

January 21, from the west; the next in 1885 on May 22, from the north; and in 1886, on January 4, from the south. The instances of the strength as 6, are two in number, viz., the first in 1880, on October 18, from the west, and the second in 1886, on January 5, from the north-west; on the day preceding, January 4, the wind was from the south with strength 5. On all these dates the weather is described as stormy or terribly stormy, and generally accompanied with thunder and lightning, I am inclined to think that both the estimated numbers 5 and 6 are over-estimated, for there is no mention of uprooting trees or damaging buildings in the journals on these days. Of these eight gales, four were from the west, one from south-west, one from south, one from north, and one from north-west, and three took place in January, two in December, one in March, one in May, and one in October. So that in these ten years no heavy gale has taken place in the months of February, April, June, July, August, September, or November.

NARRATIVE OF A SECOND JOURNEY TO PALMYRA,

including an exploration of the Alpine regions of Lebanon and Anti-Lebanon, and the southern half of the Nusairy Chain.

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(Continued from January "Quarterly Statement," p. 43.)

Wednesday, August 6.—We left Bibnîn at 7 a.m., passing by the fountain from which flows the limpid stream by which we had encamped. We then struck over the foot-hills in a direct course to *Judaideh* and *Zohr-el-Husein*. From these villages a fine view is obtained of *Jebel Turbul*. This outwork of Lebanon is a peak about 2,000 feet high, separated from the *Dunntyeh* by the broad valley of the north branch of the Kadisha River. From its isolated position it is one of the most prominent points of the landscape from every part of the plain of 'Akkâr, as well as from Tripoli, and from all the commanding shoulders of the *Dunntyeh* itself. The stratification of its limestone rocks is singularly plaited and twisted.

From *Zohr-el-Husein* we plunged into the deep gorge of the Nahr-el-Bârid, just below where its north and south forks join to form the main stream. The views looking up the gorges, with their numerous branch ravines and rugged mountain peaks, many of them heavily wooded, and backed by the giant mass of Makmel, recall some of the finest scenery of the Alps and the Tyrol. In the river valley we found a few peasants who put us on our track. We took a refreshing bath in the cool, clear water of the north branch, and then crossed the tongue of land which separates it from the turbid waters of the south branch, yellow with sediment brought down by the melted snow of Makmel. Crossing this

branch we climbed the steep mountain by a winding pathway, through woods of pine and scrubs of *Arbutus* and *Styrax* to the plateau of the Dunnyeh. Winding now around and now over the hills we passed through *Harf Zeid*, *Baqran*, and *Qar'aun*, above which we struck the main road from Tripoli to *Sir*, a well travelled and fairly graded mule-path. This soon led us to the aqueduct, which flows down from *Sir* to water the flanks of the mountain about the villages through which we had come. We sat down by this canal to take our lunch, under the shade of some magnificent walnut trees. A special feature of our meal was our grapes, cooled in the almost icy stream.

The Dunnyeh is one of the best watered districts of Lebanon. The springs are numerous and large, and all icy cold. Their surplus water is carried in canals along the sides of the intricate ravines, and distributed to the terraces, which hold the soil laboriously collected from the crevices of the rocks. This soil gives roothold to the mulberry trees, which constitute the wealth of Lebanon.

After our luncheon we continued our journey, partly by the side of the canal and partly on it. We reached *Sir* at 1½ p.m. The barometer at 2 p.m. read 27.33 ; height, 2,950 feet.

Sir is a poorly built village, the houses mostly in the mulberry orchards. Cold streams flow everywhere through the lanes and gardens, carrying fertility and beauty wherever their life-giving waters come. The constant murmur and splash of these waters gives a charm to life in *Sir* greater than that of most Lebanon villages.

To the east of the town rises the great wall of the lower terrace of *Makmel*. It resembles very strikingly the *Gemmi*. It is difficult to imagine from below a path up the side of this almost perpendicular cliff, which rises 2,000 feet above the plateau of *Sir*.

After our incessant and long journeys it was refreshing to be able to spend an afternoon of rest amid such magnificent surroundings. We could almost imagine ourselves at *Leukerbad*, waiting to climb the *Gemmi* on the morrow.

Thursday, August 7.—We started at 7 a.m. to scale the precipice. The path was a zigzag one, often almost dangerous, but an hour's stiff work brought us to the top and into an alpine plateau, 6,500 feet above the sea, where, somewhat to our surprise, we found a wheat farm and harvesters gathering in the grain, as well as numerous shepherds pasturing their flocks on the stubble. From the upper end of this valley, which was fringed with oaks, cedars and junipers, we passed into the bare alpine wadies which rise by an easy grade above the zone of trees, then of shrubs, into that of the snowdrifts and the clouds. In the upper region of shrubs we encountered camps of alpine cheesemakers, as in the lofty meadows of Switzerland. Numbers of savage dogs bayed at us as we passed. We threaded these upland valleys through the whole forenoon, with shingle and gravel under foot, very easy to all the horses except my own which began to feel a nail driven by a careless farrier into the quick of one of his forehoofs at *Tel Kelakh* two days before. By noon we had

reached the top of the *Zohr-el-Qodib*, and sat down to lunch by a snow-drift a mile long, and 20 to 30 feet high. In the centre of this drift was an ice cavern, going 30 feet into the heart of the mass, with streams of melted snow trickling from its roof, and flowing away into the funnels in its floor to replenish the cold fountains of the *Dunnîyeh*. We sank our tin of grapes in a pool of ice-water, while we sat down on the gravel outside the cave to keep warm in the sun. The barometer at 1½ p.m. read 21·33, making the height 10,210 feet. This is the highest peak of Lebanon. Our horses showed plainly the lassitude produced by this great elevation.

The range of *Zohr-el-Qodib* consists of two parallel ranges of hills separated by a broad valley. The snowdrifts occupy the northern faces of these hills, and the funnels between them, and in the central valley. This valley ends towards the south, in the *Fim-el-Mizâb* (the mouth of the waterspout or leader). The hills to the east of the valley are very much steeper but not quite so high as that on the north-west, and slightly higher than that on the south-west which overlooks the Cedars.

On the summit we collected *Cerastium trigynum*, Boiss., *Astragalus hirsutissimus*, D.C., *Trifolium modestum*, Boiss., *Poa*, sp., *Catabrosa aquatica*, Beauv., var. *chionophila*, Post, *Androsace multiscapa*, Duby.

From the summit we came down by a steep, rocky slope into the valley between the two ranges. On our way down we collected *Oxyria digyna*, L., and *Pisum formosum*, Stev. A little further along, in the valley, *Carex stenophylla*, Wahl., var. *planifolia*, Boiss., and everywhere on the hillsides *Vicia canescens*, Boiss. This plant covers the slopes of these bleak hills with a light green verdure, which seems at a distance to indicate a fertile soil. In point of fact it grows in the shingle, through the interstices of which it sends its roots deep into the disintegrating surface of the rocks. We cooled our afternoon tea by burying the bottle to the neck in a snow-drift, and occupied the half-hour while it was been chilled in digging out the complicated stoloniferous roots of *Carex stenophylla*, Wahl., which were entangled everywhere in the gravel. An hour through the valley brought us to the *Fim-el-Mizâb*, which is a wedge-shaped opening between the hills. The valley descends from this opening at an angle of about 25° to a point just above the Cedars. We made our way for half-an-hour down this steep valley by a zigzag path, and at 4½ p.m. arrived at the Cedars. What was our surprise and pleasure to find there a tent, and three excellent ladies of the British Syrian Schools, who were spending a few days at the sacred grove. The barometer at 5½ p.m. read 24·26.

Our train, which had gone around the base of the mountain, did not reach the Cedars till after sunset. We occupied the time profitably in collecting the plants which grow in the grove: *Cedrus Libani*, Barr, *Ferulago frigida*, Boiss., var. *laxa*, Post (a variety with stem leaves higher up and lobes much longer and looser than in type), *Astragalus pinetorum*, Boiss., *Piptatherum holciforme*, M.B., *Berberis Cretica*, L., *Poa diversifolia*, Boiss. et Bal., var. *crassipes*, Hackel. In the evening we had

an hour's singing with the ladies, then a stroll among the solemn old trees before turning in to a well-earned rest.

Friday, August 8.—Before leaving the Cedars at 7 a.m. we took another observation of the barometer, 24.25. The mean of the two observations, corrected by mercurial, gives 6,432 feet as the height of the grove. My horse, although quite lame, was able to take me up the 'Ain Ata road to the top of the pass. The view from this point over the Beshherri amphitheatre is magnificent. To the right rise the two ranges of Makmel, with the broad valley between them. *Vis-à-vis* is the *Jurd Ehedîn*, a sharp ridge extending around the northern side of the amphitheatre. To the left the *Jurd Haşrûn*, enclosing it to the south. In the floor of the amphitheatre is the deep gorge of the *Kadîsha*, flanked by villages and convents, clinging to the almost perpendicular rocks, and at the bottom the foaming torrent.

From the 'Ain Ata road we made our way along the crest of the *Jurd Haşrûn* to its western shoulder. Every step of the way unfolded a new phase of the grand panorama. The air was keen and cold, and we were glad from time to time to avail ourselves of a sunny valley among the peaks. We collected *Paracaryum myosotoides*, *Boiss.*, *Geranium subcaulescens*, *L'her.*, *Campanula Cymbalaria*, *Sibth. et Sm.*, *Pimpinella Tragium*, *Vill.*, var. *depauperatum*, *Boiss.*

From the peak of *Jurd Haşrûn* we descended by a steep grade into the valley which leads to *Yamûni*, and followed this valley southward for a couple of hours. We then struck off to the right for an hour, climbing over a dividing ridge into the heart of the *Jurd Tannurîn*, one of the wildest and loneliest parts of Lebanon. We strayed about twenty minutes off our way in this wilderness, when we fortunately met a wood-chopper who guided us back again into the 'Aqûrah road. Our detour, however, gave us *Kochia monticola*, *Boiss.*, *Galium jungermannioides*, *Boiss.*, *Juniperus excelsa*, *M.B.*, and *Trifolium modestum*, *Boiss.* Having regained the 'Aqûrah track we crossed another dividing ridge, plunged into a valley, and climbed to the edge of the *Jurd 'Aqûrah*. There we found another encampment of Arab cheesemakers. Pitching over the edge of the *Jurd* we found ourselves *vis-à-vis* with *Jebel Fughri*, a saw-toothed, exceedingly rugged range which lies between 'Aqûrah, and *Dûma*. Winding around the shoulder of *Jurd 'Aqûrah* we descended over 2,000 feet to the village of 'Aqûrah, at which we arrived at 8 p.m. We had had a hard day of it. My horse was so lame that he had to be led from 11 a.m. till we arrived at 'Aqûrah. I walked seven hours up and down the steep hills and over the rugged rocks.

Just as we began to descend from the edge of the *Jurd 'Aqûrah* we came upon a layer of trap-rock, 400 to 500 feet thick, which we followed almost to the village. We traced it on the 'Aqûrah side of the *Nahr Ibrahim* valley, on a level somewhat above the vilage, for a distance of three hours to the south-west. A similar layer flanks the *Afqa* side of the *Nahr Ibrahim* valley, at the same level, from a point a little beyond *Afqa* almost to *Neba-el-Hadîd*. This bed must have been ejected before

the valley was excavated. A seam in the limestone strata, five or six hundred feet above 'Aqûrah, would appear to be the place of eruption.

Saturday, August 2.—A farrier from the village removed the nail which had lamed my horse, so that he was able to go on with the party I preferred, however, to walk from 'Aqûrah to Afqa. Just beyond 'Aqûrah is a natural bridge. The plunge down into the Afqa gorge is very fine.

While waiting for our caravan we took a dip into the icy water above the fall. We were as far as before from being able to solve the problem as to how the granite columns of Afqa were got there. The gorge of the Nahr Ibrahim (Adonis) seems to have no trace of any road by which they could have been brought. We were as enchanted as ever with the emerald water, the grand old walnut trees, the great wall of rock, two thousand feet high, towering above the gorges and the ruins of the ancient temple of Venus, with the weird memories of its vanished worship.

We lunched under an almond tree half-way from Afqa to *Neba'-el-Hadid*. We sat on blocks of basalt, and, looking across the valley, saw clearly the layer of igneous rock, which must have once covered the area now hollowed out by the river. Two hours farther on we came to the beautiful ice-cold fountain of *Neba'-el-Hadid*. There we found *Galium jungermannioides*, Boiss., and *Cystopteris fragilis*, L.

Our course now diverged west from the road to *Neba'-el-'Asal*, between *Sunnin* and *Jebel Qartubah*. Three-quarters of an hour above *Meirûbah* we visited the coal mine owned by the Khâzin family. It was worked a dozen years ago to supply coal to the 'Aintûrah school. The pits go obliquely into the side of the hill. The seams are all less than a yard in thickness. The product is similar to cannel coal, but far inferior owing to large earthy admixture, and the presence of considerable quantities of iron pyrites. It required a range of peculiar construction to burn the coal, but as the fuel was not found economical the mines have been abandoned. The same is true of the other Lebanon coal mines.

Just above *Meirûbah*, in the sandy soil, we found *Silene Reuteriana* Boiss., and *Agrostis alba*, L. On the moist mossy rocks we found *Drosera rotundifolia* L., *Osmunda regalis*, L., and *Adenocarpus divaricatus*, L'her, var. *Græcus*, Boiss.

Meirûbah, although so high, is so cosily nestled in a hollow between lofty hills that it is protected from the cold winds and exposed to warm sunshine. Our tent was on a truncated cone of sandstone, overlooking the valley and a part of the town. Our tent door was face to face with the giant form of *Sunnin*, and the sites of *Neba'-el-'Asal* and *Neba'-el-Lebben* were in plain view.

Sunday, August 10.—We enjoyed a quiet Sunday before taking our last stage to *Beirût*.

Monday, August 11.—Rising at an early hour we took our course through the picturesque rocks of *Feitrân*, *Reifûn*, and 'Ajeltûn. From the latter village we began to see the wonderful panorama of the Antelias

and Beirût plains, with Beirût and the blue sea behind them. We followed the ridge down to 'Aintârah, and then crossed into the Dog River Valley, and so over the ridge along the course of the waterworks tunnel to the Dubeiyyeh. After lunching at one of the cafés we rode into Beirût. I had walked all the way, five hours, from Meirûbah to the Dog River.

LIST OF PLANTS COLLECTED DURING THE JOURNEY.

N.B.—The plants new for this region are in *Italics*, and the new species in SMALL CAPITALS. They are all published in Fasc. II. *Plantæ Postianæ*, Lausanne, Georges Bridel, Février, 1891.

I.—RANUNCULACEÆ.

1. *Ranunculus demissus*, D. C. Alpine Hermon.
2. „ *Schweinfurthii*, Boiss. Top of Jebel Barûk.
3. *Delphinium anthoroideum*, Boiss. Deir 'Aṭṭiyeh to Qaryetein.
4. „ *flavum*, D. C. Desert near el-Beida.
5. „ *oliganthum*, Boiss. Deir 'Aṭṭiyeh to Qaryetein.
6. „ *sp. near* „ „ „ „ „

II.—BERBERIDACEÆ.

7. *Berberis Cretica*, L. Alpine Lebanon.

III.—PAPAVERACEÆ.

8. *Papaver rhæas*, L. var. *Syriacum*, Boiss. Top of southern spur of Nusairy Mountains.
9. *Papaver Libanoticum*, Boiss. Top of Hermon.
10. *Glaucium Arabicum*, Fresen. Near Qaryetein.

IV.—CRUCIFERÆ.

11. *Mathiola Damascena*, Boiss. Between En-Nebk and Qaryetein.
12. *Barbarea minor*, C. Koch. Top of Jebel Barûk.
13. *Alyssum montanum*, L. „ „
14. „ *lepidotum*, Boiss. „ „
15. „ *argenteum*, Wittm. „ „ Jisr-el-Kuwwah.
16. „ *alpestre*, L. var. *minutiflorum*, Boiss. Top of Hermon.
17. *Draba vesicaria*, Desv. Top of Hermon.
18. „ *oxycarpa*, Boiss. „ „
19. *Erysimum scabrum*, D. C. Subalpine Hermon.
20. „ *goniocaulon*, Boiss. Top of Jebel Barûk.
21. „ *purpureum*, Loisel. Var. *Blancheanum*, Post. Marbat-'Antar.

22. *Thlaspi*, sp. Top of Jebel Barûk.
 23. *Isatis glauca*, Auch. Ma'lîlah, Asâl-el-Ward.
 24. *Sameraria Armena*, L. Between Palmyra and el-Weshen.

V.—CAPPARIDÆÆ.

25. *Capparis spinosa*, L. Jebel-Bil'âs.

VI.—RESEDACEÆ.

26. *Reseda luteola*, L. Southern spurs of Nusairy Mountains.

VII.—FRANKENIACEÆ.

27. *Frankenia hirsuta*, L. Near Palmyra.

VIII.—SILENEÆ.

28. *Tunica pachygonia*, F. et M. Palmyra.
 29. *DIANTHUS DESERTI*, POST. Mt. south of Qaryetein. The species was found by the author between Khan Hâthrûrah and Jericho, and named var. *pruinosa* of *D. multipunctata*, Ser.
 30. *Dianthus polycladus*, Boiss. 'Aihah.
 31. " " var. *diffusa*, Post. Top of Hermon and Jebel Barûk.
 32. *Dianthus Haussknechtii*, Boiss. Top of Jebel Barûk.
 33. *Gypsophila Rokejeka*, Del. Deir 'Atîyeh to Qaryetein.
 34. " *ruscifolia*, Boiss. Peak above Bludân (Anti-Lebanon.)
 35. " *HYGROPHILA*, POST. Ditch, Mar Liân (Qaryetein.)
 36. " *hirsuta*, Boiss, var. *alpina*, Boiss. Zohr-el-Qodîb.
 37. " *ANTILIBANOTICA*, POST. Mountain above Bludân.
 38. *Ankyropetalum gypsophiloides*, Fenzl. Wadi Meisellûn (Anti-Lebanon) Jebel Bil'âs.
 39. *Silene Reuteriana*, Boiss. Meirûbah (Lebanon.)
 40. " *odontopetala*, Fenzl. Zohr-abul-Hîn.
 41. " " var. *rubella*, Post. Top of Hermon.
 42. " *svertiaefolia*, Boiss. El-Weshen to Jebel Bil'âs.

IX.—ALSINEÆ.

43. *Alsine juniperina*, Fenzl. Top of Hermon.
 44. " *rupestris*, Labill. Zohr-el-Qodîb.
 45. " *Meyeri*, Boiss. Mountain above El-Weshen.
 46. *Cerastium trigynum*, Boiss. Zohr-el-Qodîb.

X.—PARONYCHIEÆ.

47. *Herniaria glabra*, L. Nusairy Mountains.

XI.—TAMARISCINEÆ.

48. *Reaumuria Billardieri*, J. et Sp. Syrian Desert. Deir 'Atīyeh to Qaryetein.

XII.—HYPERICACEÆ.

49. *Hypericum helianthemoides*, Boiss. Jebel Kenīseh.
 50. „ „ *nanum* Poir. Rukhleh.

XIII.—MALVACEÆ.

51. *Alcea rufescens*, Boiss. Mountain south of Qaryetein.
 52. „ „ *lavateræflora*, D. C. Between 'Aīḥah and Rukhleh.
 53. *Malva rotundifolia*, L. *var. perennans*, Post. Top of Hermon.

XIV.—LINEÆ.

54. *Linum toxicum*, Boiss. Top of Hermon:

XV.—ZYGOPHYLLIÆ.

55. *Fagonia Olivieri*, D. C. Plain south and west of Qaryetein.
 56. *Zygophyllum fabago*, L. Qaryetein.
 57. *Nitraria* sp. Qaryetein.

XVI.—GERANIACEÆ.

58. *Geranium subcaulescens*, L'Her. Jurd Ḥaşrūn.
 59. *Erodium trichomanefolium*, L'Her. Subalpine Hermon.

XVII.—RUTACEÆ.

60. *Haplophyllum fruticosum*, Labill. Meisellūn (Anti-Lebanon).

XVIII.—SAPINDACEÆ.

61. *Acer Monspessulanum*, L. Wadi Shib'ah (Hermon).

XIX.—ANACARDIACEÆ.

62. *Rhus Coriaria*, L. Rocks. Top of Jebel Barūk.

XX.—TEREBINTHIACEÆ.

63. *Pistacia mutica*, F. et M. Mountains of Palmyrene desert.

XXI.—RHAMNACEÆ.

64. *Rhamnus Palestina*, Boiss. Mountains of Syrian desert.
 65. „ „ *Libanotica*, Boiss. Top of Hermon.

XXII.—LEGUMINOSÆ.

66. *Adenocarpus divaricatus*, L'her. Meirûbah (Lebanon.)
67. *Lupinus pilosus*, L. Nusairy Mountains.
68. *Argyrobium crotalarioides*, J. et Sp. Mountains south of Qaryetein.
69. *Genista Libanotica*, Boiss. Top of Hermon.
70. *Trifolium fragiferum*, Boiss. Mar Lian (Qaryetein.)
71. „ *modestum*, Boiss. Jurd-'Aqûrah. Zohr-el-Qodîb.
72. *Lotus corniculatus*, L. var. *alpinus*, Boiss. Top of Jebel Barûk.
73. „ *Gebelia*, Vent. var. *villosus*, Boiss. 'Aîhah (Hermon.)
74. *Astragalus hirsutissimus*, D. C. Top of Hermon. Zohr-el-Qodîb.
75. „ *lanatus*, Labill. Top of Hermon.
76. „ *emarginatus*, Labill. Top of Jebel Barûk.
77. „ *trichopterus*, Boiss. Top of Harf-Ram-el-Kebsh.
78. „ *pinetorum*, Boiss. Top of Jebel Barûk.
79. „ *gummifer*, L. Alpine Lebanon and Hermon.
80. „ *echinus*, D. C. Top of Hermon.
81. „ *cruentiflorus*, Boiss. Top of Hermon.
82. „ Sp. *Jebel-esh-Shuqîf* (Anti-Lebanon.)
83. „ *Bethlemiticus*, Boiss. 'Aîhah (Anti-Lebanon) Deir'Aîtyeh to Qaryetein.
84. „ *deinacanthus*, Boiss. Jebel Kenîseh.
85. „ *coluteoides*, Willd. Top of Jebel Barûk.
86. „ *elongatus*, Willd. Hills south of Qaryetein.
87. „ *trifoliolatus*, Boiss. Mountains south of Qaryetein.
88. „ *angustifolius*, Lam. Tops of Lebanon and Hermon.
89. „ *Hermoneus*, Boiss. Top of Hermon.
90. *Glycyrrhiza glabra*, L. Anti-Lebanon.
91. *Onobrychis Cadmea*, Boiss. Jebel Kenîseh.
92. „ *Ptolemaïca*, Del. Hills south of Qaryetein.
93. *Alhagi Camelorum*, Fisch. Qaryetein.
94. *Vicia angustifolia*, Roth. Jebel Kenîseh.
95. *Pisum formosum*, Stev. Zohr-el-Qodîb.
96. *Prosopis Stephaniana*, Willd. Qaryetein.

XXIII.—ROSACEÆ.

97. *Cerasus prostrata*, Labill. Top of Jebel Kenîseh and Barûk. Top of Anti-Lebanon.
98. *Cerasus tortuosa*, Boiss. et Haussk. Mount above El-Weshen.
99. *Prunus ursina*, Ky. Thickets (Anti-Lebanon). Kenîseh.
100. *Rosa glutinosa*, Fl. Gr. Top of Jebel Barûk.
101. „ *canina*, L., var. *dumetorum*, Thuill. South end of Hermon.
102. *Potentilla geranioides*, Willd. Top of Hermon.
103. *Rubus cæsius-ulmifolius*, Focke. 'Ain-Shems (Nusairy Mountains).
104. *Pyrus Syriaca*, Boiss. Glen above Deir-el-'Asbair.
105. *Cotoneaster nummularia*, F. et M. Jebel-Kenîseh. Zohr-âbul-Hîn.

XXIV.—DROSERACEÆ.

- 106.
- Drosera rotundifolia*
- , L. Meirûbah (Lebanon.)

XXV.—CRASSULACEÆ.

- 107.
- Umbilicus Libanoticus*
- , Labill. Alpine and subalpine Lebanon.

XXVI.—UMBELLIFERÆ.

108. *Eryngium Heldreichii*, Boiss. Top of Hermon.
 109. *Hippomarathrum Boissieri*, Reut. et Haussk. Ma'lulah. 'Aihah.
 110. " *crispum*, Pers. Below Qal'at el Hushn (Nusairy Mountains.)
 111. *Carum elegans*, Fenzl. Alpine Lebanon.
 112. *Bupleurum Libanoticum*, Boiss. et Bl. VAR. *OLIGACTIS*, Post. Ma'lulah.
 113. *Falcaria Rivini*, Host. Coelesyria.
 114. *Pimpinella corymbosa*, Boiss. 'Aihah (Anti-Lebanon.)
 115. " *Tragium*, Vill. Alpine Lebanon and Anti-Lebanon.
 116. *Prangos asperula*, Boiss. Jebel Kenîseh.
 117. *Fœniculum officinale*, L. Nusairy Mountains.
 118. *Ferula Blanchei*, Boiss. Palmyrene Desert.
 119. " *Hermonis*, Boiss. Mountain of 'Ayûn-en-Nasûr.
 120. " *BILASI*, POST. Jebel Bil'âs.
 121. " *BARBEYI*, POST. Jebel Bil'âs.
 122. *Ferulago frigida*, Boiss. Alpine Hermon.
 123. " " VAR. *LAXA* POST. Cedars of Lebanon.
 124. *Peucedanum depauperatum*, Boiss, var. *alpinum*, Boiss. Top of Hermon.
 125. *Jakrenia fungosa*, Boiss. Jebel Bil'âs.
 126. " *juncea*, Boiss. South end of Nusairy Mountains.
 127. *Daucus pulcherrimus*, Willd. Yebrûd (Anti-Lebanon).
 128. *Caucalis leptophylla*, L. Jebel Kenîseh.
 129. *Turgenia latifolia*, Boiss. var. *brachyacantha*, Boiss. Jebel Kenîseh.

XXVII.—CAPRIFOLIACEÆ.

- 130.
- Lonicera nummularifolia*
- , J. et Sp. Rukhleh.

XXVIII.—RUBIACEÆ.

131. *Crucianella ciliata*, Lam. Mountain above el-Weshen.
 132. *Asperula glomerata*, M. B. Top of Hermon.
 133. *Galium Orientale*, Boiss. Top of Jebel Barûk.
 134. " *aureum*, Vis. 'Aihah. Cedars. El-Jebel-el-Abiad.
 135. " *jungermannoides*, Boiss. Jurd 'Aqûrah. Neba'-el-Hadîd.
 136. *Rubia Olivieri*. A. Rich. Wadi Shib'ah.

XXIX.—DIPSACÆ.

137. *Cephalaria stellipilis*, Boiss. 'Aihah.

XXX.—COMPOSITÆ.

138. *Evax Anatolica*, Boiss. et Heldr. Top of Jebel Barûk.
 139. *PHAGNALON LINIFOLIUM*, Post. Qaldûn (Anti-Lebanon.)
 140. *HELICHRYSUM PYGMÆUM*, Post. Base of Harf-Râm-el-Kebsh.
 141. *Postia lanuginosa*, D. C. Mountains south of Qaryetein.
 142. *Achillea odorata*, Koch. Jebel Barûk.
 143. „ *fragrantissima*, Forsk. Deir 'Attyeh to Qaryetein, and eastward.
 144. *Pyrethrum densum*, Labill. Top of Hermon.
 145. „ *tenuilobum*, Boiss. Top of Jebel Barûk.
 146. *Anthemis* sp. „ „
 147. *Senecio doriaeformis*, D. C., var. *megalophron*, Boiss. Mountain above Blûdan.
 148. *Acantholepis Orientalis*, Less. Qaryetein to Palmyra.
 149. *Gundelia Tournefortii*, L. Kentseh.
 150. *Carlina corymbosa*, L., var. *Libanotica*, Boiss. Wadi Meisellûn Jebel Kentseh.
 151. *Gymnarrhena micrantha*, Desf. El-Jebâh to El-Beida.
 152. *COUSINIA WESHENI*, Post. Mountain above El-Weshen.
 153. „ *DAYI*, Post. 'Asâl-el-Ward.
 154. „ *Hermonis*, Boiss. Hermon.
 155. „ *Libanotica*, D. C. Jebel Kentseh.
 156. „ *Pestalozzae*, Boiss. Wadi Meisellûn.
 157. *Chamæpeuce Alpini*, J. et Sp. Jebel-Kentseh.
 158. *Onopordon heteracanthum*, C. A. M. Wadi Meisellûn.
 159. *Jurinea Stæhelinæ*, D. C. Mountain above El-Weshen. Mountain above Blûdan.
 160. *Centaurea axillaris*, Willd. Top of Hermon.
 161. „ *Damascena*, Boiss. Khan Meisellûn.
 162. „ *Postii*, Boiss. Qaryetein.
 163. *Centaurea Balsamita*, Lam. Ma'ûlâh.
 164. *CENTAUREA BALSAMITOIDES*, Post. Between Palmyra and Marbat-'Antar.
 165. *Centaurea onopordifolia*, Boiss. Between 'Aitanith and Jisr-el-Kuwwah.
 166. *PILEOPAPPUS LONGISPINUS*, Post. 'Asâl-el-Ward.
 167. „ *Libanoticus*, Boiss. Alpine and subalpine Hermon.
 168. *Carthamus lanatus*, L. 'Aitanith to Jisr-el-Kuwwah.
 169. „ *glaucus*, M. B. var. *Syriacus*, Boiss. Jebel Barûk.
 170. „ *flavescens*, Willd. Between Palmyra and El-Weshen.
 171. *Chondrilla juncea*, L. Wadi Meisellûn.

172. *Crepis Robertioides*, Boiss. Top of Hermon.
 173. „ *Reuteriana*, Boiss. Var. *alpina*, Boiss. Top of Jebel Barûk.
 174. *Leontodon asperrimum*, Willd. Top of Jebel Barûk.
 175. *Tragopogon buphtalmoides*, Boiss., var. *humile*, Boiss. Top of Jebel Barûk.

XXXI.—CAMPANULACEÆ.

176. *Campanula Cymbalaria*, S. and S. Jurd Ḥaşrûn.
 „ *stricta*, L. Top of Jebel Barûk.
 177. *Podanthum lanceolatum*, Labill. Top of Lebanon and Hermon.

XXXII.—PLUMBAGINACEÆ.

178. *Acantholimon Armenum*, Boiss. et Host. Mountain above Bludân.
 179. „ *Libanoticum*, Boiss. Hermon.
 180. *STATICE PALMYRENSIS*, POST. Salt Marshes, Palmyra.

XXXIII.—OLEACEÆ.

181. *Fraxinus oxyphylla*, M. B. Bludân to Ma'lâlâh.

XXXIV.—APOCYNACEÆ.

182. *Vinca Libanotica*, Zucc. Top of Jebel Barûk and Keniseh.

XXXV.—PRIMULACEÆ.

183. *Androsace multiscapa*, Duby. Zohr-el-Qodîb.

XXXVI.—BORRAGINACEÆ.

184. *Heliotropium Europæum*, L. Mountains south of Qaryetein.
 185. *Heliotropium villosum*, Willd. Barri.
 186. „ *Bovei* Boiss. Palmyra.
 187. *Paracaryum myosotoides*, Labill. Top of Hermon. Jurd Ḥaşrûn.
 188. *Onosma cærulescens*, Boiss. Mountain above Bludân.
 189. *Alkanna Orientalis*, Boiss. Top of Hermon.

XXXVII.—CONVOLVULACEÆ.

190. *Convolvulus pilosellæfolius*, Desr. Qaryetein.
 191. „ *Libanoticus*, Boiss. Top of Jebel Barûk.
 192. *Cuscuta planiflora*, Ten. 'Aîḥah.

XXXVIII.—SOLANACEÆ.

193. *Hyoscyamus albus*, L. var. *desertorum*, Asch. El-Jebâh to el-Beîḍa.

XXXIX.—SCROPHULARIACEÆ.

194. *Verbascum simplex*, Labill. Hills above the Falls of the Barada.
 195. „ *ptychophyllum*, Boiss. 'Aīḥah to Rukhleh.
 196. „ ANTARI, POST. Near Marbat-'Antar.
 197. „ KARYETEINI, POST. Mountains south of Qaryetein.
 198. „ *sinuatum*, L. Aitanith to Jisr-el-Kuwwah. Nusairy Mountains.
 199. *Verbascum Sinaiticum*, Benth. Meisellûn (Anti-Lebanon).
 200. „ Cedreti, Boiss. Jebel 'Ain-en-Nusûr, above Bludân (Anti-Lebanon).
 201. „ *Damascenum*, Boiss. Top of Hermon.
 202. „ PORTERI, POST. Between 'Asâl-el-Ward and Ma'lulah.
 203. *CELSIA GLANDULIFERA*, POST. Marbat-'Antar.
 204. *Linaria Damascena*, Boiss. et Held. Jebel 'Ain-en-Nusûr.
 205. *Scrophularia xanthoglossa*, Boiss. Near 'Aīḥah (Antilebanon).
 206. „ „ *var. decipiens*, Boiss. ? Jebel Barûk.
 207. „ „ *variegata*, M. B. Mountain south of Qaryetein.
 208. „ „ *var. Libanotica*, Boiss. Subalpine Hermon.
 209. *Veronica Orientalis*, Mill. Jebel Barûk.
 210. *Bunaea trifida*, Vahl. Hills south of Qaryetein.

XL.—OROBANCHIACEÆ.

211. *Pelipea ramosa*, L. Palmyrene Desert.

XLI.—LABIATÆ.

212. *Micromeria mollis*, Bth. ? Mountain above el-Weshen. Qaryetein.
 213. *Thymus Syriacus*, Boiss. Marbat-'Antar.
 214. *Zizyphora clinopodoides*, M. B. *var. rigida*, Boiss. Mountain above Bludân.
 215. *Zizyphora clinopodoides*, M. B. *var. canescens*, Boiss. Jebel Barûk.
 216. *Salvia grandiflora*, Ettl. Juweikhât (Nusairy Mountains).
 217. „ *verbascifolia*, Boiss. Jebel Kenfseh.
 218. *Nepeta Cilicica*, Boiss. Qal'at-el-Bizzeh (Lebanon.)
 219. „ *glomerata*, Montb. Top of Hermon.
 220. *Sideritis Libanotica*, Labill. Top of Hermon.
 221. *Sideritis Libanotica*, Labill., *var. incana*, Boiss. (?) Top of Nusairy chain above Fiddârah. Perhaps a new species.
 222. *Sideritis Libanotica*, *var. linearis*, Benth. Near Meisellûn.
 223. *Scutellaria fruticosa*, Desf. Jebel Barûk.
 224. „ *utriculata*, Labill. Subalpine Hermon.
 225. *Stachys Libanotica*, Boiss. Jebel Barûk.
 226. *Eremostachys macrophylla*, Montb. et AUCH. Mountains south of Qaryetein (*Mollucella lanata*, Post.)

227. *Phlomis rigida*, Labill. Jebel Barûk.
 228. „ *brevilabris*, Ehr. Jebel Barûk. Jebel Kenfseh.
 229. „ *Nissolii*, L. 'Atîhah.
 230. „ *chrysophylla*, Boiss. Subalpine Hermon.
 231. *Ballota saxatilis*, Sieb. Jebel Barûk.
 232. „ *ANTILIBANOTICA*, POST. Wadi-es-Şohrîji (Anti-Lebanon).
 233. *Teucrium Creticum*, L. El-Juweikhât (Nusairy Mountains).
 234. „ *Orientalis*, L., var. *nivale*, Boiss. Top of Hermon.
 235. „ *pruinosum*, Boiss. Mountain above El-Weshen. Mountains south of Qaryetein.
 236. *Teucrium procerum*, Boiss. Nusairy Mountains.
 237. „ *Polium*, L. Mountains south of Qaryetein.
 238. *Ajuga Chia*, Poir. Mountains south of Qaryetein.

XLII.—PLANTAGINEÆ.

239. *Plantago carinata*, Schrad. Harf-Râm-el-Kebsh.

XLIII.—SALSOLACEÆ.

240. *Blitum virgatum*, L. Zohr-el-Qoðîb.
 241. *Atriplex Tataricum*, L., var. *virgatum*, Boiss. Qaryetein.
 242. *Atriplex roseum*, L. Palmyra to El-Weshen.
 243. „ *portulacoides*, L. Jebel Bil'âs.
 244. „ *leucocladum*, Boiss. Palmyrene Desert. Qaryetein. Desert.
 245. *Chenolea Arabica*, Boiss. Deir 'Atîyeh to Qaryetein.
 246. *Kochia*, sp. Desert from Qaryetein to Palmyra.
 247. „ *latifolia*, Fres. Deir 'Atîyeh to Qaryetein.
 248. „ *hyssofolia*, Pall. ?? Deir 'Atîyeh to Qaryetein. Mountains east of Qaryetein.
 249. *Kochia monticola*, Boiss. Jurd 'Aqûrah.
 250. *Arthrocnemum glaucum*, Del. Everywhere in the desert. (Arabicé *Ushdn.*)
 251. *Suaeda fruticosa*, L. Hammâm Abu-Rabâh. Qaryetein.
 252. *Salsola inermis*, Forth. Between Palmyra and el-Weshen.
 253. „ *crassa*, M. B. Between Deir 'Atîyeh and Qaryetein.
 254. „ *glaucâ*, M. B. General in deserts.
 255. „ *rigida*, Pall., var. *tenuifolia*, Boiss. General in deserts.
 256. „ *canescens*, Moq. Between el-Jebâh and el-Beîða.
 257. *Halocharis sulphurea*, Bge. Between el-Beîða and Palmyra.
 258. *Halimocnemis pilosa*, Moq. Between el-Beîða and Palmyra.

XLIV.—POLYGONACEÆ.

259. *Atraphaxis Billardieri*, J. et Sp. Qa'at-el-Bizzeh.
 260. „ *spinosa*, L. var. *rotundifolia*, Boiss. Near el-Weshen.
 261. *Oxyria digyna*, L. Zohr-el-Qoðîb.

XLV.—LAURACEÆ.

262. *Daphne olæoides*, L. Alpine Lebanon and Anti-Lebanon.

XLVI.—EUPHORBIACEÆ.

263. *Euphorbia chamæsyce*, L. Barri, at edge of Bil'âs.
 264. „ *lanata*, Sieb. Meisellûn.
 265. „ „ *var. microphylla*, Post. Barri.
 266. „ *erinacea*, Boiss. Alpine Hermon.
 267. „ *falcata*, L. Meisellûn Valley.
 268. „ sp. Near Hamath.
 269. „ *Chesneyi*, Kl. et Gcke. Zohr-Abul-Hin.
 270. „ sp. Palmyra.
 271. *Andrachne telephioides*, L., forma *rotundifolia*. Palmyra.
 272. *Crozophora verbascifolia*, Willd. *var. elata*, Post. Between el Beïda and Palmyra.

XLVII.—URTICACEÆ.

273. *Parietaria Judaica*, L. Mountain above Bludân.

XLVIII.—CUPULIFERÆ.

274. *Quercus Lusitanica*, Lam. *var. latifolia*, Boiss. Near Qal'at el Huşn.

XLIX.—EPHEDRACEÆ.

275. *Ephedra alte*, C. A. M. Between el-Jebâh and el-Beïda.

L.—CONIFERÆ.

276. *Juniperus excelsa*, M. B. Zohr-Abul-Hin.
 277. „ *fœtidissima*, Willd. ?? Afqa.

LI.—LILIACEÆ.

278. *Asphodelina Damascena*, Boiss. Top of Mountain above Bludân.
 279. „ *Taurica*, Pall. Harf-Râm-el-Kebsh.
 280. *Allium* sp. Mountain south of Quarryetein.
 281. „ *paniculatum*, L. ?? Top of Jebel Barûk.
 282. *Fritillaria* ? sp. Top of Hermon.

LII.—JUNCACEÆ.

283. *Juncus pyramidatus*, Loh. Mar Lian, Qaryetein.

LIII.—CYPERACEÆ.

284. *Heleocharis palustris*, L. Jebel 'Ain-en-Nusûr.
 285. *Carex stenophylla*, Wahl, var. *planifolia*, Boiss. Zôhr-el-Qodîb.

LIV.—GRAMINEÆ.

286. *Piptatherum holciforme*, M. B. Cedars.
 287. *Phleum pratense*, L., var. *nodosum*, Boiss. Top of Jebel Barûk.
 288. *Avena* sp. Marbat-'Antar.
 289. *Catabrosa aquatica*, L. Mountain above Bludân.
 290. " " Var. *chionophilus*, Post. By melting snow, Zôhr-el-Qodîb.
 291. *Melica ciliata*, L., var. *Nebrodensis*, Boiss. Alpine Lebanon and Hermon.
 292. *Dactylis glomerata*, L. Hermon.
 293. " " var. *Hispanica*, Boiss. Alpine Lebanon and Anti-Lebanon.
 294. " " var. *juncinella*, Boiss. Jebel 'Ayûn-en-Nusûr.
 295. *Stipa* sp. Mountain south of Qaryetein.
 296. *Agrostis alba*, L. Lebanon.
 297. *Poa diversifolia*, Boiss. et Bal., var. *crassipes*, Hack. Jebel Barûk. "Cedars."
 298. *Poa Sinaica* Steud. El-Beîda to el-Jebâh.
 299. *Bromus variegatus*, M. B. Jebel Kenîseh. Cedars of Lebanon.
 300. " *brachystachys*, Horn. El-Jebâh to el-Beîda.
 301. *Bromus Danthoniæ*, Fri. El-Jebâh to el-Beîda.
 302. *Bromus* sp. El-Bil'âs.
 303. *Vulpia brevis*, Boiss. et Ky. Mountain above el-Weshen.
 304. *Hordeum spontaneum*, P. Koch. Near el-Weshen.
 305. *Agropyrum* sp. Mountain above Bludân.
 306. *Nephelochloa Persica*, Griseb. Jebel Barûk.
 307. *Ægilops ovata*, L. Wadi Shib'ah.

N.B.—Beside the above species collected many others were observed as indicated in the text.

SUMMARY OF BAROMETRICAL OBSERVATIONS, WITH ANNOTATIONS BY PROFESSOR ROBERT H. WEST, M.A.

		Date. 1890.	Barom. at sea level 32°.	Aneroid Reading.	Same Corrected.	Altitude.
1	West end of Jebel Keniseh	July 8th	29.71	23.60	...	6,600
2	Qal'at el-Bizzah	"	29.70	23.70	...	6,485
3	Jebel Bâruk	July 9th	29.69	23.63	...	6,500
4	Ma'asir	"	29.69	23.60	...	6,590
5	Jisr-el-Kuwwah	July 10th	29.73	27.33	...	2,400
6	Hasbeyeh (top of village)	"	29.73	27.15	...	2,550
7	Shib'ah	July 12th	29.79	25.23	...	4,700
8	Mount Hermon	"	29.77	21.10	...	9,700
9	'Aihah	July 14th	29.76	25.13	...	4,860
10	Rukhleh	"	29.75	24.50	...	5,550
11	Deir el-'Ashair	"	29.77	25.00	25.62	4,260
12	Peak at right of Bludân Valley	July 15th	29.75	22.00	22.62	7,865
13	" left "	July 16th	29.70	22.48	22.53	7,900
14	Abul-Hîn	"	29.70	22.30	22.35	8,150
15	Harî Râm-el-Kabsh	"	29.69	22.62	22.67	7,725
16	'Asâl el-Ward	July 17th	29.66	24.67	24.72	5,200
17	Ma'lûla (convent)	"	29.65	25.00	25.05	4,800
18	Yabrûd	"	29.65	25.80	25.85	4,600
19	Deir 'Atiyah	July 18th	29.67	26.30	25.75	4,000
20	Mahin	"	29.68	27.30	26.75	2,950
21	Quryatein	"	29.69	27.60	27.25	2,450
	"	July 22nd	29.59	27.90	27.35	2,385
22	Mount south of Quryatein	July 21st	29.65	25.80	25.25	4,600
23	Ghunjhâr	July 22nd	29.57	27.70	27.15	2,450
24	Hamâm Abu Ribâh	"	29.57	27.55	27.00	2,600
25	Ul Jabâh	"	29.57	24.00	27.45	2,150
26	'Ain-el-Beïda	July 23rd	29.60	28.54	27.99	1,600
27	Palmyra	July 24th	29.64	28.72	28.17	1,500
28	South Peak, Jebel-el-Abiad	July 28th	29.74	25.90	25.35	4,600
29	Fountain of el-Weshen	"	29.74	27.00	26.45	3,375
30	Conical peak at top of pass over Bil'as	July 29th	29.74	26.90	26.35	3,500
31	Barri	July 30th	29.73	28.40	27.85	1,900
32	Salamyah	July 31st	29.74	28.80	28.25	1,500
33	Hamah	"	29.74	29.30	28.75	990
34	Qal'at-el-Musyâf	August 2nd	29.78	28.62	28.07	1,675
35	Mount west of el-Bîreh	"	29.79	26.82	26.27	3,585
36	El-Bîreh	"	29.79	27.60	27.05	2,750
37	Mashta	"	29.79	28.50	27.95	1,850
38	Qal'at ul-Hwan	August 4th	29.76	28.00	27.45	2,325
39	Sîr	August 6th	29.67	27.33	26.78	2,950
40	Zahr-el-Qodhfb	August 7th	29.70	21.38	20.78	10,210
41	Cedars	"	29.71	24.26	23.71	6,440
	"	August 8th	29.74	24.25	23.70	6,425

SUMMARY OF BAROMETRICAL OBSERVATIONS.

NOTES.

Nos. 8, 9 and 10 give results which are evidently too high.

Nos. 11, 12.—The aneroid fell at Rukhleh, after the observation there. It was compared with a mercurial barometer at Bludân, on July 15, and these two observations corrected accordingly. I also re-adjusted the instrument.

Nos. 13-17 are corrected in accordance with the comparison after the readjustment.

Nos. 18-41.—There was manifestly some great change in the adjustment which affected all these readings. Taking the heights of Deir 'Atiyah (No. 19), and the Cedars (41), determined by mercurial barometer, as correct, I have applied throughout a constant correction -0.55 inch, which brings all the observations into fair accordance with previous determinations.

N.B.—In making the reductions from the observations in this series, I have made a rough allowance for temperature by *assuming* a temperature for the upper station. It need scarcely be added that these results cannot be considered as at all exact.

 ANCIENT JERUSALEM.

Acra North, not South of the Temple.

By Major-General Sir CHARLES W. WILSON, K.C.B., F.R.S. &c., R.E.

IN the last *Quarterly Statement* the Rev. W. F. Birch has criticised some views on the topography of ancient Jerusalem which I ventured to put forward last summer; and has charged me with mistranslating Josephus.

I may at once say that, in my opinion, the *data* at present at our disposal are not sufficient to enable us to determine accurately some of the most important points in dispute. By comparing the historical materials with the local indications we can make guesses, more or less accurate, but, until the excavations made by Sir C. Warren are resumed, we cannot be certain. My guesses, the result of many years' study, unfortunately differ from the firm convictions of my critic, and I am sorry to say that, after reading his many admirable papers on the topography of Jerusalem, including the last, I am unable to accept all his conclusions.

To bring forward all the arguments for and against Mr. Birch's identifications would be to write a book, for which I have no leisure; and I can only notice here, and that briefly, some of his criticisms. In the first place, however, I must say a word for Josephus, in whom I am said to confide too readily. Josephus, whatever his faults may be, cer-