showed us hospitality in his behalf by inviting us to supper with them, and by supplying all our troop with barley without charge.

Tuesday, August 5.—After posting a letter at the station we took up our route near the chaussée, which follows very nearly the old Roman road. We crossed the Nahr-el-Kebîr by the Jisr Sheikh 'Ayyash, called also *Jisr-el-Jidd*, and then skirted the 'Akkâr plain, passing through *Derîn* and *Quneitrah* to *Ḥalbeh*, the seat of government, for the plain of 'Akkâr. The southern end of the great trap dyke is near Ḥalbeh, and its western border loses itself gradually in the maritime plain.

Our way from Ḥalbeh led us for an hour over the new carriage road to Tripoli, through 'Arqa and past Khan-el-Qulei'ât. A sharp turn to the left, and an ascent of an hour into the limestone foothills, brought us at 5½ p.m. to Bibnîn, a flourishing village, inhabited by a mixed population of Mohammedans and Christians. During the whole of this day we found little of botanical interest. The figtrees of Bibnîn are remarkable for their symmetrical growth and large size, and the figs rival those of Smyrna.

(*To be continued in April "Quarterly Statement."*)

ON THE STRENGTH OR PRESSURE OF THE WIND AT SARONA, RECORDED DAILY BY HERR DREHER IN THE TEN YEARS 1880 TO 1889.

By James Glaisher, F.R.S.

The strength of the wind has been estimated on the scale of 0 to 6, a calm being represented by 0, and a gale by 6. On such a scale the square of the estimated numbers corresponds approximately to pounds pressure on the square foot: for instance, if the estimated strength be 1, 2, or 3, the corresponding pressure of the wind on the square foot are approximately 1 lb., 4 lbs., or 9 lbs. respectively. The numbering of the tables is in continuation of those on the direction of the wind in the same years, published in the *Quarterly Statement* in the number for July 1892.

TABLE XVIII.—Showing the average estimated force of the wind at Sarona during the month of January in each year, 1880 to 1889, referred to eight points of the azimuthal circle, at 9 a.m. :—

Years.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Number of days of calm.
1880	...	0·6	0·5	0·7	1·1	2·3	...	0·5	2
1881	...	0·5	0·5	0·5	1·1	0·5	1·0	...	3
1882	...	0·9	0·8	0·5	1·0	2·0	...	1·0	7
1883	1·6	0·5	0·5	0·9	1·1	1·6	0·8	...	2
1884	...	0·5	0·5	0·6	1·4	0·5	5·0	4·5	7
1885	1·3	1·0	1·5	...	2·0	2·0	...	0·8	9
1886	0·5	0·5	0·5	0·6	1·3	...	...	5·0	9
1887	0·7	1·5	1·0	1·0	1·4	4·3	3·0	1·5	9
1888	...	1·0	0·5	0·5	1·0	2·3	...	0·8	9
1889	...	0·5	1·1	1·0	1·1	1·5	0·5	1·3	4

From this table we see that in January no air passed from the north in six out of the ten years; none from the south-east in 1885; from the south-west in 1886; from the west in 1880, 1882, 1885, 1886, and 1888; and from the north-west in 1881 and 1883.

The strongest average estimated forces of wind in January were—

In 1880	....	....	....	S.W. 2·3	and S. 1·1.
1881	....	....	....	S. 1·1	„ W. 1·0.
1882 ...	....	....	....	S.W. 2·0	„ S. and W. 1·0.
1883	....	....	....	S.W. 1·6	„ N. 1·6.
1884 ...	....	....	....	N.W. 4·5	„ S. 1·4.
1885	....	....	....	S. 2·0	„ S.W. 2·0.
1886	....	....	....	N.W. 5·0	„ S. 1·3
1887	....	....	....	S.W. 4·3	„ W. 3·0.
1888	....	....	....	S.W. 2·3	„ S. and N.E. 1·0.
1889	....	....	....	S.W. 1·5	„ N.W. 1·3.

Therefore, the—

S.W. wind has been strongest in five years, viz., 1880, 1882, 1887, 1888, and 1889.
N.W. „ „ „ two years, viz., 1884 and 1886.
S. „ „ „ one year „ 1881.

In 1883 the south-west and north winds were of equal strength.

In 1885 the south and south-west winds were of equal strength.

The numbers in the last column show the number of days of calm in each January in the ten years at 9 a.m. The largest number is 9 in the

years 1885 to 1888 ; and the smallest number is 2 in the years 1880 and 1883. The average number is 6·1.

TABLE XIX.—Showing the average estimated force of the wind at Sarona during the month of February in each year, 1880 to 1889, referred to eight points of the azimuthal circle, at 9 a.m. :—

Years.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Number of days of calm.
1880	...	1·2	1·5	0·7	0·5	1·4	1·5	...	7
1881	0·5	1·0	...	0·5	1·8	2·1	3·0	...	2
1882	1·5	0·7	0·9	0·5	1·6	1·3	1·0	2·5	1
1883	2·0	0·8	0·5	0·6	1·3	1·6	...	...	9
1884	0·5	0·7	...	0·5	1·4	...	3·0	3·5	6
1885	1·2	0·5	...	0·5	0·8	0·5	...	0·5	16
1886	0·5	0·5	1·3	0·6	1·2	1.7	1·5	...	5
1887	2·0	...	1·0	0·5	1.2	1·5	2·5	0·5	15
1888	1·0	...	0·5	0·5	0·9	1·2	1·0	...	7
1889	...	...	...	0·7	1·2	1·5	1·0	...	8

From this table we see that in February no air passed from the north in 1880 and 1889 ; none from the north-east in 1887, 1888, and 1889 ; from the east in four years out of the ten ; from the south-west in 1884 ; from the west in 1883 and 1885 ; and from the north-west in 1880, 1881, 1883, 1886, 1888, and 1889.

The strongest average estimated forces of wind in February were—

In 1880	....	....	....	E. 1·5	and	W. 1·5.
1881	....	....	....	W. 3·0	,,	S.W. 2·1.
1882	....	....	....	N.W. 2·5	,,	S. 1·6.
1883	....	....	....	N. 2·0	,,	S.W. 1·6.
1884	....	....	....	N.W. 3·5	,,	W. 3·0.
1885	....	....	....	N. 1·2	,,	S. 0·8.
1886	....	....	....	S.W. 1·7	,,	W. 1·5.
1887	....	....	....	W. 2·5	,,	N. 2·0.
1888	....	....	....	S.W. 1·2	,,	N. and W. 1·0.
1889	....	....	....	S.W. 1·5	,,	S. 1·2.

Therefore, the—

S.W. wind has been strongest in three years, viz., 1886, 1888, and 1889.

W.	,,	,,	,,	two years, viz., 1881 and 1887.				
N.W.	,,	,,	,,	two	,,	,,	1882	,, 1884.
N.	,,	,,	,,	two	,,	,,	1883	,, 1885.

In 1880 the east and west winds were of equal strength.

The numbers in the last column show the number of days of calm in each February in the ten years at 9 a.m. The largest number is 16 in the year 1885; and the smallest number is 1 in 1882. The average number is 7·6.

TABLE XX.—Showing the average estimated force of the wind at Sarona during the month of March in each year, 1880 to 1889, referred to eight points of the azimuthal circle, at 9 a.m. :—

Years.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Number of days of calm.
1880	0·5	0·5	0·5	0·9	1·0	1·0	2·8	0·8	7
1881	1·0	0·8	0·5	0·8	0·5	2 0	2·0	1·3	4
1882	...	...	0·5	1·9	0·7	0·6	0·8	...	9
1883	0·5	...	...	...	0 7	1·8	2·3	...	16
1884	0·5	0·5	0·5	0·5	0·6	1·4	1·1	0·5	5
1885	...	...	...	0·5	0·5	1·3	0·8	0·5	16
1886	...	0·5	0·5	0·5	1·1	1·4	0·5	0·9	6
1887	1·5	0·5	1·7	0·7	0·8	1·2	2·0	1·0	12
1888	0·5	0·7	2·5	1·1	1·3	1·6	1·8	1·5	5
1889	0·8	0·5	...	2·0	0·8	2·3	1·0	1·5	8

From this table we see that in March no air passed from the north in 1882, 1885, and 1886; none from the north-east in 1882, 1883, and 1885; from the east in 1883, 1885, and 1889; from the south-east in 1883; and from the north-west in 1882 and 1883.

The strongest average estimated forces of wind in March were—

In 1880	....	W. 2·8 and	S. and S.W. 1·0.
1881	....	S.W. 2·0 „	W. 2·0
1882	....	S.E. 1·9 „	W. 0·8.
1883	....	W. 2·3 „	S.W. 1·8.
1884	....	S.W. 1·4 „	W. 1·1.
1885	....	S.W. 1·3 „	W. 0·8.
1886	....	S.W. 1·4 „	S. 1·1.
1887	....	W. 2·0 „	E. 1·7.
1888	....	E. 2·5 „	W. 1·8.
1889	....	S.W. 2·3 „	S.E. 2·0.

Therefore, the—

S.W. wind has been strongest in four years, viz., 1884, 1885, 1886, and 1889.
W. „ „ „ three years, viz., 1880, 1883, and 1887.
S.E. „ „ „ one year, viz., 1882.
E. „ „ „ one „ „ 1888.

In 1881 the south-west and west winds were of equal strength.

The numbers in the last column show the number of days of calm in each March in the ten years at 9 a.m. The largest number is 16 in both the years 1883 and 1885, and the smallest number is 4 in the year 1881. The average is 8·8.

TABLE XXI.—Showing the average estimated force of the wind at Sarona during the month of April in each year, 1880 to 1889, referred to eight points of the azimuthal circle, at 9 a.m. :—

Years.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Number of days of calm.
1880	...	...	...	0·5	1·3	1·4	1·2	0·8	6
1881	2·0	...	...	1·5	0·9	1·0	2·1	0·8	4
1882	0·5	...	...	1·0	0·5	1·8	0·7	0·5	6
1883	...	...	...	...	0·8	0·8	0·5	0·5	18
1884	...	0·6	1·5	1·0	2·0	0·9	2·6	0·5	6
1885	...	...	...	...	1·0	1·6	1·2	...	15
1886	0·8	...	...	...	...	1·7	0·6	0·6	11
1887	...	0·6	1·3	...	1·5	2·0	1·3	0·5	10
1888	...	...	0·5	0·5	0·9	2·0	1·7	0·5	5
1889	0·5	...	...	0·5	1·1	1·2	1·1	0·6	8

From this table we see that in April no air passed in several years from the north, north-east, east, and south-east; none from the south in 1886, and from the north-west in 1885.

The strongest average estimated forces of wind in April were—

In 1880 .... S.W. 1·4 and S. 1·3
1881 .... W. 2·1 „ N. 2·0.
1882 .... S.W. 1·8 „ S.E. 1·0
1883 .... S. 0·8 „ S.W. and W. 0·8.
1884 .... W. 2·6 „ S. 2·0.
1885 .... S.W. 1·6 „ W. 1·2.
1886 .... S.W. 1·7 „ N. 0·8.
1887 .... S. 1·5 „ E. and W. 1·3.
1888 .... S.W. 2·0 „ W. 1·7.
1889 .... S.W. 1·2 „ S. and W. 1·1.

Therefore, the—

S.W. wind has been strongest in six years, viz., 1880, 1882, 1885, 1886, 1888, and 1889.
W. „ „ „ two years, viz., 1881 and 1884.
S. „ „ „ one year, „ 1887.

In 1883 the south, south-west, and west winds were of equal strength.

The numbers in the last column show the number of days of calm in each April in the ten years at 9 a.m. The largest number is 18 in the year 1883; and the smallest 4 in the year 1881. The average number is 8·9.

TABLE XXII.—Showing the average estimated force of the wind at Sarona during the month of May in each year, 1880 to 1889, referred to eight points of the azimuthal circle, at 9 a.m. :—

Years.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Number of days of calm.
1880	...	0·7	0·5	...	...	0·9	1·2	0·5	5
1881	1·0	0·5	3·0	...	...	1·2	0·6	0·7	4
1882	0·5	...	0·5	...	0·5	1·2	0·6	0·6	...
1883	0·5	0·5	...	...	...	0·6	0·5	0·5	17
1884	1·0	...	...	...	0·5	1·1	0·8	0·6	2
1885	5·0	...	...	0·5	...	1·0	0·7	0·5	10
1886	0·8	0·5	...	...	1·3	1·1	0·7	0·5	2
1887	0·5	...	...	...	1·1	0 8	0·6	0·8	6
1888	1·5	...	0·5	...	...	1·4	0·9	0·5	1
1889	0·8	...	1·5	0·5	...	1·1	0·8	0·5	7

From this table we see that in May no air passed from the north in 1880; none from the north-east, in 1882, 1884, 1885, 1887, 1888, and 1889; from the east in 1883, 1884, 1885, 1886, and 1887; from the south-east in the years 1880–1884, and 1886–1888; and from the south in 1880, 1881, 1883, 1885, 1888, and 1889.

The strongest average estimated forces of wind in May were—

In 1880 .... W. 1·2 and S.W. 0·9.
1881 .... E. 3·0 „ S.W. 1·2.
1882 .... S.W. 1·2 „ W. and N.W. 0·6.
1883 .... S.W. 0·5 „ N., N.E., W., and N.W. 0·5
1884 .... S.W. 1·1 „ N. 1·0.
1885 .... N. 5·0 „ S.W. 1·0.
1886 .... S. 1·3 „ S.W. 1·1.
1887 .... S. 1·1 „ S W. and N.W. 0·8.
1888 .... N. 1·5 „ S.W. 1·4.
1889 .... E. 1·5 „ S.W. 1·1.

Therefore, the—

S.W. wind has been strongest in two years, viz., 1882 and 1884.
S. „ „ „ two „ 1886 „ 1887.
E. „ „ „ two „ 1881 „ 1889.
N. „ „ „ two „ 1885 „ 1888.
W. „ „ „ one year „ 1880.

In 1883 the south-west, north, north-east, west, and north-west winds were of equal strength.

The numbers in the last column show the number of days of calm in each May in the 10 years at 9 a.m. The largest number is 17 in 1883; while in the year 1882 there is no instance of a calm reported in this month. The average number is 5·4.

TABLE XXIII.—Showing the estimated average force of the wind at Sarona during the month of June in each year, 1880 to 1889, referred to eight points of the azimuthal circle, at 9 a.m. :—

Years.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Number of days of calm.
1880	...	...	...	...	...	1·1	1·0	0·7	1
1881	0·5	0·5	...	...	...	0·9	0·7	0·9	3
1882	1·0	...	0·5	...	0·5	0·9	0·7	0·5	...
1883	...	0·5	0·5	0·5	...	0·8	0·8	0·5	14
1884	1·0	0·5	...	...	...	1·2	0·9	0·7	3
1885	...	...	0·5	0·5	0·5	1·6	0·6	1·3	3
1886	0·2	0·5	...	...	1·0	0·8	0·8	0·5	1
1887	...	...	...	...	1·0	1·0	0·8	1·0	2
1888	...	...	...	...	...	1·0	0·8	1·4	2
1889	...	...	...	0·5	0·7	0·9	0·7	0·8	7

From this table we see that in June no air passed from the north or north-east in six years out of the ten; none from either the east or south-east in seven years out of the ten; and none from the south in 1880, 1881, 1883, 1884, and 1888.

The strongest average estimated forces of wind in June were—

In 1880	....	....	....	S.W. 1·0	and W. 1·0.
1881	....	....	....	S.W. 0·9	„ N.W. 0·9.
1882	....	....	....	N. 1·0	„ S.W. 0·9.
1883	....	....	....	S.W. 0·8	„ W. 0·8.
1884	....	....	....	S.W. 1·2	„ N. 1·0.
1885	....	....	....	S.W. 1·6	„ N.W. 1·3.
1886	....	....	....	S. 1·0	„ S.W. and W. 0·8.
1887	....	....	....	S. 1·0	„ S.W. „ N.W. 1·0.
1888	....	....	....	N.W. 1·4	„ S.W. 1·0.
1889	....	....	....	S.W. 0·9	„ N.W. 0·8.

Therefore, the—

S.W. wind has been strongest in three years, viz., 1884, 1885, and 1889.

S.	„	„	„	one year, viz., 1886.
N.	„	„	„	one „ „ 1882.
N.W.	„	„	„	one „ „ 1888.

In 1880 and 1883 the south-west and west winds were of equal strength.

In 1881 the south-west and north-west winds were of equal strength.

In 1887 the south, south-west, and north-west winds were of equal strength.

The numbers in the last column show the number of days of calm in each June in the ten years at 9 a.m. The largest number is 14 in the year 1883; while in the year 1882 there is no instance of a calm reported in this month. The average number is 3·6.

TABLE XXIV.—Showing the average estimated force of the wind at Sarona during the month of July in each year, 1880 to 1889, referred to eight points of the azimuthal circle, at 9 a.m. :—

Years.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Number of days of calm.
1880	...	...	...	...	...	0·7	0·5	0·8	1
1881	...	...	...	...	...	1·0	0·9	0·5	1
1882	...	...	0·5	...	...	0·9	1·5	0·5	...
1883	...	...	...	...	...	0·8	0·7	...	3
1884	...	...	...	...	...	0·8	0·7	...	2
1885	...	...	...	...	...	1·2	0·7	1·0	1
1886	...	...	...	...	...	1·0	0·8	0·7	2
1887	...	...	...	...	...	0·8	0·5	...	2
1888	...	...	...	...	...	0·8	0·6	0·8	6
1889	...	...	...	0·5	0·5	1·0	0·8	...	6

Nearly all the air in this month passed from the south-west, west, and north-west.

The strongest average estimated forces of wind in July were—

In	1880	....	....	....	N.W. 0·8 and S.W. 0·7.
	1881	....	....	....	S.W. 1·0 „ W. 0·9.
	1882	....	....	....	W. 1·5 „ S.W. 0·9.
	1883	....	....	....	S.W. 0·8 „ W. 0·7.
	1884	....	....	....	S.W. 0·8 „ W. 0·7.
	1885	....	....	....	S.W. 1·2 „ N.W. 1·0.
	1886	....	....	....	S.W. 1·0 „ W. 0·8.
	1887	....	....	....	S.W. 0·8 „ W. 0·5.
	1888	....	....	....	S.W. 0·8 „ N.W. 0·8.
	1889	....	....	....	S.W. 1·0 „ W. 0·8.

Therefore, the—

S.W. wind has been strongest in seven years, viz., 1881, 1883, 1884 1885, 1886, 1887, and 1889.

W. „ „ „ one year, viz., 1882.

N.W. „ „ „ one „ „ 1880.

In 1888 the south-west and north-west winds were of equal strength.

The numbers in the last column show the number of days of calm in each July in the ten years at 9 a.m. The largest number is 6 in both the years 1888 and 1889; while in 1882 there is no instance of a calm reported in this month. The average number is 2·4.

TABLE XXV.—Showing the average estimated force of the wind at Sarona during the month of August in each year, 1880 to 1889, referred to eight points of the azimuthal circle, at 9 a.m. :—

Years.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Number of days of calm.
1880	...	...	...	...	...	0·7	0·5	0·5	7
1881	...	...	...	0·5	0·9	0·8	0·5	...	1
1882	0·5	...	0·5	...	0·5	0·6	0·6	0·6	...
1883	...	...	...	...	...	0·7	0·6	0·5	12
1884	...	...	...	...	0·5	1·0	0·9	0·6	5
1885	...	...	...	...	1·0	1·2	0·8	0·7	4
1886	...	...	...	...	0·5	1·0	0·9	0·5	2
1887	...	...	...	...	0·5	1·0	0·8	1·0	4
1888	...	...	...	...	0·5	0·8	0·6	0·5	7
1889	...	...	...	0·5	0·5	0·7	1·0	...	4

From this table we see that in August very little air passed in the ten years from the north, north-east, and south-east; no air passed from

the south in 1880 and 1882; and none passed from the north-west in 1881 and 1889.

The strongest average estimated forces of wind in August were—

In 1880	....	....	....	S.W. 0·7	and	W. and N.W. 0·5.
1881	....	....	....	S. 0·9	„	S·W. 0·8.
1882	....	....	....	S.W. 0·6	„	W. and N.W. 0·6.
1883	....	....	....	S.W. 0·7	„	W. 0·6.
1884	....	....	....	S.W. 1·0	„	W. 0·9.
1885	....	....	....	S.W. 1·2	„	S. 1·0.
1886	....	....	....	S.W. 1·0	„	W. 0·9.
1887	....	....	....	S.W. 1·0	„	N.W. 1·0.
1888	....	....	....	S.W. 0·8	„	W. 0·6.
1889	....	....	....	W. 1·0	„	S.W. 0·7.

Therefore, the—

S.W. wind has been strongest in six years, viz., 1880, 1883, 1884, 1885, 1886, and 1888.
S. „ „ „ one year, viz., 1881.
W. „ „ „ one „ „ 1889.

In 1882 the south-west, west, and north-west winds were of equal strength.

In 1887 the south-west and north-west winds were of equal strength.

The numbers in the last column show the number of days of calm in each August in the ten years at 9 a.m. The largest number is 12 in the year 1883, while in 1882 there is no instance of a calm reported in this month. The average number is 4·6.

TABLE XXVI.—Showing the average estimated force of the wind at Sarona during the month of September in each year, 1880 to 1889, referred to eight points of the azimuthal circle, at 9 a.m. :—

Years.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Number of days of calm.
1880	...	1·2	...	0·5	0·5	0·9	0·6	0·9	2
1881	...	0·5	...	0·5	...	0·5	0·8	0·8	9
1882	0·5	...	...	...	0·5	0·7	0·6	0·5	3
1883	1·2	...	...	...	...	0·6	...	0·5	14
1884	0·8	0·5	...	...	1·0	0·9	0·6	0·5	5
1885	0·5	...	...	...	...	0·9	0·6	0·5	12
1886	1·2	0·5	...	...	0·7	1·2	1·0	0·7	3
1887	0·5	...	...	...	...	1·0	0·8	0·5	8
1888	1·0	...	...	...	0·5	0·6	0·8	0·7	10
1889	...	1·5	...	...	1·3	0·8	0·6	1·0	9

From this table we see that in September no air passed from the north in 1880, 1881, and 1889; none passed from the north-east in 1882, 1883, 1885, 1887, and 1888; none from the east during the ten years; from the south-east from 1882 to 1889; from the south in 1881, 1883, 1885, and 1887; and from the west in 1883.

The strongest average estimated forces of wind in September were—

In 1880	....	....	....	N.E. 1·2 and S.W. and N.W. 0·9.
1881	....	....	....	W. 0·8 „ N.W. 0·8.
1882	....	....	....	S.W. 0·7 „ W. 0·6.
1883	....	....	....	N. 1·2 „ S.W. 0·6.
1884	....	....	....	S. 1·0 „ S.W. 0·9.
1885	....	....	....	S.W. 0·9 „ W. 0·6.
1886	....	....	....	S.W. 1·2 „ N. 1·2.
1887	....	....	....	S.W. 1·0 „ W. 0·8.
1888	....	....	....	W. 0·8 „ N.W. 0·7.
1889	....	....	....	N.E. 1·5 „ S. 1·3.

Therefore, the—

S.W.	wind	has	been	strongest	in	three years, viz., 1882, 1885, and 1887.
N.E.	„	„	„	two	„	„ 1880 and 1889.
S.	„	„	„	one year		„ 1884.
W.	„	„	„	one	„	„ 1888.
N.	„	„	„	one	„	„ 1883.

In 1881 the west and north-west winds were of equal strength.

In 1886 the south-west and north winds were of equal strength.

The numbers in the last column show the number of days of calm in each September in the ten years at 9 a.m. The largest number is 14 in the year 1883, and the smallest number is 2 in the year 1880. The average number is 7·5.

TABLE XXVII.—Showing the average estimated force of the wind at Sarona during the month of October in each year, 1880 to 1889, referred to eight points of the azimuthal circle, at 9 a.m. :—

Years.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Number of days of calm.
1880	1·3	0·5	...	0·5	1·0	0·7	2·3	0·5	10
1881	0·8	0·7	...	0·5	1·8	0·8	0·5	1·0	7
1882	0·6	...	1·5	1·8	...	1·2	0·5	0·8	6
1883	1·0	0·5	0·8	...	0·8	0·7	2·0	...	18
1884	0·5	0·5	...	0·5	0·9	0·7	...	0·5	13
1885	...	2·0	3·5	4·0	0·6	...	1·5	0·5	20
1886	0·5	...	4·5	0·5	1·4	1·3	...	0·5	14
1887	...	0·5	0·5	0·5	0·5	1·0	0·5	0·5	11
1888	0·5	...	1·0	1·5	0 8	0·5	0·5	0·8	15
1889	0·5	...	1·5	...	0·7	0·5	0·5	0·5	17

From this table we see that in October no air passed from the north in 1885 and 1887 ; none passed from the north-east in 1882, 1886, 1888, and 1889 ; from the east in 1880, 1881, and 1883 ; from the south-east in 1883 and 1889 ; from the south in 1882 ; from the south-west in 1885 ; from the west in 1884 and 1886 ; from the north-west in 1883.

The strongest average estimated forces of wind in October were—

In 1880	....	....	....	W. 2·3	and	N. 1·3.
1881	....	....	....	S. 1·8	,,	N.W. 1·0.
1882	....	....	....	S.E. 1·8	,,	E. 1·5.
1883	....	....	....	W. 2·0	,,	N. 1·0
1884	....	....	....	S. 0·9	,,	S.W. 0·7.
1885	....	....	....	S.E. 4·0	,,	E. 3·5.
1886	....	....	....	E. 4·5	,,	S. 1·4.
1887	....	....	....	S.W. 1·0	,,	N.E., E., S.E., S., W. and N.W. 0·5.
1888	....	....	....	S.E. 1·5	,,	E. 1·0.
1889	....	....	...	E. 1·5	,,	S. 0·7.

Therefore the—

S.E. wind has been strongest in three years, viz., 1882, 1885, and 1888.

S.	,,	,,	,,	two	,,	,, 1881 and 1884.
W.	,,	,,	,,	two	,,	,, 1880 ,, 1883.
E.	,,	,,	,,	two	,,	,, 1886 ,, 1889.
S.W	,,	,,	,,	one year		,, 1887.

The numbers in the last column show the number of days of calm in each October in the ten years at 9 a.m. The largest number is 18 in the year 1883, and the smallest number is 6 in the year 1882. The average number is 13·1.

TABLE XXVIII.—Showing the average estimated force of the wind at Sarona during the month of November in each year, 1880 to 1889, referred to eight points of the azimuthal circle, at 9 a.m. :—

Years.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Number of days of calm.
1880	...	0·8	3·2	0·6	1·8	1·4	...	...	11
1881	...	0·5	2·2	0·6	1·3	1·8	...	0·5	4
1882	1·0	0·7	0·7	0·8	...	0·8	...	...	6
1883	...	...	3·0	0·5	1·0	4·0	0·5	...	11
1884	1·0	...	...	0·5	1·1	...	2·0	0·5	13
1885	...	...	...	0·5	1·2	4·0	...	...	20
1886	...	...	...	...	1·5	1·0	1·2	...	16
1887	...	0·6	0·5	0·7	0·8	1·5	...	1·0	11
1888	...	0·6	0·5	0·5	0·6	2·8	0·8	...	6
1889	0·5	1·0	0·5	0·5	1·5	1·3	...	...	14

From this table we see that in November no air passed from the north in seven years out of the ten; none from the north-east from 1883 to 1886; from the east from 1884 to 1886; from the south-east in 1886; from the south in 1882; from the south-west in 1884; from the west in six years out of the ten; and from the north-west in seven years out of the ten.

The strongest average estimated forces of wind in November were—

In 1880	....	....	....	E. 3·2 and S. 1·8.
1881	....	....	....	E. 2·2 „ S.W. 1·8.
1882	....	....	....	N. 1·0 „ S.E. and S.W. 0·8.
1883	....	....	....	S.W. 4·0 „ E. 3·0.
1884	....	....	....	W. 2·0 „ S. 1·1.
1885	....	....	....	S.W. 4·0 „ S. 1·2.
1886	....	....	....	S. 1·5 „ W. 1·2.
1887	....	....	....	S.W. 1·5 „ S. 0·8
1888	....	....	....	S.W. 2·8 „ W. 0·8.
1889	....	....	....	S. 1·5 „ S.W. 1·3.

Therefore, the—

S.W. wind has been strongest in four years, viz., 1883, 1885, 1887, and 1888.
S. „ „ two „ „ 1886 and 1889.
E. „ „ two „ „ 1880 „ 1881.
W. „ „ one year „ 1884.
N. „ „ one „ „ 1882.

The numbers in the last column show the number of days of calm in each November in the ten years at 9 a.m. The largest number is 20 in the year 1885; and the smallest number is 4 in the year 1881. The average number is 11·2.

TABLE XXIX.—Showing the average estimated force of the wind at Sarona during the month of December in each year, 1880 to 1889, referred to eight points of the azimuthal circle, at 9 a.m. :—

Years.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Number of days of calm.
1880	...	0·7	0·5	0·8	1·5	3·0	4·0	...	3
1881	...	0·7	0·5	0·5	1·1	...	1·0	...	2
1882	0·5	0·5	0·5	0·6	...	1·2	0·9	...	9
1883	...	0·5	2·0	0·8	1·3	0·5	...	...	7
1884	...	0·6	0·5	1·0	1·0	...	...	0·5	16
1885	...	1·0	1·0	0·8	1·5	...	4·0	0·5	4
1886	1·5	...	...	...	1·2	2·0	1·5	...	17
1887	...	1·0	0·5	0·5	0·9	1·3	4·0	...	13
1888	...	0·5	0·5	0·8	0·8	1·8	3·0	...	10
1889	0·5	0·5	0·7	1·0	1·0	2·0	...	...	8

From this table we see that in December no air passed in severa years from the north or north-west; none from north-east, east, or south-east in 1886; from the south in 1882; from the south-west in 1881, 1884, and 1885; and from the west in 1883, 1884, and 1889.

The strongest average estimated forces of wind in December were—

In 1880 .... W. 4·0 and S.W. 3·0.
1881 .... S. 1·1 „ W. 1·0.
1882 .... S.W. 1·2 „ W. 0·9.
1883 .... E. 2·0 „ S. 1·3.
1884 .... S.E. 1·0 „ S. 1·0.
1885 .... W. 4·0 „ S. 1·5.
1886 .... S.W. 2·0 „ N. and W. 1·5.
1887 .... W. 4.0 „ S.W. 1·3.
1888 .... W. 3·0 „ S.W. 1·8.
1889 .... S.W. 2·0 „ S. 1·2.

Therefore the—

W. wind has been strongest in four years, viz., 1880, 1885, 1887, and 1888.
S.W. „ „ three „ „ 1882, 1886, and 1889.
S. „ „ one year „ 1881.
E. „ „ one „ „ 1883.

In 1884 the south-east and south winds were of equal strength.

The numbers in the last column show the number of days of calm in each December in the ten years at 9 a.m. The largest number is 17 in the year 1886; and the smallest number is 2 in the year 1881. The average number is 8·9.

The next, Table XXX, was formed by adding all the estimated strength of each direction of wind in each year together.

TABLE XXX.—Showing the yearly sums of the estimated force of the wind in each of the years 1880 to 1889, at Sarona, referred to eight points of the azimuthal circle :—

Years.	Sums of estimated force of Wind in each year.							
	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
1880	3·1	21·0	16·5	28·5	39·0	111·5	58·5	20·5
1881	9·5	14·0	15·5	32·0	65 0	99·5	48·5	32·5
1882	11·0	8·5	18·0	24·0	38·5	121·0	43·0	16·0
1883	18·0	5·0	8·0	18·5	44·5	74·6	30·5	4·0
1884	8·5	11·5	7·0	15·5	64·0	69·0	63·5	26·0
1885	17·0	10·5	11·5	14·0	40·0	80·5	57·7	15·0
1886	13·7	3·0	8 5	6·0	80·0	80·3	59·0	32·0
1887	5·5	9·5	13·5	12·5	37·5	106·5	60·0	11·0
1888	6·0	7·0	9·0	16·5	46.0	110·0	59·5	24·5
1889	4·5	5·5	16·0	18·5	74·5	80·5	25·0	12·5
Sums	96·8	95·5	123·5	186·0	529·0	933·4	505·2	194·0

The numbers in this table under each direction of the wind differ very much from each other.

The N. wind numbered { 18·0 in 1883. / 3·1 „ 1880.
The N.E. „ „ { 21·1 „ 1880. / 3·0 „ 1886.
The E. „ „ { 18·0 „ 1882. / 7·0 „ 1884.

The S.E. wind numbered	32·0	in 1881.
	6·0	„ 1886.
The S. „ „	80·0	„ 1886.
	37·5	„ 1887.
The S.W. „ „	121·0	„ 1882.
	69·0	„ 1884.
The W. „ „	63·5	„ 1884.
	25·0	„ 1889.
The N.W. „ „	32·5	„ 1881.
	4·0	„ 1883.

The numbers at the foot of this table show the sum of all the estimated strengths of each wind for ten years. The largest is 933·4 under south-west; the next in order is 529 under south, and 505·2 under west. The smallest are 95·5 under north-east; the next in order, 96·8, under north, and 123·5, under east. At the foot of Table XIV the number of days of each wind for the ten years are given as follows: North, 106; north-east, 141; east, 114; south-east, 252; south, 479; south-west, 881; west, 530; and north-west, 267 days.

By dividing the numbers at the foot of Table XXX by these numbers the average estimated strength of each wind is found as follows:—

N. wind	0·9.	S. wind	1·1.
N.E. „	0·7.	S.W. „	1·1.
E. „	1·2.	W. „	1·0.
S.E. „	0·7.	N.W. „	0·8.

Thus the winds of strongest average force are east, south, and south-west.

Thus the winds of weaker average force are north-east, south-east, and north-west.

The numbers in Table XXX show the sums of the pressures of the wind in each year; in Table XIV the number of days that each wind has blown in each year is shown, and by dividing the numbers in Table XXX by the corresponding number in Table XIV, the next table showing the mean, or average force of each wind in each year, is shown.

TABLE XXXI.—Showing the average estimated force of the wind in each of the ten years ending 1889, at Sarona, referred to eight points of the azimuthal circle :—

Years.	Average estimated force of the Wind.							
	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
1880	1·0	0·7	1·4	0·7	1·1	1·0	1·6	0·7
1881	1·1	0·7	1·4	0·6	1·2	1·0	1·2	2·5
1882	0·7	0·7	0·8	1·0	0·9	1·0	0·7	0·7
1883	1·2	0·6	1·1	0·7	1·0	1·0	0·8	0·1
1884	0·8	0·6	0·9	0·6	1·1	1·0	1·1	0·8
1885	1·5	1·1	1·6	0·9	1·1	1·3	0·8	0·7
1886	0·9	0·5	1·7	0·5	1·2	1·2	0·9	0·8
1887	0·7	0·7	1·1	0·7	1·0	1·1	1·0	0·7
1888	1·0	0·6	0·7	0·9	0·9	1·3	1·0	0·7
1889	0·4	0·6	0·9	0·8	1·2	0·9	0·7	0·6
Means	0·9	0·7	1·2	0·7	1·1	1·1	1·0	0·8

This table shows the average estimated force of the wind in each year, viz., 1880 to 1889 :—

In 1880 the largest estimated forces were—W. 1·6 and E. 1·4.
„ smallest „ „ N.E., S.E., and N.W. 0·7.
In 1881 the largest „ „ N.W. 2·5 and E. 1.4.
„ smallest „ „ S.E. 0·6 and N.E. 0·7.
In 1882 the largest „ „ S.E. and S.W. 1·0.
„ smallest „ „ N., N.E., W., and N.W. 0·7.
In 1883 the largest „ „ N. 1 2 and E. 1·1.
„ smallest „ „ N.E. 0·6 and S.E. 0·7.
In 1884 the largest „ „ S. and W. 1·1.
„ smallest „ „ N.E. and S.E. 0·6.
In 1885 the largest „ „ E. 1·6 and N. 1·5.
„ smallest „ „ N.W. 0·7 and W. 0·8.
In 1886 the largest „ „ E. 1·7 and S. and S.W. 1·2.
„ smallest „ „ N.E. and S.E. 0·5.
In 1887 the largest „ „ E. and S.W. 1·1.
„ smallest „ „ N., N.E., S.E., and N.W. 0·7.
In 1888 the largest „ „ S.W. 1·3 and N. and W. 1·0.
„ smallest „ „ N.E. 0·6 and E. and N.W. 0·7.
In 1889 the largest „ „ S. 1·2 and E. and S.W. 0·9.
„ smallest „ „ N. 0·4 and N.E. and N.W. 0·6.

The numbers at the foot of the table show the average estimated force of wind from each direction in the ten years. The largest, 1·2, is from the east, the next in order is 1·1 from the south and south-west. The smallest is 0·7, from both the north-east and south-east, and these agree with those found from the totals in Table XXX.

By taking the sums of all the estimated strength of the wind in every month, in each direction for ten years, the following table is formed :—

TABLE XXXII.—Showing the sums of the estimated force of wind in every month in the ten years, 1880 to 1889, at Sarona, referred to eight points of the azimuthal circle :—

Months.	Sums of estimated force of wind in every month for ten years.								Sums.
	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	
January ...	17·0	19·0	17·5	31·0	116·0	42·5	12·0	24·5	279·5
February ...	13·5	13·0	9·5	27·5	86·0	58·0	24·5	7·5	239·5
March ...	4·0	7·5	11·5	31·0	53·5	62·0	59·5	13·0	232·0
April	7·5	5·0	7·5	12·0	39·0	85·5	77·2	16·5	250·2
May	16·5	4·0	9·5	1·5	9·0	80·0	59·0	34·5	214·0
June	3·7	2·0	2·0	1·5	6·0	104·0	76·5	33·0	228·7
July	0·0	0·0	2·0	0·5	0·5	152·3	67·5	7·0	229·8
August ...	0·5	0·0	0·5	2·0	10·0	127·6	53·5	14·0	208·1
September ...	13·5	6·5	0·0	1·0	12·5	86·0	27·0	20·5	167·0
October ...	12·6	8·5	26·5	19·5	27·5	41·0	16·0	19·0	170·6
November ...	2·5	12·5	23·5	20·5	74·0	56·5	7·5	3·5	199·5
December ...	5·5	17·5	13·5	38·0	95·0	39·0	25·0	1·0	234·5
Sums ...	96·8	95·5	123·5	186·0	529·0	933·4	505·2	194·0	2653·4

The sums of the estimated strength of each wind differ very much in the different months ; the extremes are as follows :—

The N.	wind has the	largest	number in	January and May.
N.	,,	smallest	,,	August and November.
N.E.	,,	largest	,,	January and December.
N.E.	,,	smallest	,,	May and June.
E.	,,	largest	,,	October and November.
E.	,,	smallest	,,	June, July, and August.
S.E.	,,	largest	,,	December, January, and March.

S.E.	wind has the	smallest	number in	July and September.
S.	,,	largest	,,	January and December.
S.	,,	smallest	,,	July and June.
S.W.	,,	largest	,,	July and August.
S.W.	,,	smallest	,,	December and October.
W.	,,	largest	,,	April and June.
W.	,,	smallest	,,	November and January.
N.W.	,,	largest	,,	May and June.
N.W.	,,	smallest	,,	December and November.

No air passed from the north or east in July in the ten years.
No air passed from the north-east in August in the ten years.
No air passed from the east in September in the ten years.

Table XVI shows the number of days in every month in the ten years, and corresponds to Table XXXII, showing the sum of all the estimated force of the wind in each month. The following table, showing the average force of each wind in every month, has been formed by dividing the numbers in Table XXXII by those in Table XVI :—

TABLE XXXIII.—Shows the average estimated force of the wind in each direction in every month for the ten years, 1880 to 1889, at Sarona, referred to eight points of the azimuthal circle :—

Months.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Number of days of calm.
January ...	1·2	0·8	0·7	0·7	1·2	1·9	1·7	1·8	61
February ...	1·1	0·8	0·9	0·6	1·3	1·5	1·9	1·5	76
March ...	0·4	0·5	1·0	1·1	1·0	1·3	1·7	0·8	88
April... ...	1·1	0·6	1·3	1·0	1·1	1·5	1·4	0·6	89
May	1·2	0·6	1·4	0·5	0·8	1·1	0·7	0·6	54
June... ...	0·7	0·5	0·5	0·5	0·8	1·0	0·8	0·8	36
July	...	...	0·5	0·5	0·5	0·9	0·7	0·7	24
August ...	0·5	...	0·5	0·5	0·7	0·9	0·7	0·6	46
September ...	0·8	0·9	...	0·5	0·8	0·8	0·7	0·6	75
October ...	0·7	0·7	1·8	1·0	0·9	0 9	1·1	0·7	131
November ...	0·8	0·7	1·6	0·6	1·1	1·5	1·1	0·6	112
December ...	1·1	0·6	0·7	0·7	1·2	1·5	2·3	0·5	89

The numbers in this table show the average estimated force of wind, in each direction in every month in the ten years.

In January the	largest	estimated	strength	is—S.W. 1·9.
„	smallest	„	„	E. and S.E. 0·7.
In February the	largest	„	„	W. 1·9.
„	smallest	„	„	S.E. 0 6.
In March the	largest	„	„	W. 1·7.
„	smallest	„	„	N. 0.4.
In April the	largest	„	„	S. 1·5.
„	smallest	„	„	N.E. and N.W. 0·6.
In May the	largest	„	„	E. 1·4.
„	smallest	„	„	S.E. 0·5.
In June the	largest	„	„	S.W. 1·0.
„	smallest	„	„	N.E., E., and S.E. 0·5.
In July the	largest	„	„	S.W. 0·9.
„	smallest	„	„	E., S.E., and S. 0·5.
In August the	largest	„	„	S.W. 0·9.
„	smallest	„	„	N., E., and S.E. 0·5.
In September the	largest	„	„	N.E. 0·9.
„	smallest	„	„	S.E. 0·5.
In October the	largest	„	„	E. 1·8.
„	smallest	„	„	N., N.E., and N.W. 0·7.
In November the	largest	„	„	E. 1·6.
„	smallest	„	„	S.E. and N.E 0·5.
In December the	largest	„	„	W. 2·3.
„	smallest	„	„	N.W. 0·5.

In July no air passed from the north or east in the ten years.
In August no air passed from the north-east in the ten years.
In September no air passed from the east in the ten years.

The S.W. wind has the largest average estimated force in five months —January, April, June, July, and August.

The W. wind has the largest average estimated force in three months —February, March and December.

The E. wind has the largest average estimated force in three months —May, October, and November.

The N.E. wind has the largest average estimated force in one month —September.

The largest average estimated force of the wind in any month was 2·3 from the west in December ; the next in order was 1·9 from the south-west and west in both January and February.

The S.E. wind has the smallest average estimated force in four months —February, May, September, and November.

The N. wind has the smallest average estimated force in three months —March, August, and October.

The E. wind has the smallest average estimated force in two months— January and July.

The N.E. wind has the smallest average estimated force in two months —April and June.

The N.W. wind has the smallest average estimated force in one month —December.

The smallest average estimated force of the wind in any month was 0·4 from the north in March; the next in order was 0·5 from the north-east in both March and June; 0·5 from the south-east in May, June, July, August, and September; 0·5 from the east in June, July, and August, and 0·5 from the north-west in December.

The numbers in the last column show the total number of days of calm on those days that the air was not in motion at 9 a.m. in the ten years ending 1889, at Sarona. The three largest numbers are in the October, November, and April, 131, 112, and 89 respectively; the three smallest numbers are July, June, and August, 24, 36, and 46 respectively. The total number of days of air in motion was 2,772. The total number of days of observation was 3,653, so that in these 10 years, on 881 days the air was calm, or nearly so.

(*To be continued in April "Quarterly Statement."*)

THE LATITUDE OF MOUNT HOREB.

By Chas. Fox, M.R.C.S., F.S.S.

My attention has been turned to a paper by J. Stow on this subject, in the *Quarterly Statements* of last year, p. 178; and, as further light may be thrown on it, and the reason of the error in his conclusion manifested, it appears due to send the following, and may, in some other respects, not be without interest.

The writer aimed to deduce the true latitude of Mount Horeb from the mystical map (as I would call it) of Israel, shown to Ezekiel, and of which he gives a diagram. Here, as he shows, each tribe is assigned an equal extent of Canaan, and there is a "God's acre" in the midst—the Holy portion, similarly measured—and he justly reasons that, the dimensions being actually given (in reeds) by the angel, it is possible, hence, to fix the position of Horeb, this being assumed to coincide with the "Waters of Strife in Kadesh." By this principle he has an unimpeachable rule; and yet, as is hinted in a note to the paper by C. R. C., his conclusion is 1° 12′ from the accepted site.

Seeing he deduces from such a source and discovers to the reader the chain of inference—whence there seems no room for an error in the demonstration,—how is it a wrong result can come out?

The northern limit of the typical map of Israel is placed by the angel at Zedad, and the southern boundary of the holy portion at Tamar; and, though the result should confirm their situation, the one of these places which is to be found in the fine modern survey, Zedad, is placed at lat. 34° 22′ N., instead of at 34° 6·55′.