1$ in April, and $24^{\circ}9$ in July. At Jerusalem the smallest were $10^{\circ}7$ in January, $11^{\circ}0$ in December, and $12^{\circ}3$ in February. At Tiberias the mean daily range for the year was $22^{\circ}5$; at Jerusalem it was $18^{\circ}4$.

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 $55^{\circ}2$ in February, and the next in order were $57^{\circ}8$ in January, and $63^{\circ}1$ in March; the highest was $88^{\circ}7$ in August, and the next in order were $88^{\circ}6$ in July, and $85^{\circ}4$ in September. At Jerusalem the lowest temperatures were $44^{\circ}4$ in February, $45^{\circ}9$ in January, and $49^{\circ}9$ in December; and the highest were $78^{\circ}2$ in August, $76^{\circ}4$ in July, and $73^{\circ}6$ in September. At both Tiberias and Jerusalem the mean temperature increased month by month from the minimum in February to the maximum in August, then decreased month by month to the end of the year. At Tiberias the yearly value was $74^{\circ}3$; at Jerusalem it was $62^{\circ}9$.

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 those in column 14, it will be seen that those in column 15 were a little higher in March and May, and a little lower in all other months. The mean for the year was $72^{\circ}8$, differing by $1^{\circ}5$ 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.

The numbers in the 17th column 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 $6^{\circ}1$ in January; from April to November the smallest difference was $13^{\circ}7$ in April, and the largest, $19^{\circ}3$ in May.

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 0.338 inch, in February, and the largest 0.758 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 grains in February, and as large as 8 grains in August.

In column 20 the additional quantity of water required to saturate a

cubic foot of air is shown ; it was as small as one grain in January, and as large as $5\frac{3}{4}$ grains in July.

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 52 in May.

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 numbers were in January and February, decreasing to the smallest in July and August, and then increasing to the end of the year.

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 February and December the increase was only $5^{\circ}3$, and in June was as much as $13^{\circ}2$.

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 the months of January, February, March, November, and December was higher than that at 8 a.m. by $2^{\circ}2$, $1^{\circ}4$, $2^{\circ}1$, $0^{\circ}7$, and $2^{\circ}8$ respectively, and lower than at 8 a.m. in the remaining months. The numbers in this column are smaller than those in column 23 by $9^{\circ}8$ in January, increasing to $35^{\circ}3$ in June, then decreasing to $10^{\circ}6$ 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., in June and August it was more than twice as large.

Frequently in the months from May to August, and on one day in October, at 4 p.m., the reading of the dry-bulb thermometer exceeded that of the wet by 25° or more, and the temperature of the dew point was from 41° to 55° 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. | | |
| | ° | ° | ° | ° |
| April 30 | 99·0 | 73·0 | 57·9 | 41·1 |
| May 2 | 99·0 | 71·0 | 54·8 | 44·2 |
| 3 | 99·0 | 70·0 | 53·2 | 45·8 |
| 4 | 99·0 | 70·0 | 53·2 | 45·8 |
| 5 | 99·0 | 67·0 | 48·4 | 50·6 |
| 6 | 96·0 | 70·0 | 54·7 | 41·3 |
| 19 | 95·0 | 70·0 | 55·0 | 40·0 |
| June 8 | 107·0 | 75·0 | 58·0 | 49·0 |
| 9 | 107·0 | 71·0 | 51·9 | 55·1 |
| 10 | 105·0 | 76·0 | 60·3 | 44·7 |
| 11 | 102·0 | 74·0 | 58·3 | 43·7 |
| 21 | 101·0 | 75·0 | 60·2 | 40·8 |
| 22 | 101·0 | 75·0 | 60·2 | 40·8 |
| 23 | 101·0 | 75·0 | 60·2 | 40·8 |
| July 12 | 101·0 | 72·0 | 55·5 | 45·5 |
| 13 | 103·0 | 71·0 | 53·1 | 49·9 |
| 14 | 105·0 | 71·0 | 52·6 | 52·4 |
| 15 | 103·0 | 75·0 | 59·3 | 43·7 |
| Aug. 3 | 102·0 | 76·0 | 61·4 | 40·6 |
| 6 | 102·0 | 72·0 | 55·2 | 46·8 |
| 7 | 102·0 | 75·0 | 59·9 | 42·1 |
| 8 | 104·0 | 75·0 | 59·1 | 44·9 |
| Oct. 22 | 93·0 | 67·0 | 51·1 | 41·9 |

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 April it was smaller at 4 p.m. by 0·011 inch, increasing to 0·158 inch smaller in August, and larger than at 8 a.m. in the months of January, February, March, November, and December.

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

In column 28 the amount of water required to saturate a cubic foot of air was as large as 12 grains in June, 11·9 grains in August, and 11·3 grains in July; and smaller than 2 grains in both January and February.

In column 29 the degree of humidity is shown; the driest months were from May to August, the value for these months varying from 31 in June to 36 in May.

In column 30 the weight of a cubic foot of air is shown; the smallest was 504 grains in August, and the largest 547 grains in February.

In column 31 are given the number of days of rain in each month; the largest was 16 in December. The total number in the year was 64. At Jerusalem rain fell on 68 days.

In column 32 the monthly fall of rain is given. The heaviest fall of

rain on one day in the months from January to April was 2·53 inches, on January 25th ; and the next in order was 1·06 inch on February 27th. No rain fell from May 30th till October 26th, making a period of 148 consecutive days without rain ; the fall of rain on December 25th was 1·15 inch. The heaviest monthly fall in the year was January, 7·72 inches, and the next in order December, 5·50 inches. The total fall of rain for the year was 22·57 inches. At Jerusalem the total fall for the year was 34·72 inches.
