referred to Amenophis IV. It is, of course, quite possible that he may have accepted the Asiatic gods of his mother, during part of his reign, under the influence of his Armenian bride Tadukhepa: for the Armenians worshipped Ashtoreth, as shown by Dusratta's letters; but the evidence on the opposite side of the question must not be overlooked.

The result of the new discovery of Mineptah's inscription seems, at present, to confirm the view that the Abiri of the Tell Amarna Tablets were really the Hebrews.

WEYMOUTH, *2nd May*, 1896.

NOTES ON THE APRIL "QUARTERLY STATEMENT."

I.—By Lieut.-Colonel CONDER, R.E., D.C.L.

P. 114.—I have no doubt that Dr. Bliss is right in assigning the wall east of the Cœnaculum to the Crusaders or Saracens. In the curious map of Jerusalem published with the works of Marino Sanuto (1322 A.D.), the wall is shown to include the Cœnaculum, and to run much on the line now discovered. But this was not the line in the fourth century A.D.

P. 133. *Serapis.*—Neither Canon Dalton nor Mr. Davis mention the fact that Serapis occurs on coins of the Roman emperors found at Jerusalem (*see* details in "Syrian Stone Lore"), nor do they allude to other representations of this deity. Serapis was an infernal god, equivalent to Pluto and Hades. He is represented as accompanied by a Cerberus, or infernal dog, and has on his head the modius, or basket, and in some cases this is replaced by a human head. This emblem, which recalls the birth of Athene from the head of Zeus, is found in other mythologies, as in India where the Gunga or Ganges Goddess springs from Siva's head. It seems to me unlikely that the name Serapis was connected with Osiris-Apis. The name of Osiris in Egyptian was *Ausar*. There was no doubt a parallelism between the characters of Serapis and Osiris, and the popular explanation may have connected them in Egypt. But Serapis was not connected with a bull. His infernal dog may have been likened to Anubis, but it was nearer to the classic Cerberus, and resembled also the dog of Yama, the infernal deity of India. King connects the name with *Sripa*, the "blood-drinker," a title of Yama. The importation of oriental deities to the west is not confined to Serapis. Pompey's soldiers brought back to Rome the worship of the Persian Mithra, as Serapis was brought from Sinope in Pontus to Alexandria. The discoveries of Puchstein at Tell Nimrud, on the Upper Euphrates, show us that in Commagene, in Pompey's age, a curious mixed Greco-Persian religion gave birth to sculptures semi-Greek and semi-Persian, representing Ormuzd and Mithra, with their Greek equivalents in the accompanying Greek texts. It seems to me probable that Serapis was an Aryan deity of Armenia,

representing the ruler of Hades, and that the true origin of the name, and symbolism of his figures, is to be sought in the East and not in Egypt.[1]

P. 163. *'Arâk Ism'ain* ("Ishmael's Cavern") is marked on the survey map and noticed in the "Memoirs."

P. 178. *Sinai.*—Captain Haynes refers to "an attempt" to identify the route of the Exodus in my new volume, "The Bible and the East," and I may be allowed to say that the short account there given (pp. 44–50) is the result of several years of study, and is based on the distances between the various stations, and on the position of Hazeroth, Jotbath, Ezion Geber, Shapher, &c., as well as on the water supply. The proposal to identify *Elloo* with Elim cannot be considered until the Arabic spelling of the former very unusual word is ascertained. If it is spelt with a double *l*, it is not likely to represent Elim, which in Arabic would be *Aila* or *Ailin*. I have carefully considered the arguments of Mr. Greene, Professor Sayce, Dr. Trumbull, and others, but have found in them nothing which suffices to upset the usually accepted views as to Kadesh Barnea, Horeb, and Hor.

II.—By M. Clermont-Ganneau.

P. 118. Λυχνάρια καλὰ—"*pretty lamps.*"—The first discovered specimen of such Christian lamps from Palestine, bearing this inscription, was described by me in my "Recueil d'Archéologie Orientale" (1888, vol. i, p. 171), and I there showed that the proper designation to be used henceforth for these tiny remains of the Byzantine period, of which we now possess some thousands, would be the hybrid word "lychnarion."

P. 164. *'Arâk Isma'în and Alâli el Benât.*—See what I have said about these localities in my "Archæological Researches," just published by the Palestine Exploration Fund, vol. ii, pp. 219–220, and upon the possible identification of the former of these great caves with the Rock Etam; an identification I suggested as long ago as 1874.

P. 165. *Arsûf and the Town of Reseph.*—"The beautiful female statue, about 3 feet high," mentioned by Mr. Hanauer, was really that of a colossal hawk, with a medallion, upon which was inscribed a Greek monogram, suspended from its neck. I have fully described it in my "Rapports sur une mission en Palestine et en Phénicie entreprise en 1881" (planche ii, H; *cp.* p. 134, No. 121 A and B).

[1] A more important omission than any mentioned above by Colonel Conder in my notice of the Serapis inscription in last *Quarterly Statement* was that the discovery of the Serapeum last year at Alexandria was not described. I had read and referred at length to all Mr. King had written about Serapis. It appears to me that Colonel Conder fails to distinguish three wholly separate points:—

1. What and who the deity was in his original state at Sinope.
2. What and who the deity was in Egypt with whom he was identified.
3. The subsequent and highly popular deity resultant from the combination.—J.N.D.

My theory there set forth of the origin, up to that time unknown, of the town of Arsûf was, in brief, this :—

1. Arsûf was by its position a town in the territory of Ephraim. Although the list of the towns of this tribe is wanting in the Book of Joshua, nevertheless the genealogy of Ephraim's descendants as given in the First Book of Chronicles, vii, 20–29, enables us to fill up the required gap. There, in accordance with old Semitic fashion, many of the names of towns are enumerated under the form of eponymous personages: Reseph, רשף, is one of these (1 Chron. vii, 25), and represents, letter for letter, Arsûf (أرسوف).

In further proof of this, observe—

2. The town received, under the Seleucides, the name Apollonias, that is to say, "the town of Apollo." Now, the bilingual inscriptions from Cyprus have clearly proved that the official equivalent for the Greek Apollo in the Phœnician Pantheon was a god called Reseph, רשף, and we further find, in an inscription from Carthage, the form of this god's name given as ארשף, Arseph. Both forms, it is clear, would bear the vowel points, so as to be pronounced Resuph and Arsuph.

We obtain thus a strictly exact equation :—

Arsûf—present name of the Arab town,
= Apollonias—name of the Greek town,
= Reseph—name of the Phœnician Apollo,
= Reseph—of the genealogy of Ephraim's descendants.

The ancient Ephraimite town of Arsûf would be one of the principal centres of the worship of the Phœnician Apollo (which appears in the inscriptions of Zenjirli). The tradition of such a sanctuary is preserved in the extraordinary veneration shown there by Moslems for the Haram of the famous Sîdna 'Aly ben 'Aleîl, the true heir of Reseph.

As to the Hawk Statue, it is well known that this bird was the symbol of Horus, who in the Egyptian Pantheon corresponded to Apollo in the Greek, just as Apollo did to the Phœnician Reseph.

P. 171. The land of Suhete or Soethe of the Crusaders appears to me ought to be identified, not with Ard-es-Suweideh, as Colonel Conder states, but with the district of Soueit (صويت), already mentioned by Dimashky.

P. 171. The supposed sun-god Aumo, referred to by Colonel Conder, does not exist in the Pantheon of the Nabatæan Arabs any more than does the supposed god, Maleikhatu. They are both shown to be non-existent, and mere figments, for the same reason. The inscriptions alluded to by the author (*i.e.*, M. Waddington, No. 2392–2395, &c.) speak simply "of the god" (Zeus Helios) adored by a person of the name of Aumos. A very different thing!

P. 174. *The Kolonieh Inscriptions.*—Professor Wright's corrections of the evidently faulty copies made by Herr Schick of these inscriptions

had already been proposed by me in 1888 in my "Recueil d'Archéologie Orientale" (vol. i, p. 169, foll.) I have since guarded myself as far as the conjectural emendation of ΦΩC ZΩH is concerned, in my "Etudes d'Archéologie Orientale" (vol. ii, p. 33, note).

III.—By Rev. W. F. Birch, M.A.

"Had Judah that day joined, or one whole tribe,
They had by this possess'd the tow'rs of Gath."—*Milton.*

P. 162. The Arak Ismain proposed by Mr. Hanauer as the Rock of Etam is a very attractive position for Samson's hiding-place.

The site well merits consideration, as it seems to be undoubtedly a *sela* (or cliff) and is situate in Judah, being about 2½ miles from Zorah. I agree with Mr. Hanauer that it is needless to seek for a *sela* at a distance if one near at hand is to be found and would do just as well. Arak Ismain is certainly near at hand, while Khureitun is 17 miles distant from Zorah, but whether this near position does just as well is the very point to be settled. Samson was a long-distance champion. He goes to Askelon, 23 miles from Timnath, to Gaza, 35 miles from Zorah, and carries its gates another 35 miles to the hill before Hebron. The 17 miles to Khureitun would have presented no difficulty to him. Still, I admit he would have chosen 3 before 17, all other points being equal.

Perhaps Mr. Hanauer will point out how Arak Ismain suits the seven *ups* and *downs* in the story in Judges xv, 8–14, and further deal with the following difficulty:—

The Philistines were rulers over Judah. If Samson had been at Arak Ismain, must they not have spread themselves in Wady Surar, west of it, just within the border of Judah? Why should the Philistines come to a stop just across the border of Judah, with Samson almost within view, when many a (Danite) man would have been ready to betray him for a less bribe than 1,100 pieces of silver? If Judges xv, 10, had stated that the men of Beth-shemesh said: Why are ye come up against us—the invasion might seem to have been merely a local and trifling affair, but as we read that the men of *Judah* said so, the business apparently was of a much more extensive character. Why should not the Philistines seize Samson at once if he were at Arak Ismain, and not wait at the door until their slaves, the tribe of Judah, came to remonstrate? The Khureitun site for the Rock of Etam does not seem to me open to these objections. The term "men of Judah" apparently means the tribe (generally) in 2 Samuel ii, 4 (*see also* xxiv, 9; xix, 41, 43). In Judges xv the LXX render the words πᾶς ἀνὴρ Ἰούδα, and Josephus adopts the word "tribe." The "Dictionary of Bible" (Etam) observes: "The general tenour of the narrative seems to indicate that this natural stronghold was in Judah, and that the Philistines had advanced into the heart of the territory of that tribe . . . . (Wady Urtas) was sufficiently distant from

Timnah to have seemed a safe refuge from the wrath of the Philistines . . . . not too far for them to advance in search of him." Samson's surrender I take to have been the act of the tribe of Judah. The gates of Gaza, afterwards standing in sight of Hebron, showed them the chance they had lost. As Mr. Hanauer is nearer to the spot, perhaps he will give his view on the "tribe" and the *ups* and *downs*.

To Samson, with his seven locks unshaven, the two posts had no firm hold of the ground at Gaza, while they and the doors of the gate, bar, and all had lost their weight. Though he could as easily have shivered as shouldered his load, still his habitual playfulness towards the Philistines may partly account for his carrying it up all the way to the top of the *mountain* (Heb. *Har*) before Hebron, more than 3,000 feet in height, and at least 35 miles distant in the bee-line: let the Gazites, if they really want the doors back, take the trouble themselves of fetching them; deep footprints will guide them right across the great undulating plain, until the trophy is distinctly made out on the highest point (? Kh. Serasir) between Gaza and Hebron.

The common opinion would spare Samson his "terrible feat" by locating the hill at Tell el Muntar, a mile from Gaza. Hebrew usage, in Judges xvi, 3, forbids, I believe, this mercy.

To waive the point that עַל־פְּנֵי (*before*) really, I believe, requires a site within sight of Hebron, the one word *har* (*mountain* R.V.) is sufficient to settle the question. I can find no instance of *har* describing an insignificant eminence like 'Aly el Muntar, only 272 feet above the sea, and 100 feet above Gaza. Till such is produced Samson's long march must stand, hitherto obscured by the *hill* of A. Version.

The Sp. Comm., after noticing the site near Gaza, adds: "But it may be doubted whether one of the hills overlooking Hebron is not rather meant, as Milton has it:—

> Then by main force pull'd up, and on his shoulders bore
> The gates of Azza, post and massy bar,
> Up to the hill by Hebron, seat of giants old,
> No journey of a Sabbath day, and loaded so."

IV.—By Rev. Geo. St. Clair, F.G.S.

Pages 172–3. My book on "Buried Cities," published in 1891, contains my matured opinion on the wall of Nehemiah, with its gates and other notes of locality. Professor T. F. Wright, Ph.D. (in *Quarterly Statement*, April, 1896), quotes an earlier suggestion of mine, from the *Quarterly Statement*, January, 1888; but probably no man has studied this puzzling question without finding reason to discard his earliest guesses. Professor Wright quotes three writers who agree with me in placing the Valley Gate at or near the present Jaffa Gate. As he does this for the purpose of showing that we are all wrong, I should have been glad if he had also

arraigned the best authorities, such as Lewin, with whom we are in accord on this point.

Having put my best opinion into my book, I declined Rev. W. F. Birch's invitation to further discussion, and said we must await the results of excavation. Dr. Bliss is now using the spade, and has already discovered a new gate, south-east of the English burial-ground; and, a good way east of this, two other gates, one of them a small one. On the strength of these facts Professor Wright declares that "all the geographers have greatly erred." He himself has no difficulty in identifying the first of these new gates as the Valley Gate, and the other two as the Dung Gate and the Gate of the Fountain; and he suggests for our advantage that "the whole account of the re-building in Chapter III is now quite plain."

We are all watching Dr. Bliss's work with the greatest interest; and if it should disprove any of our conjectures we shall gladly accept the logic of facts. But it may be better to wait till the excavations have proceeded further before we declare that everything is quite plain. The conclusions of Professor Wright seem to me premature and doubtful, for the following reasons :—

1. The date of Dr. Bliss's wall is not settled, and it is unsafe to assume that all three gates are as old as Nehemiah's time.

2. If the first gate (the most western) is so old, it is possible that it may be Nehemiah's Dung Gate, and not his Valley Gate. It may be observed that a drain passes out under it. Lewin ("Sketch of Jerusalem," p. 60) points out that "Josephus also, in tracing the western wall of the High Town, writes that it ran from Hippicus to the Gate of the Essenes at Bethso, the Hebrew word for a dung place. The Essene Gate and the Dung Gate would therefore appear to be identical, and situated at the south-west corner of the High Town."

3. The statement made twice over by Dr. Wright, that "the Dung Gate is said in Neh. iii, 13, to have been about 1,000 cubits east of the Valley Gate," has no foundation in Scripture, either in the English version or the Hebrew text. The word "east" does not occur, and the direction is not stated. Nor does it appear that the distance between the two gates in question, since Dr. Bliss uncovered them, has been measured and found to be 1,000 cubits. Why does Dr. Wright say "about" 1,000 cubits?

4. Dr. Bliss is showing us that the south wall followed different directions at different times. This was to be expected; and it may be vain to look for Nehemiah's gates in the wall of Eudocia. In "Buried Cities" I have tried to trace Nehemiah's wall, as going round the brow of the south-western hill and then making a bend up the Tyropœon Valley. In this I am in substantial agreement with Lewin; and at present I do not see reason, from the excavations, to alter my opinion.

CARDIFF, *May 13th*, 1896.

RESULTS OF METEOROLOGICAL OBSERVATIONS TAKEN AT JERUSALEM IN THE YEAR 1892.

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 27·617 inches, in December, and the next in order, 27·604 inches, in January. The highest reading in the preceding 31 years, viz., 1861 to 1891 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 27·100 inches, in February, and the next in order, 27·125 inches, in July. The lowest reading in the preceding 31 years was 26·972 inches, in April, 1863, and February, 1865.

The range of readings in the year was 0·517 inch. The largest range in the preceding 31 years was 0·742 inch, in 1876; and the smallest, 0·491 inch, in 1883.

The numbers in the 3rd column show the extreme range of readings in each month; the smallest, 0·131 inch, was in August, the next in order, 0·192 inch, in July; and the largest, 0·491 inch, in December; and the next in order, 0·472 inch, in January. The mean monthly range for the year was 0·303 inch. The mean for the preceding 31 years was 0·309 inch.

The numbers in the 4th column show the mean monthly pressure of the atmosphere; the highest was 27·463 inches, in December, and the next in order, 27·432 inches, in January; the lowest was 27·250 inches, in July, and the next in order, 27·280 inches, in August. The mean yearly pressure was 27·358 inches. The highest mean yearly pressure in the preceding 31 years was 27·443 inches, in 1861, and the lowest, 27·359 inches, in 1890. The mean for the 31 years was 27·392 inches.

The temperature of the air reached 90° on May 14th, and was the only day in May of a temperature so high as 90° (in the preceding 10 years, the earliest day in the year the temperature was 90° was March 25th in the year 1888); in June it reached or exceeded 90° on 4 days; in July, 4 days; in August, 6 days; and in September, 8 days, the 24th being the last day in the year of a temperature as high as 90°. In the preceding 10 years the latest day in the year this temperature reached 90° was October 23rd in 1887. The temperature reached or exceeded 90° on 23 days during the year. In the years 1882 and 1891 the number of days of this high temperature was 28, and in 1887 was 73; the average of the 10 years was 43. The highest temperature in the year was 101° on September 17th. The highest in the preceding 10 years, 1882 to 1891, was 106°, in July, 1888.

The temperature of the air was as low as 36° on 3 nights, viz., January 26th, and December 19th and 20th. In January it was as low or

(*To face p.* 264.)

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.
1892.	in.	in.	in.	in.	°	°	°	°	°	°	°	°	°	°	in.	grs.	grs.	°	grs.										in.
January	27·604	27·132	0·472	27·432	62·0	36·0	26·0	52·4	41·3	11·1	46·8	48·7	45·5	42·1	·268	3·1	0·9	78	500	0	1	0	2	0	7	11	10	5·3	17	7·42
February	27·521	27·100	0·421	27·369	70·0	36·5	33·5	56·7	43·2	13·5	50·0	50·7	45·7	40·6	·253	2·9	1·3	69	497	0	8	1	0	2	5	3	10	5·6	11	4·09
March	27·496	27·158	0·338	27·372	76·0	39·0	37·0	63·3	46·0	17·3	54·7	56·8	50·3	44·3	·292	3·3	1·9	63	491	1	2	2	3	1	5	6	11	5·2	2	1·73
April	27·458	27·192	0·266	27·320	86·0	43·0	43·0	72·4	52·2	20·2	62·3	65·8	56·8	49·5	·354	3·9	3·1	55	481	0	5	5	2	0	5	3	10	4·8	6	1·58
May	27·522	27·130	0·392	27·325	90·5	49·0	41·5	77·5	57·9	19·6	67·7	70·6	58·6	49·4	·353	3·9	4·3	47	477	0	3	1	6	1	4	6	10	3·6	5	1·04
June	27·421	27·224	0·197	27·310	94·5	55·0	39·8	83·9	61·9	22·0	72·9	78·0	64·3	54·8	·430	4·6	5·7	45	470	5	2	1	1	0	2	4	15	0·3	0	0·00
July	27·317	27·125	0·192	27·250	94·5	59·0	35·5	85·6	63·7	21·9	74·7	79·6	66·2	57·0	·494	5·3	5·5	49	467	1	0	0	1	0	6	12	11	1·5	0	0·00
August	27·342	27·211	0·131	27·280	91·0	61·5	29·5	87·1	64·6	22·5	75·8	81·4	68·3	59·6	·508	5·4	6·0	47	466	4	1	0	2	0	2	10	12	0·5	0	0·00
September	27·463	27·246	0·217	27·357	101·0	60·0	41·0	88·0	65·9	22·1	77·0	81·3	66·2	56·0	·448	4·8	6·6	41	467	3	4	1	0	0	2	7	13	1·0	0	0·00
October	27·544	27·286	0·258	27·419	89·8	51·0	38·8	82·2	61·9	20·3	72·0	75·5	62·1	52·5	·395	4·3	5·3	45	474	3	5	5	0	1	4	2	11	1·5	1	0·03
November	27·537	27·271	0·266	27·405	71·5	44·0	27·5	63·9	51·1	12·8	57·5	59·5	54·6	50·2	·365	4·1	1·6	71	478	1	3	3	0	0	8	8	7	4·5	12	6·64
December	27·617	27·126	0·491	27·463	67·0	36·0	31·0	56·0	44·3	11·7	50·2	51·4	47·0	42·4	·272	3·0	1·2	72	498	3	6	2	2	0	6	5	7	4·3	9	8·70
Means	27·487	27·183	0·303	27·358	82·8	47·5	35·3	72·4	54·5	17·9	63·5	66·6	57·1	49·9	·369	4·1	3·6	57	481	sum. 21	sum. 49	sum. 21	sum. 19	sum. 5	sum. 56	sum. 77	sum. 127	3·2	sum. 63	sum. 31·23
	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

lower than 40° on 9 nights ; in February on 4 nights ; in March on 1 night ; and in December on 5 nights. Thus the temperature was as low or lower than 40° on 19 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 10 years was 52. The lowest temperature in the preceding 10 years was 26°·5, in January, 1890.

The highest temperature of the air in each month is shown in column 5. In January it was 62°, being 1°·5 above the mean of the ten high day temperatures in January. The high day temperature was above its average in February, April, September, and December, and below in all other months. The mean for the year was 82°·8, being 1°·3 below the average of 10 years. The highest in the year was 101°·0, in September.

The lowest temperature of the air in each month is shown in column 6. In both January and December it was 36°·0, being 4°·2 and 2°·3 respectively above their averages. The nights were warm throughout the year and above their averages. The mean for the year was 47°·5, being 3°·0 above the average of 10 years.

The range of temperature in each month is shown in column 7 ; the numbers vary from 26°·0 in January to 43° in May. In the months of March, August, and November the ranges were small, owing to the low high day and high night temperatures, being 10°·2, 11°·1, and 8°·4 respectively less than their averages. The mean range for the year was 35°·3, being 4°·2 less than the average of 10 years.

The range of temperature in the year was 65°·0. The largest in the preceding 10 years was 76°·5, in each of the years 1884, 1886, and 1888, and the smallest, 63°·5, in the year 1885.

The mean of all the high day temperatures in each month is shown in column 8. The lowest was 52°·4 in January, being 1°·8 higher than the average. The highest was 88°, in September, being 2°·5 above the average, and the next in order 87°·1, in August. The mean for the year was 72°·4, being 0°·1 above the average of 10 years.

The mean of all the low night temperatures is shown in column 9. The lowest was 41°·3, in January, being 3°·0 higher than the average. The highest was 65°·9, in September, being 5°·0 higher than the average. The mean for the year was 54°·5, or 2°·0 above the average of 10 years.

In column 10 the mean daily range of temperature in each month is shown ; the smallest was 11°·1, in January, and the next in order, 11°·7, in December ; the greatest was 22°·5, in August, and the next in order 22°·1, in September. The mean for the year was 17°·9, being 1°·9 less than the average. The smallest ranges in the preceding 10 years were 9°·3, in January, 1883, and 9°·7, in December, 1890 ; the greatest were 33°·8, in August, 1886, and 30°·1, in the same month of 1887. The smallest mean for the year was 17°·8 in 1883, and the greatest, 24°·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 46°·8, in January ; and the next in order 50°·0, in February ; the highest was 77°·0, in September, and the next in order 75°·8, in

August. The mean for the year was 63°·5, exceeding the average of 10 years by 1°·1. The lowest mean temperatures in the preceding 10 years were 39°·8, in January, 1890, and 42°·0, in December, 1886; the highest were 81°·2, in August, 1890; and 81°·1, in July, 1888. The highest mean for the year was 63°·7, in 1885, and the lowest, 60°·1, in 1886.

January was the coldest month of the year, by reference to columns 5 and 6 it will be seen that, though the coldest month, it was above its average both by day and night; and the nights were warm and above their average throughout the year, particularly so in the months of January, March, and September.

The numbers in column 12 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°·1. The mean difference between the mean temperature of the air and that at 9 a.m. for the 10 years was 3°·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 October the difference between the readings often exceeded 20°, and was as large as 31°·6 on September 16th.

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 3°·2, in January, and 4°·4, in December; the largest were 15°·1, in September, and 13°·7, in June. The mean for the year was 57°·1, and that of the dry was 66°·6; the mean difference was 9°·5.

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 6°·6, in January, and 9°·0 in December; the largest were 25°·3, in September, and 23°·2 in June. The mean temperature of the dew-point for the year was 49°·9; the mean for the 10 years was 50°·1.

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 0·253 inch, in February, and the largest, 0·508 inch, in August. The mean for the year was 0·369 inch; the average of 10 years was 0·375 inch.

In column 16 the weight in grains of the water in a cubic foot of air is shown; it was as small as 2·9 grains in February, and as large as 5·4 grains in August. The mean for the year was 4·1 grains; the average of 10 years was 4·1 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 January, and more than 6½ grains in September. The mean for the year was 3·6 grains; the average of 10 years was 3·4 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 41 in September. The mean for the year was 57; that of the 10 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 481 grains; that of the 10 years was 482 grains.

The most prevalent winds in January were W. and N.W., and the least prevalent winds were N., E., and S.; in February the most prevalent were N.W. and N.E., and the least were N. and S.E.; in both March and April the most prevalent was N.W., and the least were N. and S.; in May the most prevalent was N.W., and the least was N.; in June the most prevalent was N.W., and the least was S.; in both July and August the most prevalent were W. and N.W., and the least were N.E., E., and S.; in September the most prevalent was N.W., and the least were S.E. and S.; in October the most prevalent was N.W., and the least was S.E.; in November the most prevalent were S.W., W., and N.W., and the least were S.E. and S.; and in December the most prevalent winds were N.W. and S.W., and the least prevalent wind was S. The most prevalent wind for the year was N.W., which occurred on 127 times, of which 15 were in June, 13 in September, and 12 in August; and the least prevalent wind was S., which occurred on only 5 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 10 years were—

N.	by	10
E.	„	11
S.E.	„	10
S.	„	6

and those winds greater in number than the average of 10 years were—

N.E.	by	2
S.W.	„	5
W.	„	11
N.W.	„	21

The numbers in column 28 show the mean amount of cloud in each month; the month with the smallest amount is June, and the largest, February. Of the cumulus or fine weather cloud there were 5 instances; of the nimbus or rain cloud 28 instances, of which 7 were in February, and 6 in January, and only 4 instances from April to October; of the cirrus there were 10 instances; of the cirro cumulus 69 instances; of the cumulus stratus 61 instances; of the cirro stratus 16 instances;

and 177 instances of cloudless skies, of which 27 were in June, and 23 in both July and August, and 6 only in both February and March.

The largest fall of rain for the month in the year was 8·70 inches in December, of which 4·70 inches fell on the 1st, and 2·18 inches on the 2nd. The next largest fall for the month was 7·42 inches, in January, of which 1·10 inch fell on both the 1st and 31st, 1·09 inch on the 23rd, and 1·03 inch on the 19th. No rain fell from May 19th till October 31st, making a period of 164 consecutive days without rain. The total fall of rain for the year was 31·23 inches, being 6·00 inches above the average for 32 years, viz., 1861 to 1892. The number of days on which rain fell was 63, being 8 more than the average.

RESULTS OF METEOROLOGICAL OBSERVATIONS TAKEN AT TIBERIAS IN THE YEAR 1892.

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 31·118 inches, in January, and the next in order 31·070 inches, in February.

In column 2 the lowest reading in each month is shown; the minimum for the year was 30·318 inches, in May; and the next in order 30·321 inches, in July.

The range of readings in the year was 0·800 inch, being 0·283 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 0·189 inch, in August, and the next in order 0·216 inch, in July. The largest was 0·687 inch, in January, and the next in order 0·645 inch, in February.

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 0·032 inch, in November, and the next in order 0·043 inch, in February; the largest is 0·107 inch, in October, and the next in order 0·104 inch, in June. 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 0·08 inch, being four times greater than in England.

The numbers in the 7th column show the mean monthly pressure of the atmosphere; the highest was 30·823 inches, in December, and the next in order 30·812 inches, in January; the lowest was 30·404 inches, in