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A table of contents for *Journal of the Transactions of the Victoria Institute* can be found here:

[https://biblicalstudies.org.uk/articles\\_jtvi-01.php](https://biblicalstudies.org.uk/articles_jtvi-01.php)

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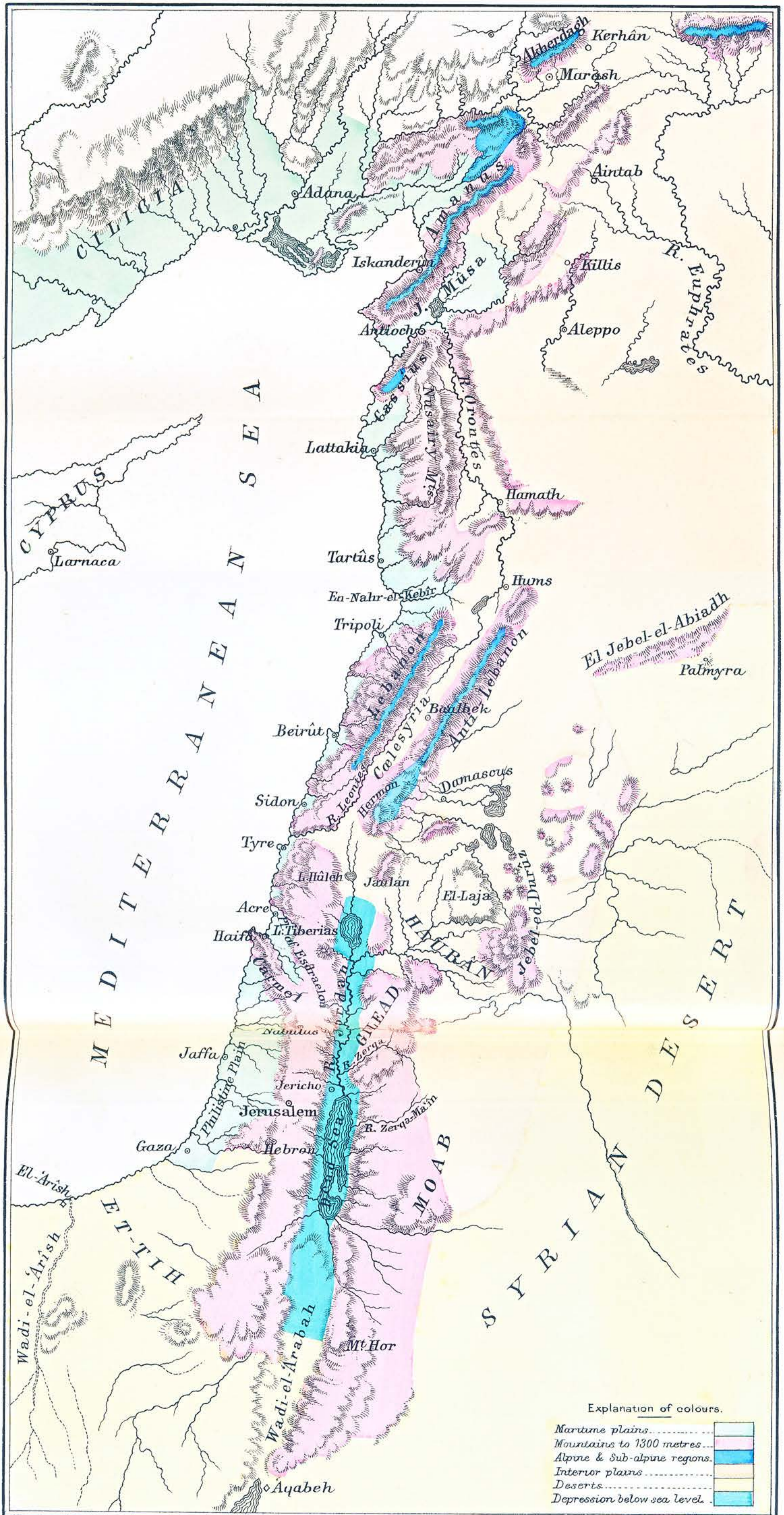
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Explanation of colours.

- Maritime plains.....
- Mountains to 1300 metres.....
- Alpine & sub-alpine regions.....
- Interior plains.....
- Deserts.....
- Depression below sea level.....

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TO ACCOMPANY A PAPER PREPARED BY DR POST FOR THE VICTORIA INSTITUTE.

HON. CORRESPONDING MEMBERS.—Colonel A. R. Clarke, R.E., F.R.S., Redhill; Hon. J. M. Gregory, Ex-President, Illinois University, United States; Professor T. McK. Hughes, F.G.S., Cambridge; Rev. R. Watts, D.D., Belfast.

Also the presentation of the following works to the Library :—

- |   |                          |
|---|--------------------------|
| "Long Ago," by Rev. E. F. Burr, D.D.    | <i>From the Author.</i>  |
| "Jephson," by Rev. H. H. Dobney.        | ,, <i>Rev. H. Simon.</i> |
| "Preces Veterum," by J. F. France, Esq. | ,, <i>the Author.</i>    |

The presentation of the Quarterly Journals of the Royal Society, the Royal Colonial Institute, the Royal Geographical Society, the Royal Institution, the Royal United Service Institution, the Geological Society, and many other Societies with which the Victoria Institute exchanges its Transactions having been duly acknowledged ;—

The following paper was then read by the author :—

*THE BOTANICAL GEOGRAPHY OF SYRIA AND PALESTINE.*—By Rev. GEORGE E. POST, M.D., Professor of Surgery and Diseases of the Eye and Ear, in the Syrian Protestant College at Beirût, Syria.

**T**HE natural boundary of Syria to the north is the range of Akherdagh, with its continuous range Kanlydagh to the east. These ranges rise like a gigantic yellow wall, trending west-south-west, from the thirty-eighth degree of north latitude towards the Gulf of Iskanderûn. The eastern peak, above Kerhân, rises 8,400 ft. above the sea, while the western, above Marash, is only 6,400 ft. high. But, although this range shuts out the view of the mountain systems of Asia Minor from the side of the Syrian table-land, the waters of its southern as well as its northern slope flow into the Pyramus (the Jihân).

A plain two hours (six miles) in breadth separates the western end of Akherdagh from the northern end of Amanus. This range is no longer known by a single name, as in ancient times, but each peak, with its surrounding spurs, bears a

separate name. The range trends south-south-west, about one hundred miles, and ends in the mass of *Jebel Mûsa*, which overhangs the sea at its western extremity, forming the bold headland of *Ras-el-Khanzîr* (the Boar's Head), which constitutes the eastern pillar of the entrance to the Gulf of *Iskanderûn*. The highest peaks of the *Amanus* chain range from 5,600 to 8,000 feet.

Through the valley which separates *Jebel Mûsa* from *Mount Cassius* (*El-Jebel-el-'Aqra*) flows the *Orontes*, which, after its long course to the north, turns sharply to the west-south-west above *Antioch*, and rolls with a swift turbid stream to the sea.

*Mount Cassius* is an isolated cone, 6,500 feet high, but, from its eastern base, a low range runs parallel to the course of the *Orontes* until it abuts against the northern end of the *Nusairy Mountains*.

The *Nusairy* chain trends nearly due south, and, after a course of over 100 miles, ends in the latitude of *Hums* (*Emessa*), in the valley which separates it from *Lebanon*. Through this valley, which is about fifteen miles broad, flows the *Nahr-el-Kebîr* (*Eleutherus*). The highest peaks of the *Nusairy* chain do not much exceed 3,500 feet above the sea.

The chain of *Lebanon* follows in general a south-south-west course, to a point midway between *Sidon* and *Tyre*, where the *Qasimiyah*, the continuation of the *Litâny* (*Leontes*), breaks through the southern spurs of the range and separates them from the hill country of *Galilee*. The length of *Lebanon* is about 120 miles, and its highest peaks range from 6,000 to 10,000 feet above the sea.

The hill country of *Upper Galilee* is a tableland, about 2,500 feet above the sea, from the general level of which rises the peak of *Yermuk* to a height of 3,900 feet. The tableland of *Lower Galilee* is only a few hundred feet above the sea, and the peaks of *Tabor* and *Little Hermon* 1,700 feet.

The valley of *Esdraëlon* separates the plateau of *Galilee* from that of *Samaria*, and the chain of *Carmel*, which bounds it to the south, abuts against the tableland of *Samaria* as that of *Cassius* does against the *Nusairy* chain. The highest point of *Carmel* is 1,728 feet above the sea.

The plateau of *Samaria* and *Judæa* is broken by the few marked peaks of *Ebal*, *Gerizim*, and *Olivet*. The general level is from 2,500 feet to 3,000 feet above the sea. South of *Hebron* this tableland breaks away by successive steps to the *Tih*, which desert plain is intersected by several low ranges of chalk hills, and ends in a gigantic V-shaped

bastion, the escarpment of which overhangs the sandy plain of Debbet-er-Ramleh, which separates it from the range of Sinai.

Thus it will be seen that a series of mountain chains extends from two hours south of Marash to Sinai. The course of this series is, in general, north and south, nearly parallel with the coast. In some places, as at Ras-el-Khanzîr, El-Museiliha (the Cape of the Divine Countenance), the Ladder of Tyre, and Carmel, the mountains dip directly into the sea. In others they recede, leaving a more or less broad alluvial plain, which is known as the littoral. The most noteworthy of these maritime plains are those of Lattakia, 'Akkar, Beirût, Sidon, Acre, and Philistia. There cross this series deep river valleys at Suadiyah, En-Nahr-el-Kebîr, El-Qasimîyeh, and Esdraëlon, dividing it into the before-mentioned separate chains of Amanus, Cassius, and the Nusairy Mountains, Lebanon, and Galilee, with the continuous range of Samaria, Judæa, and the Tîh. The loftiest peaks of the series are in Lebanon, then in Amanus, then in Cassius. The general height of the Nusairy chain is about equal to that of Palestine.

On the eastern flank of this great mountain series is a remarkable cleft, extending from near the northern limits of Syria, a little to the west of Killis, to the head of the Gulf of of 'Aqabah. This cleft is at first a depression in the uplands north of the bend of the Orontes, through which flows a tributary to that stream. Following up the Orontes towards its source, the cleft at first narrows to a deep gorge, then broadens out into a wide plain between the Nusairy chain and that of the low hills which separate it from the Syrian desert. At the latitude of Hums, where the east and west valley of the Nahr-el-Kebîr crosses it, there is no eastern ridge to mark the boundary of the north and south valley, which is here continuous with the plain to the east. This meeting place of the four arms of a great cross is the "Entrance of Hamath" (Num. xxxiv. 8; Josh xiii. 5, &c.).

A few miles south of Hums, however, the cleft becomes a broad elevated valley, Coelesyria, between Lebanon and Antilebanon. As a geographical feature it is much more marked here owing to the great height of the mountain ridges which shut it in on either hand. For, whereas the Nusairy chain rises but 1,000 to 1,500 feet above the valley of the Orontes between Hums and Hamath, and the eastern ridge is only a series of undulations on the plain, Lebanon and Hermon rise from 4,000 to 7,000 feet above Coelesyria, which is, doubtless, the bed of an ancient lake, which may have had two outlets, one by the Orontes to the north and one

by the Leontes to the south. The highest point of Coelesyria is about 3,000 feet above the sea.

At the latitude where the Leontes makes its sudden bend to the west to empty into the Mediterranean, the Hasbâni, the northernmost of the sources of the Jordan, takes its rise, and the strange trough of the Jordan begins. At the Huleh it has reached the level of 120 feet above the sea; at Tiberias it is 600 feet below the Mediterranean; and at the Dead Sea 1,292 feet. From the southern end of the Dead Sea the bottom of the trough rises at first by a cliff 50 to 150 feet high, and then gradually until at a point about forty miles from El 'Aqabah it reaches its greatest height above the sea, and then descends again to the Gulf of 'Aqabah.

The eastern boundary of the great cleft is formed first by the range which bounds the water basin of the Orontes, in the neighbourhood of Killis; then by the low mound-like hills which shut in the valley of the Orontes, until near the latitude of Hums; then by the chain of Anti-lebanon, which is about one hundred miles long, and ends in Hermon, a peak, 9,500 feet in height. Southward of Hermon, a spur sinks gradually to the level of the Jawalân, breaking up, before it reaches its last peak of Tel-el-Faras, into a chain of conical mound-like hills (or tels), which form a striking feature in the view from the high ground of the Leja. From Tel-el-Faras there is a break in the continuity of the mountain system for about thirty miles. Through this gap flow the Mandhûr and its tributaries, draining the plain of Haurân and Jawalân. This plain extends back for forty miles to Jebel-ed-Durûz (Alsadamus, or the Hill of Bashan), a volcanic range about equal in length to the gap between Tel-el-Faras and Jebel 'Ajlûn, and which appears like a segment of the great mountain wall of the Jordan valley, set back forty miles to the east of the backbone of the range. The highest peak of this range is Jebel-Qulêb, 5,400 feet above the sea.

The range of 'Ajlûn and Gilead rises to the south of the valley of the Mandhûr, culminates in the peaks of Er-Rabadh and Hosha', about 4,000 feet above the sea, and then sinks gradually to the level of the western border of the plateau of Moab, 2,800 feet above the sea, and passing southward into the district known as el-Jebel (Mount Seir), culminates again in Mount Hor, 5,000 feet above the sea. This range ends in the Wadi-el-Ithm, opposite the head of the Gulf of 'Aqabah. It is composed of igneous rocks, overlaid by sandstone and limestone, as in Sinai. It is well watered, and in places fertile.

From the northernmost point of the Jebel-ed-Durûz, a range of low tels extends northward to nearly the latitude of Damascus. A similar range extends north-east from Damascus toward Palmyra. Still another bounds the table-lands of Gilead and Moab to the east. The drainage of the eastern flanks of this watershed flows into the Syrian desert, and is lost there. Far away to the east is a range called the Dhohr-el-Barriyah (the Backbone of the Desert), which constitutes the eastern limit of the Syrian wilderness. The waters from its western flank flow into the desert, and are lost there. Its eastern drainage reaches the Euphrates.

These marked peculiarities of the physical geography of the country have caused a diversity of climate, meteorology, and life history quite unexampled in a territory of equal extent.

For botanical research it is convenient to divide Syria and Palestine into ten regions. I. The Littoral. II. The range of Akherdagh. III. Amanus. IV. Cassius. V. The Nusairy Chain. VI. Lebanon and Antilebanon. VII. The Table-lands of Palestine, east and west of the Jordan. VIII. The Trough of the Jordan. IX. The Southern and Eastern Deserts. X. The Central and Northern Plains.

It is furthermore convenient to indicate the following divisions, according to elevation and surface:—I. The Littoral Plain. II. The Mountains from 400 to 4,000 feet. III. Subalpine and Alpine regions. IV. The sunken Trough of the Jordan, Dead Sea, and 'Arabah. V. The Deserts, where rain is rare and capricious. VI. The Plains of the centre and north.

These latter divisions are indicated in the accompanying map by different colours, while the former are indicated by the usual geographical symbols and names.

Before proceeding to note the special peculiarities of the ten regions above indicated, it will be well to examine the general characteristics of the botany of Syria and Palestine. We will note the following points:—

1. *The large Number of Species in Proportion to the Geographical Extent of the Country.*—The work of preparation of the flora, on which the author is now engaged, is not yet sufficiently advanced to give accurately the number of species. They are, certainly, however, not less than 3,000 of phænogamous plants, and Horsetails, Ferns, and Clubmosses,—probably more, in a territory containing about 50,000 square miles. These species are distributed through one hundred and seventeen orders, *none* of which is peculiar to this country. Of the 850 genera represented, *only three*,—*Nasturtiopsis*, *Astoma*, and



*Brocchia*,—are peculiar to our region, and each of these has but a single species.

The large number of species is attributable to the extremely varied surface of the country. The highest mountains attain an elevation of over 10,000 feet, and have an Alpine flora of great variety and interest. The deep trough of the Jordan valley, Dead Sea, and 'Arabah, reaches a depression of 1,292 feet below the Mediterranean, with a climate like that of Nubia and Northern India. About twenty-five species of plants grow in this torrid valley and the wadis which debouche into it, which are not found again until we reach distant regions in more southerly latitudes. The great table-lands east of the parallel chains of mountains stretch half-way to Mesopotamia, and swell, by a large number of species, the wealth of the flora. It is safe to say that no territory of equal extent has such a diversity of surface, climate, and rainfall. On the seaward face of Lebanon the rainfall is from 30 to 50 inches a year, nearly all of it being between December 1 and March 15. On the eastern table-land it is probably little more than half as much. In the desert of the Tih, it sometimes fails entirely, and is always very small. In the wooded districts of the Amanus and Taurus it is distributed over a longer period, and comes in less violent floods.

The considerable number of orders arises from the contact of our district with the floras of the three continents, which causes it to share some of the characteristics of them all, and to deprive it of those salient features which characterise the centrifugal floras of the distant portions of those continents. Thus the flora of Southern Europe overlaps Northern Syria, that of Northern Africa the Tih and adjacent deserts, while the great plains borrow their special botanical physiognomy from the vast regions drained by the Euphrates and Tigris.

Although bounded on the north by a spur of the Taurus, yet such is the direction of the valleys of the Seihûn, the Pyramus, and the Euphrates, that they furnish channels down which the northern flora may be said to pour through the mountains about Aintab and Marash, and along the Amanus chain. No continuous east and west Alpine chain like that of the Pyrenees, or the Caucasus, or the Himalayas opposes an impassable barrier to the species on either side. Still less is there any natural barrier between the great plains of Mesopotamia and the Syrian table-land. The low range of the Dhohr-el-Barriyah is barely a watershed, and in no sense a botanical limit. On the side of Egypt the broad isthmus of Suez gives unrestrained access to the plants of North-Eastern Africa. Hence the desert types of the Tih are to a large

extent the same as those of the Egyptian and northern Arabian desert, while the flora of the Syrian desert is an extension of that of Central and Southern Arabia.

The effect of a nearly, though not quite a continuous chain of mountains, even when they are not all Alpine in height, in limiting the diffusion of a flora, is well exemplified in the case of the great mountain series of Amanus, Cassius, the Nusairy chain, Lebanon, and the mountains of Palestine, which separate the narrow strip of coast from the eastern plains in the north, and the longitudinal trough of the Jordan in the south. The difference between the flora of the littoral plain and lower seaward slopes of the coast range and that of the interior is very striking. On the other hand Coelesyria, although bounded on either hand by lofty mountain ranges, yet, through its continuity northward with the tableland of northern Syria, shares the botanical characteristics of that region. Could we imagine a high range of mountains 100 miles east of the Antilebanon series, and shutting off Western Syria from Akherdagh to the Red Sea, with no broad east and west gaps to favour contact, the flora of the Syrian table-land would probably differ as much from that of Mesopotamia as does that of Afghanistan and Beloochistan. And were there a similar barrier across the Isthmus of Suez, and a continuous east and west chain dividing Syria from Asia Minor, we might, instead of three, have thirty genera peculiar to our district.

2. A notable peculiarity of our region is *the small number of Ferns*, only fourteen genera and but twenty species. A similar peculiarity, arising from the general dryness of the climate, is *the small number of Orchidæ*, only eight genera and thirty species, and the absence of the more showy plants of the order.

3. On the other hand, among the striking peculiarities of the Syrian flora is *the large number of odorous plants* distributed through a considerable number of families, but especially in the Rutaceæ, Compositæ, and Labiatæ.

4. A further peculiarity is *the very great number of thorny and prickly plants*. Examples of these are *Paliurus aculeatus*, Lam., several species of *Rhamnus* and *Zizyphus*, *Calycotome villosa*, Vahl., a host of species of *Astragalus*, *Onobrychis*, several *Acacias*, *Poterium spinosum*, L.,\* the *Eryngiums*,

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\* Hundreds of square miles of the hill country are covered with this shrub, insomuch that a district on the eastern flank of Hermon is called Aqlim-el-Billân (*i.e.*, the district of the *Poterium spinosum*). The bushes

many Compositæ, the Acantholimons, Atraphaxis, and scores of others. So pronounced is this peculiarity that it is a great obstacle to the collector, who is perplexed to know how to deal with the refractory spines of such species as *Balanites Ægyptiaca*, *Del.*, *Astragalus deinacanthus*, *Boiss.*, *Astragalus Hermoneus*, *Boiss.*, *Acacia Seyal*, *Del.*, and a host of others.

Syria and Palestine are abundantly supplied with ubiquists. The appended list includes those which are found everywhere except in the Alpine regions, but especially in the neighbourhood of human habitations and along roadsides. It is merely illustrative but not exhaustive.

<i>Ranunculus muricatus</i> , <i>L.</i>	<i>Erigeron Canadense</i> , <i>L.</i>
<i>Capsella bursa-pastoris</i> , <i>L.</i>	<i>Maruta cotula</i> , <i>L.</i>
<i>Senebiera coronopus</i> , <i>D.C.</i>	<i>Filago Germanica</i> , <i>L.</i>
<i>Sisymbrium officinale</i> , <i>Scop.</i>	<i>Centaurea Cyanus</i> , <i>L.</i>
<i>Sinapis alba</i> , <i>L.</i>	" <i>Calcitrapa</i> , <i>L.</i>
" <i>arvensis</i> , <i>L.</i>	<i>Cichorium Intybus</i> , <i>L.</i>
" <i>nigra</i> , <i>L.</i>	<i>Sonchus oleraceus</i> , <i>L.</i>
<i>Raphanus Raphanistrum</i> , <i>L.</i>	" <i>asper</i> , <i>Vill.</i>
<i>Vaccaria vulgaris</i> , <i>Host.</i>	<i>Anagallis arvensis</i> , <i>L.</i>
<i>Silene inflata</i> , <i>Smith.</i>	<i>Linaria Elatine</i> , <i>Mill.</i>
<i>Stellaria media</i> , <i>L.</i>	<i>Antirrhinum Orontium</i> , <i>L.</i>
<i>Cerastium vulgatum</i> , <i>L.</i>	<i>Veronica arvensis</i> , <i>L.</i>
" <i>viscosum</i> , <i>L.</i>	" <i>agrestis</i> , <i>L.</i>
<i>Sagina apetala</i> , <i>L.</i>	" <i>Buxbaumii</i> , <i>Ten.</i>
<i>Spergularia rubra</i> , <i>Pers.</i>	" <i>hederæfolia</i> , <i>L.</i>
<i>Spergula arvensis</i> , <i>L.</i>	<i>Verbena officinalis</i> , <i>L.</i>
<i>Portulaca oleracea</i> , <i>L.</i>	<i>Brunella vulgaris</i> , <i>L.</i>
<i>Malva rotundifolia</i> , <i>L.</i>	<i>Marrubium vulgare</i> , <i>L.</i>
" <i>sylvestris</i> , <i>L.</i>	<i>Lamium amplexicaule</i> , <i>L.</i>
<i>Geranium Robertianum</i> , <i>L.</i>	" <i>purpureum</i> , <i>L.</i>
<i>Erodium cicutarium</i> , <i>L'Her</i>	<i>Ballota nigra</i> , <i>L.</i>
<i>Trifolium procumbens</i> , <i>L.</i>	<i>Lithospermum arvense</i> , <i>L.</i>
" <i>agrarium</i> , <i>L.</i>	<i>Heliotropium Europæum</i> , <i>L.</i>
<i>Melilotus parviflora</i> , <i>Desf.</i>	<i>Solanum nigrum</i> , <i>L.</i>
<i>Medicago sativa</i> , <i>L.</i>	" <i>Dulcamara</i> , <i>L.</i>
" <i>denticulata</i> , <i>Willd.</i>	<i>Datura stramonium</i> , <i>L.</i>
" <i>coronata</i> , <i>Lam.</i> , and others of this genus.	<i>Erythraea ramosissima</i> , <i>Pers.</i>
<i>Vicia sativa</i> , <i>L.</i> , extensively cul- tivated as a fodder plant under the name of Baqiah.	" <i>spicata</i> , <i>Pers.</i>
<i>Conium maculatum</i> , <i>L.</i>	<i>Chenopodium murale</i> , <i>L.</i>
<i>Asperula arvensis</i> , <i>L.</i>	" <i>album</i> , <i>L.</i>
<i>Sherardia arvensis</i> , <i>L.</i>	" <i>opulifolium</i> , <i>L.</i>
<i>Galium aparine</i> , <i>L.</i>	" <i>ambrosioides</i> , <i>L.</i>
<i>Rubia tinctoria</i> , <i>L.</i>	<i>Amarantus hypochondriacus</i> , <i>L.</i>
	" <i>retroflexus</i> , <i>L.</i>
	" <i>chlorostachys</i> , <i>Willd.</i>
	<i>Polygonum Persicaria</i> , <i>L.</i>

are a regular source of fuel for use in the public ovens and limekilns. Stacks of it are collected in the neighbourhood of a kiln, often scattered over a space of half a mile square, and form a remarkable feature in the landscape.

<i>Polygonum Hydropiper</i> , <i>L.</i>	<i>Cynodon dactylon</i> , <i>Pers.</i>
" <i>aviculare</i> , <i>L.</i>	<i>Poa annua</i> , <i>L.</i>
<i>Rumex crispus</i> , <i>L.</i>	" <i>trivialis</i> , <i>L.</i>
" <i>obtusifolius</i> , <i>L.</i>	<i>Eragrostis poaeoides</i> , <i>Beauv.</i>
" <i>conglomeratus</i> , <i>Murr.</i>	<i>Briza maxima</i> , <i>L.</i>
" <i>acetosella</i> , <i>L.</i>	" <i>minima</i> , <i>L.</i>
<i>Mercurialis annuus</i> , <i>L.</i>	<i>Festuca ovina</i> , <i>L.</i>
<i>Urtica urens</i> , <i>L.</i>	<i>Bromus mollis</i> , <i>L.</i>
<i>Salix alba</i> , <i>L.</i>	" <i>sterilis</i> , <i>L.</i>
<i>Lemna minor</i> , <i>L.</i>	<i>Lolium perenne</i> , <i>L.</i>
<i>Alisma plantago</i> , <i>L.</i>	" <i>temulentum</i> , <i>L.</i>
<i>Juncus bufonius</i> , <i>L.</i>	<i>Phalaris Canariensis</i> , <i>L.</i>
<i>Cyperus flavescens</i> , <i>L.</i>	<i>Panicum sanguinale</i> , <i>L.</i>
" <i>rotundus</i> , <i>L.</i>	<i>Setaria verticillata</i> , <i>Beauv.</i>
<i>Scirpus maritimus</i> , <i>L.</i>	" <i>glauca</i> , <i>Beauv.</i>
<i>Polypogon Monspelienis</i> , <i>Desf.</i>	" <i>viridis</i> , <i>Beauv.</i>
<i>Agrostis alba</i> , <i>L.</i>	

With these remarks on the general botany of Syria and Palestine, we will proceed to the consideration of each of the ten regions above indicated.

I. *The Littoral*.—This narrow strip of plain is 400 miles long, by a breadth varying from zero to fifteen or twenty miles. It commences in the plain of Issus at the head of the Gulf of Iskanderûn, which is continuous with the Cilician Littoral. As we pass southward the Plain of Issus narrows from about ten miles at Tchâi Kôï to a sheer precipice overhanging the sea at the famous "Syrian Gates," by the so-called Qal'at Markes (in Turkish, Kislarkalessi). After widening into the small plain of Iskanderûn, it again ends where sea and mountain touch at the bold headland of Ras-el-Khanzîr. It reappears at the mouth of the Orontes, and vanishes where the steep sides of Cassius plunge into the sea. Twenty miles north of Lattakia begins a plain, varying from twenty miles in breadth to one, and ending in the Museilihah (Theoprosopon, or the Cape of the Divine Countenance), a bold headland which juts into the sea north of Batrûn (Botrys). For twenty-five miles south from this headland Lebanon approaches quite close to the sea, and does not recede so as to form a broad plain again until a couple of miles south of the Dog River, at the pumping station of the Beirût Water Works Company. The plain of Beirût is about four miles wide at its broadest part, and extends about six miles southward to the Ghadîr, where it becomes reduced to a narrow strip or a mere beach, until an hour north of Sidon. The plain of Sidon is narrower than that of Beirût. From its southern end to Tyre the strip of coast is again very narrow, and ends in the Ladder of Tyre and other precipitous breaks of the mountains into the sea. Then comes the broad plain

of Acre, extending inland into the plain of Esdraëlon, and ending at the south in the headland of Mount Carmel. From Carmel the Philistine plain broadens as it goes southward, until it is merged in the rolling dunes of the Northern Tih.

The Museiliah divides this littoral region into two botanical districts. South of it flourish the palm, the banana, and the sugar-cane. They grow north of this cape, but do not thrive so well as to the southward. The plants of the littoral resemble those of the coasts of the eastern Mediterranean, far more than do the plants of the mountains those of the mountainous regions of Asia Minor, Greece, and Italy. The following list illustrates, but by no means exhausts, the resemblances :—

<i>Clematis Flammula</i> , L.	<i>Medicago littoralis</i> , Rohde.
" <i>vitalba</i> , L.	<i>Lotus ornithopodoides</i> , L.
<i>Anemone Coronaria</i> , L.	<i>Lathyrus Aphaca</i> , L.
<i>Papaver Rhœas</i> , L.	<i>Ceratonia Siliqua</i> , L.
<i>Hypecoum procumbens</i> , L.	<i>Ammi majus</i> , L.
"    "    var. <i>grandiflorum</i> .	<i>Scandix Pecten-Veneris</i> , L.
<i>Silene Gallica</i> , L.	<i>Ambrosia maritima</i> , L.
" <i>nocturna</i> , L.	<i>Diotis maritima</i> , L.
" <i>bipartita</i> , Desf.	<i>Erythraea maritima</i> , Willd.
" <i>sedoides</i> , Jacq.	<i>Ipomœa littoralis</i> , L.
<i>Alsine tenuifolia</i> , L.	" <i>sagittata</i> , Desf.
<i>Paronychia argentea</i> , Lam.	<i>Anchusa aggregata</i> , Lehm.
<i>Hypericum perforatum</i> , L.	<i>Linaria lanigera</i> , Desf.
<i>Linum Gallicum</i> , L.	<i>Tragus racemosus</i> , L.

Many of the plants of this region grow also in the lower ranges of mountains, especially the maritime chain.

A few species have as yet not been found except in this district. They are :—

<i>Matthiola crassifolia</i> , Boiss. et Gaill.	<i>Campanula sulphurea</i> , Boiss.
<i>Tamarix Syriaca</i> , Boiss.	" <i>Sidoniensis</i> , Boiss. et Bl.
<i>Silene Palæstina</i> , Boiss.	<i>Nonnea Philistæa</i> , Boiss.
<i>Trigonella cylindracea</i> , Desf.	<i>Verbascum Berytheum</i> , Boiss.
<i>Trifolium comosum</i> , Labill.	[ <i>V. Blancheanum</i> , Boiss., is to be regarded as a variety of this species.]
<i>Tetragonolobus Palæstinus</i> , Boiss.	<i>Euphorbia Berythea</i> , Boiss.
[This species I think to be only a variety of <i>T. purpureus</i> , L.]	<i>Allium papillare</i> , Boiss.
<i>Astragalus Berytheus</i> , Boiss. et M.	<i>Scleropoa Philistæa</i> , Boiss.
<i>Vicia galeata</i> , Boiss.	
<i>Onopordon cynarocephalum</i> , Boiss. et Bl.	
<i>Anthemis Tripolitana</i> , Boiss. et Bl.	[A few species peculiar to this region may have been overlooked in the foregoing list.]
<i>Centaurea araneosa</i> , Boiss.	

The most abundant and showy of the wild flowers of this region are :—*Anemone coronaria*, L., with scarlet, blue,

lilac, and occasionally whitish flowers,—this plant flowers from December to April; *Ranunculus Asiaticus*, *L.*, with crimson, yellow, and white blossoms, often three or four inches broad,—it flowers in March and April; *Papaver Rhœas*, *L.*, var. *Syriacum*, *Boiss.*, with brilliant crimson flowers as large as the last, with a deep blackish spot at the base of the petals,—it flowers from March to May, and often covers a sandy field with a mass of gorgeous colour; *Silene Atocion*, *Murr.*, with pretty pink flowers, often growing in large quantities, so as to colour a considerable area,—it flowers from February to May; *Chrysanthemum segetum*, *L.*, and *C. coronarium*, *L.*, with their showy yellow flowers, opening in April and May; *Specularia Speculum*, *L.*, with blue flowers, opening from March to May; *Gladiolus segetum*, *L.* and *G. Illyricus*, *Koch*, with bright pink blossoms, growing in spring time among the wheat; *Iris sisyrinchium*, *L.*, with blue flowers; *Asphodelus microcarpus*, *Vis.*, with inch-broad white flowers in showy panicles. All of these species are found in considerable abundance in the lower mountain ranges, especially the maritime chain.

Of native trees there are very few, principally *Pistacia Terebinthus*, *L.*, var. *Palæstina* (*P. Palæstina*, *Boiss.*); *Ficus sycomorus*, *L.*; *Alnus Orientalis*; *Salix alba*, *L.*; and *Salix fragilis*, *L.*

Large groves of mulberries, olives, figs, palms, and pines (*Pinus pinea*, *L.*) are planted at various points along the coast.

The most characteristic shrubs are *Calycotome villosa*, *L.*, with bright yellow flowers, in blossom from December to May; *Rhamnus Palæstina*, *Boiss.*; *Lonicera Etrusca*, *L.*; *Tamarix Pallasii*, *Vill.*; *Elæagnus hortensis*, *M.B.*; *Ephedra campylopoda*, *C.A.M.*; *Smilax aspera*, *L.*, var. *Mauretunica*, *Boiss.*; and of the larger grasses *Arundo Dorax*, *L.*; *Saccharum Ægyptiacum*, *W.*; all of which are found also in the lower mountains.

II. *The Range of Akherdagh.*—The most convenient point of access to this mountain from the south is Marash, a city of 30,000 people, situated in the lap of the mountain, about 2,500 feet above the sea. The Christian population of this town numbers about 10,000, of whom about 3,000 are Protestants. Around the base and on the lower slopes of Akherdagh are found *Delphinium sulphureum*, *Boiss.* et *Haussk.*; *Amygdalus Orientalis*, *Ait.*; *Echinophora Sibthorpii*, *Guss.*; *Euphorbia denticulata*, *Lam.*; *Rhamnus petiolaris*, *Boiss.*; *Convolvulus Germanicæ*, *Boiss. et Haussk.*; *Verbascum Germanicæ*, *Haussk.*; *Mespilus Germanica*, *L.*;

and other plants, either peculiar to this range, or indicating the transition to the flora of the Taurus.

As one rises on the shingly side of the mountain, and penetrates its mass through a broad valley channelled out of its southern flank, he meets with *Jasminum fruticans*, *L.*; *Nepeta leptantha*, *Boiss. et Haussknecht*; *Stachys Cretica*, *S. et Sm.*; *Cephalaria stellipilis*, *Boiss.* (common also in Lebanon); *Ferulago Blancheana*, *Post* (a fine species thus far not elsewhere found, 6 feet high, and with a panicle 18 inches long); *Cirsium Cataonicum*, *Boiss. et Haussk.* (not elsewhere found); *C. Afrum*, *Jacq.*; *Jurinea ramulosa*, *Boiss. et Haussk.*; *Centaurea Cataonica*, *Boiss. et Haussk.*; *Buplevrum Kurdicum*, *Boiss.*

As one rises to the higher regions of this mountain he unfolds a vast prospect to the southward, taking in the northern portion of the Amanus chain, the hill country toward Aintab, and that around the head of the Gulf of Iskanderûn, and the distant Cilician Taurus. Half-way up the mountain side, a few miles west of the road through the clove, are some scattered cedars of Lebanon, sadly lopped, and almost killed. A little before reaching the summit, in a meadow, 6,000 feet above the sea, inundated by winter rains and melting spring snows, I found *Heliotropium supinum*, *L.*, a great elevation for this species. A little higher up, *Astragalus stromatodes*, *Bunge*; *A. Kurdicus*, *Boiss.*; *Prangos Platyclæna*, *Boiss. et Haussk.*; *Cachrys goniocarpa*, *Boiss.*; *Cousinia foliosa*, *Boiss. et Haussk.* (peculiar); *Acantholimon Armenum*, *Boiss. et Huet.* Few or none of them found on the ranges to the south.

As the traveller rises to the summit of Akherdagh, a truly wonderful prospect stretches away to the north. Opposite is the towering cone of Berytdagh, the mountain on which is the town of Zeitûn, and beyond it range after range of the Taurus rolls away to the north like gigantic waves, a sea of mountains extending half across Asia Minor.

The summit of Akherdagh is so bare and dome-like, and has so few inequalities, that the wind sweeps it almost bare of snow, and the exposed drifts, notwithstanding an altitude (8,400 feet) at which they remain throughout the year on Lebanon, melt early in the summer. The shingly soil supports few plants, and a botanist must supplement the relatively scanty scientific reward of his exertions by the wonderful landscape which he has unveiled. The flora has been studied principally by Haussknecht, Boissier, and the author, whose results are embodied in the forthcoming flora of Syria. While the flora of the base and lower slopes of Akherdagh is exceedingly

rich, and exceptionally interesting as transitional from the northern plains to the system of the Taurus, that of the sub-Alpine and Alpine regions is meagre in comparison with that of Lebanon and Antilebanon.

Opposite Akherdagh, to the southward, and separated from it by the valley of the Ak-Su, is a low range known as Kapu-Cham Dagh. This range is wooded, principally with *Pinus Halepensis*, *Mill.*, from the Turkish word for which the range takes its name. In one of the ravines at the western foot of this range I discovered *Johrenia Porteri*, *Post*, with elliptical segments to the pinnatipartite leaves, and in a meadow near by collected *Ankyropetalum gypsophiloides*, *Fenzl*.

III. *The Range of Amanus* is a highly picturesque and beautiful mountain chain, chiefly characterised by the feature, almost unique for Syria, of extensive forests covering a large part of the mountain sides almost to the Alpine region. Most of the mountain peaks of this range are from 4,000 feet to 5,600 feet high. Only three,—Durbindagh, Banderasdagh, and Ziaretdagh,—are over 7,000 feet high. The writer has ascended only the latter, which is the northernmost of the range. The Amanus is cleft from north to south by the valley of the Dalé-Su, an affluent of the Ak-Su. After crossing the pass, 5,400 feet high, at Khotsch-Bel, the traveller descends the valley of the Durdikan-Su, which completes the longitudinal fissure of the range as far as Hassan Beyley, below which the range is single until its termination in Ras-el-Khanzîr and Jebel-Musa.

The forests of this range are composed mainly of *Pinus Halepensis*, *Mill.*; *Juniperus excelsa*, *M. B.*; *J. drupacea*, *Labill*; *Celtis Australis*, *L.*; *Quercus Cerris*, *L.*; *Q. coccifera*, *L.*; *Q. Libani*, *Oliv.*; *Q. Ægilops*, *L.*; *Q. Lusitanica*, *Lam.*; *Fraxinus excelsior*, *L.*; *Fagus sylvatica*, *L.*; *Corylus avellana*, *L.* (not before noted); *Carpinus Duinensis*, *Scop.*; *Cornus mas.*, *L.*; *Abies Cilicica*, *Ant. et K.* (new for Syria); *Taxus baccata*, *L.* (new for Syria); *Cupressus sempervirens*, *L.*; *Ostrya carpinifolia*, *Scop.*; *Salix alba*, *L.*; *S. fragilis*, *L.*; *Cedrus Libani*, *L.* The author noted large numbers of this noble tree (new for Amanus), from the latitude of Hassan Beyley, where one young tree was seen, to the northernmost peaks of the range, always at an elevation of not less than 4,000 feet. In some places, as Buyuk Hodhu, there are clumps and groves of them. On almost all these trees, and on many shrubs, there is a most extraordinary number and variety of galls. A specialist in this line of study would find much more to reward him in this range than in all the rest of Syria together.



Among the noteworthy plants of this region are :—

*Alyssum samariferum*, *Boiss. et Haussk.*, with large orbicular fruits, abundant in the central parts of the range; *Nigella Orientalis*, *L.*; *Euonymus latifolius*, *Scop.*; *Cytisus drepanolobus*, *Boiss.*; *Dorycnium Kotschyi*, *Boiss. et Reut.*; *D. Haussknechtii*, *Boiss.*; *Colutea arborescens*, *L.*; *Glycyrrhizopsis flavescens*, *Boiss.*; *Astragalus Amanus*, *Boiss.*; *A. ambiguus*, *Ky.*; *Vicia Cassubica*, *L.*; *Sanicula Europæa*, *L.*; *Heracleum Amanum*, *Boiss. et Ky.*; *Lactuca seticuspis*, *Boiss.*; *Cionura erecta*, *L.*; *Acantholimon laxiflorum*, *Boiss.*; *Loranthus Europæus*, *L.*; *Linaria Dalmatica*, *L.*

The following species are peculiar to this chain, and are, as will be seen, several of them new to science :—

*Silene Porteri*, *Post*; *Hypericum Doddsii*, *Post*; *H. Amanum*, *Boiss.*; *Æthionema spicatum*, *Post*; *Chærophyllum oligocarpum*, *Post*; *Ferulago Amani*, *Post*; *Scaligeria capillifolia*, *Post*; *Galium Tolosianum*, *Boiss. et Ky.*; *Ptosimopappus bracteatus*, *Boiss.*; *Centaurea arifolia*, *Boiss.*; *C. foliosa*, *Boiss. et Ky.*; *Verbascum Amanum*, *Boiss.*

It is quite probable that most or all of the species heretofore regarded as peculiar to Cassius will be found in Amanus, when it shall have been as well explored. The subalpine regions of Amanus are limited to the tops of the lower mountains, and the flanks of the three alpine summits alluded to above. They are wooded, especially on the sheltered eastern flanks of the mountains. Among their characteristic, although not peculiar, plants are :—

*Papaver Caucasianum*, *M.B.*; *Paronychia capitata*, *Koch.*; *Orobis grandiflorus*, *Boiss.*; *Galium Orientale*, *Boiss.*; *Scrophularia variegata*, *M.B.*; *Veronica Orientalis*, *Mill.*; *V. polifolia*, *Bth.*; *V. cinerea*, *Boiss. et Bal.*; *Salvia verbascifolia*, *M.B.*; *Scutellaria diffusa*, *Bth.*; *S. salviæfolia*, *Bth.*; *Marrubium faucidens*, *Boiss. et Bal.*; *Phlomis Armeniaca*, *Willd.*; *Asphodeline Taurica*, *Pall.*; *Allium calyptrotum*, *Boiss.*; *A. Cilicicum*, *Boiss.*; *A. Cassium*, *Boiss.*

The alpine peaks of Amanus are isolated cones with a small area, and steep,—often precipitous,—sides, on which little snow collects, and where it soon melts from its small bulk and complete exposure, leaving the naked rock with no source of moisture except the clouds. It results from this that the alpine flora of Amanus is far poorer than that of Lebanon, and mainly confined to low species growing in clefts of the rock.

IV. *Mount Cassius* is a naked limestone cone, rising about 4,000 feet above the wooded hills, which cover about 100 square miles to the south and north-east of its base. The most convenient point for the ascent of the cone is from Kessab, a large village containing an Armenian and a Protestant community. This village is about 2,600 feet above the sea. It is remarkable for the size and number of its walnut trees. In rising above the town one encounters such plants as *Alyssum Szowitzianum*, *F.* and *M.*; *Teucrium*

*Chamædryas*, *L.*; and other plants, growing on dry thin soil or in clefts of rocks. At 4,000 feet, on the patches of rich earth, are quantities of *Ferula meifolia*, *Fenzl.*, with ovate root-leaves a foot or eighteen inches long, dissected into innumerable setaceous divisions, and stem-leaves expanding at base into a horn-shaped sheath, which will often hold half a gill of water. The panicle of this species is a foot or eighteen inches long, with shiny golden flowers. It is one of the most striking field-plants of Syria. Higher up are a few scattered stunted trees of *Ostrya carpinifolia*, *Scop.*, and *Acer Monspessulanum*, *L.*, which constitute almost the sole arboretum of the cone. Of herbaceous plants, *Allium Cassium*, *Boiss.*; *Galium Orientale*, *Boiss.*; *Thymus Serpyllum*, *L.*; *Alsine juniperina*, *Fenzl.*; *Paronychia capitata*, *Koch.*; *Alyssum alpestre*, *L.*; *Anoplanthus coccineus*, *Marsch.*, may serve as specimens. At the very summit I found *Viola modesta*, *Fenzl.* On the whole, the botanical output of the cone is meagre; but the view is surpassingly grand, taking in the southern portion of the Amanus to the north, the whole range of the Nusairy mountains, including the wooded region lying between, and all northern Lebanon, and the Phœnician coast as far south as the Museilihah. In clear weather the mountains of Cyprus and the Taurus are also visible.

The wooded region of Cassius is so varied in surface and exposure that it is admirably adapted for the development of a rich and interesting flora. The most common trees are the same as those which constitute the forests of the Amanus, with the exception of the cedars, hemlocks, and beech. The following list of plants, many of them thus far found only in the woods of Cassius, but probably common also to the far less known Amanus, will show the botanical interest of this region:—

*Carpoceras oxyceras*, *Boiss.*  
*Fumana oligosperma*, *Boiss. et Ky.*  
*Silene Cassia*, *Boiss.*  
*Hypericum Cassium*, *Boiss.*  
*Trifolium Cassium*, *Boiss.*  
*Arenaria Cassia*, *Boiss.*

*Haplophyllum sylvaticum*, *Boiss.*  
*Glycyrrhizopsis flavescens*, *Boiss.*  
*Pyrethrum Cassium*, *Boiss.*  
*Celsia pinetorum*, *Boiss.*  
*Onosma Cassium*, *Boiss.*

Besides these local species the woods and glades of Cassius abound in *Helleborus vesicarius*, *Auch.*, a species with globular capsules two inches in diameter; *Pæonia corallina*, *Retz.*, a very showy species with flowers three or four inches broad; *Hypericum scabrum*, *L.*, and *H. hyssopifolium*, *Vill.*, with showy corymbs and panicles; *Pelargonium Endlicherianum*, *Fenzl.*, with purplish showy flowers; *Dictamnus Fraxinella*,

*Pers.*, with foliage of strong rutaceous odour, and a handsome raceme of lilac flowers; *Rhamnus Kurdica*, *Boiss.*, with edible berries as large as large currants; *Ferulago Cassia*, *Boiss.*; *Fontanesia phillyreoides*, *Labill.*, a shrub from four to ten feet high, with the aspect of a myrtle, but the key fruits of the ash family, and of which Cassius is the extreme southern habitat; *Heliotropium rotundifolium*, *Lieb.*; *Linaria genistifolia*, *L.*; *Origanum lævigatum*, *Boiss.*; *Orobanche Anatolica*, *Boiss. et Reut.*; *Sternbergia Fischeriana*, *Herb. Amar.*; *Notochlæna Marantæ*, *L.*

In the southern part of these woods is the farthest northern limit of *Fragaria vesca*, *L.* The transition from the flora of Cassius to that of Lebanon is striking, and as the flora of the Nusairy chain, as far as explored, closely resembles that of the lower regions of Lebanon, Mount Cassius constitutes a somewhat marked botanical centre, with its affinities in the direction of the northern rather than the southern chain.

The following is a somewhat incomplete list of the plants collected by the author during two journeys to the regions of Northern Syria, the first in June, covering the territory from Lattakia to Mount Cassius, Antioch, and along Amanus to Beilân; and the second in September from Beilân along Amanus to Marash and Akherdagh. It also includes a large number of plants collected by correspondents of the writer during the spring and early summer months. A considerable number of these species have not been heretofore noted in Northern Syria.

- Clematis cirrhosa*, *L.*, Marash.
- „ *vitalba*, *L.*, Marash, Amanus.
- Thalictrum minus*, *L.*, Amanus.
- Anemone blanda*, *Schott et Ky.*, Marash, Amanus.
- Adonis autumnalis*, *L.*
- „ *æstivalis*, *L.*, var. *squarrosa*, Marash.
- Ranunculus Sprunerianus*, *Boiss.*, Marash.
- „ *Damascenus*, *Boiss.*, Aintâb.
- „ *Cassius*, *Boiss.*, Kessab.
- „ *muricatus*, *L.*, common everywhere.
- Ceratocephalus falcatus*, *Pers.*, Marash.
- Helleborus vesicarius*, *Auch.*, Marash.
- Nigella stellaris*, *Boiss.*, Marash.
- „ *ciliaris*, *D.C.*, Marash.
- Delphinium axilliflorum*, *D.C.*, Marash.
- „ *sulphureum*, *Boiss. et Haussk.*, Marash.
- „ *Ithaburensis*, *Boiss.*, Amanus.
- „ *peregrinum*, *L.*, var. *laxum*, *Post.*
- Pæonia corallina*, *Retz*, Beilân.
- Leontice leontopetalum*, *L.*, Aintâb.
- Bongardia chrysogonum*, *L.*, Aintâb.
- Rœmeria hybrida*, *L.*, Amanus, Aintâb.
- Papaver Caucasianum*, *M.B.*, Amanus, Akherdagh.

- Papaver somniferum*, *L.*, Aintáb.  
 " *rheas*, *L.*, general.  
*Glaucium luteum*, *Scop.*, Coast near Alexandretta.  
 " *Aleppicum*, *Boiss.*, Aintáb.  
*Fumaria officinalis*, *L.*, Marash.  
 " *parviflora*, *Lam.*, Marash.  
 " *Anatolica*, *Boiss.*, Aintáb.  
*Corydalis solida*, *Sm.*, Marash, Aintáb.  
*Matthiola bicornis*, *L.*  
 " " var. *pumilis*, *Boiss.*, Marash.  
 " " var. *brevicornis*, *Boiss.*, Marash.  
*Arabis Turrita*, *L.*, Amanus.  
 " *Aucheri*, *Boiss.*, Marash.  
*Nasturtium officinale*, *R. Br.*, common.  
*Fibigia clypeata*, *L.*, Akherdagh.  
*Alyssum* sp., Marash.  
 " *argenteum*, *With.*, Beilán.  
 " *crenulatum*, *Boiss.*, Cassius, Amanus.  
 " *samariferum*, *Boiss. et Haussk.*, Amanus.  
 " *montanum*, *L.*, Amanus.  
 " *eriphyllum*, *Boiss. et Haussk.*, Akherdagh.  
 " *Szowitzianum*, *F. et M.*, Cassius.  
 " *Cassium*, *Boiss.*, Kessáb.  
 " *constellatum*, *Boiss.*, Amanus.  
 " *alpestre*, *L.*, var. *genuinum*, *Boiss.*, Marash.  
 " *præcox*, *Boiss.*, Beilán.  
 " *strictum*, *Willd.*, Marash.  
 " *campestre*, *L.*, var. *longipilosum*, *Post*, Marash.  
*Erophila minima*, *C. A. M.*, Marash.  
*Hesperis matronalis*, *L.*, var. *runcinata*, *Boiss.*, Amanus.  
 " *Aintábica*, *Post*, Aintáb.  
*Sisymbrium Pannonicum*, *L.*, Aintáb.  
 " *Sophia*, *L.*, Aintáb.  
*Erysimum verrucosum*, *Boiss.*, Marash.  
 " *scabrum*, *D.C.*, Marash.  
*Conringia clavata*, *Boiss.*, Aintáb.  
*Brassica* (*Hirschfeldia*) *adpressa*, *Manch.*, Marash.  
*Sinapis arvensis*, *L.*, var. *orientalis*, *Boiss.*, common.  
*Diplotaxis tenuifolia*, *L.*, var. *integrifolia*, *Boiss.*, Antioch.  
*Lepidium Chalepense*, *L.*, Marash.  
 " *graminifolium*, *L.*, Antioch.  
*Aethionema longistylum*, *Post*, Amanus.  
 " *coridifolium*, *D.C.*, Beilán.  
 " *spicatum*, *Post*, Amanus.  
 " *cristatum*, *D.C.*, Aintáb.  
 " *Buxbaumii*, *Fisch.*, Aintáb, Marash.  
*Clypeola Jonthlaspi*, *L.*, Aintáb.  
*Thlaspi perfoliatum*, *L.*, var. *stylatum*, *Post*, Kessab.  
*Carpoceras oxyceras*, *Boiss.*, Cassius.  
*Peltaria angustifolia*, *D.C.*, var. *grandiflora*, *Post*, Marash.  
*Iberis Taurica*, *D.C.*, Cassius.  
*Isatis Aucheri*, *Boiss.*, Marash.  
 " *hispida*, *Post*, Akherdagh.  
*Crambe orientalis*, *L.*, Aintáb.  
*Neslia paniculata*, *L.*, Aintáb.  
*Erucaria Aleppica*, *Gaertn.*, Aintáb.

- Ochthodium Ægyptiacum*, *L.*, Marash.  
*Raphanus sativus*, *L.*, Aintâb.  
*Capparis spinosa*, *L.*, var. *genuina*, *Boiss.*, Marash.  
*Reseda lutea*, *L.*, Marash.  
   "  "  var. *nutans*, *Boiss.*, Marash.  
   "  *luteola*, *L.*, Beilân.  
*Helianthemum salicifolium*, *L.*, Aintâb.  
   "  *Kotschyanum*, *Boiss.*, Marash.  
*Fumana Arabica*, *L.*, Marash, Aintâb.  
   "  *glutinosa*, *L.*, var. *viridis*, *Boiss.*, Kessab, Antioch.  
   "  *oligosperma*, *Boiss.*, Cassius.  
*Viola odorata*, *L.*, Kessab.  
   "  *occulta*, *L.*, Kessab.  
   "  *modesta*, *Fenzl.*, Summit of Cassius.  
*Polygala pruinosa*, *Boiss.*, Marash.  
   "  *supina*, *Schreb.*, Amanus.  
   "  *Anatolica*, *Boiss. et Held.*, Kessab.  
*Dianthus floribundus*, *Boiss.*, Marash.  
   "  "  var. *Kerhanicus*, *Post*, Kerhân.  
   "  *multipunctatus*, *Ser.*, Amanus.  
   "  *fimbriatus*, *M.B.*, Amanus.  
   "  *polycladus*, *Boiss.*, Marash, Amanus.  
   "  *pallens*, *Sibth.*, Beilân.  
*Ankyropetalum Reuteri*, *Boiss. et Haussk.*, Kapu-Cham-Dagh.  
*Gypsophila Aucheri*, *Boiss.*, Akherdagh.  
   "  *ortegioides*, *F. et M.*, Akherdagh.  
*Tunica pachygona*, *F. et M.*, Aintâb.  
*Saponaria vaccaria*, *L.*, Marash.  
*Melandrium ericalycinum*, *Boiss.*, Amanus.  
*Silene Kotschyi*, *Boiss.*, Aintâb.  
   "  *compacta*, *Horn*, Amanus.  
   "  *racemosa*, *Oth.*, Amanus.  
   "  *macrodonata*, *Boiss.*, Aintâb  
   "  *Atocion*, *Murr.*, Beilân.  
   "  *pruinosa*, *Boiss.*, Akherdagh.  
   "  *Porteri*, *Post.*, top of Ziaret-dagh and Akherdagh.  
   "  *commutata*, *Guss.*, Marash.  
   "  *swertiaefolia*, *Boiss.*, Cassius.  
   "  *gigantea*, *L.*, Amanus.  
*Githago gracilis*, *Boiss.*, Marash.  
   "  *segetum*, *Desf.*, Marash.  
*Cerastium vulgatum*, *L.*, common.  
   "  *dichotomum*, *L.*, common.  
*Holosteum liniflorum*, *Stev.*, Marash.  
   "  *umbellatum*, *L.*, Aintâb.  
*Stellaria holostea*, *L.*, Marash.  
*Alsine*, *Sp.*, Marash.  
   "  *juniperina*, *Fenzl.*, Beilân.  
   "  *Smithii*, *Fenzl.*, Amanus.  
   "  *tenuifolia*, *L.*, Marash.  
   "  *macrosperma*, *J. A. Gay*, Akherdagh.  
*Buffonia macrosperma*, *J. A. Gay*, Amanus, Akherdagh.  
*Queria Hispanica*, *Læfl.*, Amanus.  
*Sagina apetala*, *Boiss.*, Amanus.  
*Arenaria acerosa*, *Boiss.*, Amanus.  
*Herniaria incana*, *Lam.*, Amanus, Akherdagh.

- Habrosia spinuliflora*, *Ser.*, Aintáb.  
*Paronychia capitata*, *Koch*, Bellán.  
     *argentea*, *L.*, Antioch.  
*Tamarix Pallasii*, *Desv.*, Aintáb.  
*Hypericum Doddsii*, *Post*, Amanus.  
     *cuneatum*, *Poir.*  
     "    "    *var. maximum*, *Post*, Antioch.  
     "    *scabrum*, *L.*, Marash.  
     "    *læve*, *Boiss. et Haussk.*, Amanus.  
     "    *hyssopifolium*, *Vill.*, Marash, Amanus.  
     "    *helianthemoides*, *Spach.*, Akherdagh.  
     "    *tetrapterum*, *Fries*, Amanus.  
     "    *Amanum*, *Boiss.*, Cassius, Amanus.  
     "    *lanuginosum*, *Lam.*, Antioch.  
     "    *Cassium*, *Boiss.*, Kessab.  
     "    *crispum*, *L.*, Marash.  
*Alcea rufescens*, *Boiss.*, Marash.  
     "    *lavateræflora*, *D. C.*, Marash.  
*Malva rotundifolia*, *L.*, everywhere.  
     "    *var. perennans*, *Post*, top of Akherdagh.  
*Linum nodiflorum*, *L.*, Marash.  
     "    *orientale*, *L.*, Marash.  
     "    *rigidissimum*, *Post*, Kapu-Cham-Dagh.  
     "    *pubescens*, *Russ.*, Marash, Amanus.  
     "    *usitatissimum*, *L.*, Amanus.  
     "    *angustifolium*, *Huds.*, Marash.  
*Geranium tuberosum*, *L.*, Marash.  
     "    *asphodeloides*, *Willd.*, Marash.  
     "    *rotundifolium*, *L.*, everywhere.  
     "    *molle*, *L.*, everywhere.  
*Pelargonium Endlicherianum*, *Fenzl.*, Amanus, Marash.  
*Erodium Romanum*, *L.*, Marash.  
     "    *moschatum*, *L.*, common.  
     "    *cicutarium*, *L.*, common.  
*Ruta graveolens*, *L.*, Marash.  
*Euonymus Europæus*, *L.*, Marash.  
     "    *latifolius*, *Scop.*, Amanus.  
*Haplophyllum Buxbaumii*, *Poir.*, Marash.  
*Dictamnus Fraxinella*, *Pers.*, Cassius.  
*Peganum Harmala*, *L.*, Aintáb.  
*Paliurus aculeatus*, *Lam.*, Amanus, Marash.  
*Rhamnus Kurdica*, *Boiss. et Hoh.*, Marash.  
     "    *Libanotica*, *Boiss.*, Amanus.  
     "    *punctata*, *Boiss.*, Amanus.  
     "    *Palæstina*, *Boiss.*, Amanus.  
     "    *petiolaris*, *Boiss.*, Amanus.  
*Vitis vinifera*, *L.*, Amanus.  
     "    *orientalis*, *Lam.*, Antioch.  
*Acer Monspessulanum*, *L.*, Cassius, Amanus.  
     "    *Hyrcanum*, *F. et M.*, Amanus.  
*Rhus Cotinus*, *L.*, Cassius, Amanus.  
     "    *Coriaria*, *L.*, Amanus, Akherdagh.  
*Pistacia Terebinthus*, *L.*  
     "    "    *var. Palæstina*, *Post*, Amanus, Akherdagh.  
*Agayris fœtida*, *L.*, Amanus, Akherdagh.  
*Lupinus hirsutus*, *L.*, Kessab.

- Cytisus pauciflorus*, *Post*, Marash.  
*Genista acanthoclada*, *D.C.*, Marash.  
   " *Anatolica*, *Boiss.*, Cassius.  
   " *patula*, *M.B.*, var. *Antiochia*, *Boiss.*, Antioch.  
   " *Libanotica*, *Boiss.*, Marash.  
   " *albida*, *Willd.*, Amanus.  
*Spartium junceum*, *L.*  
*Argyrobolium crotalarioides*, *Boiss.*, Aintâb.  
*Cytisus drepanolobus*, *Boiss.*, Cassius, Amanus.  
   " *Cassius*, *Boiss.*, Cassius.  
   "     " var. *multiflorus*, *Post*, Cassius.  
*Gonocytisus pterocladus*, *Boiss.*, Cassius, Amanus.  
*Ononis leiosperma*, *Boiss.*, Marash.  
   " *Columnæ*, *All.*, Cassius.  
   " *Natrix*, *L.*, var. *stenophylla*, *Boiss.*, Antioch.  
   " *biflora*, *Desf.*, Marash.  
*Trigonella Kotschyi*, *Fenzl.*, Marash.  
   " *Coelesyriaca*, *Boiss.*, Aintâb.  
   " *spicata*, *L.*, Marash.  
*Medicago sativa*, *L.*, common.  
   " *lupulina*, *L.*, common.  
   " *falcata*, *L.*, common.  
   " *tribuloides*, *Rohde*, Cassius.  
   " *Shepardi*, *Post*, Aintâb.  
*Melilotus alba*, *L.*, Marash.  
   " *parviflora*, *Desf.*, common.  
*Trifolium Cataonicum*, *Post*, Kerhan.  
   " *Cassium*, *Boiss.*, Cassius.  
   " *arvense*, *L.*, Marash.  
   " *angustifolium*, *L.*, Aintâb.  
   " *purpureum*, *Loisel.*, Marash.  
   " *supinum*, *Savi*, Aintâb.  
   " *Alexandrinum*, *L.*, Marash.  
   " *Candollei*, *Post*, Aintâb.  
   " *physodes*, *Stev.*, Beilân.  
   " *resupinatum*, *L.*, Marash.  
   " *Aintabense*, *Boiss. et Haussk.*, Cassius, Aintâb.  
   " *xerocephalum*, *Fenzl.*, Marash.  
   " *repens*, *L.*, Marash.  
   " *Petrisavii*, *Clem.*, Aintâb, Marash.  
   " *speciosum*, *L.*, Marash.  
   " *erubescens*, *Fenzl.*, Cassius.  
   " *agrarium*, *L.*, Marash.  
*Cytisopsis dorycniifolia*, *Jaub. et Sp.*, Cassius, Antioch.  
*Dorycnium hirsutum*, *L.*, Marash.  
   "     " var. *acuminatum*, *Post*, Cassius.  
   "     " *Kotschyi*, *Boiss et Reut.*, Amanus.  
   "     " *Hausknechtii*, *Boiss.*, Amanus.  
*Lotus corniculatus*, *L.*  
   "     " var. *alpinus*, *Boiss.*, Marash.  
   " *Gebelia*, *Vent.*, Aintâb.  
*Colutea arborescens*, *L.*, Amanus, Kurddagh.  
*Astragalus*, *Sp.*, Antioch.  
   "     " *Sp.*, Marash.  
   "     " *tuberculosis*, *D. C.*, Marash.  
   "     " *hirsutissimus*, *D. C.*, Amanus.

- Astragalus chrysophyllus*, *Boiss.*, Amanus.  
 " *diphtherolobus*, *Bge.*, Amanus.  
 " *platyrhaphis*, *Fisch.*, Marash.  
 " *Sp.*, Kessab.  
 " *gummifer*, *Lab.*, Akherdagh.  
 " *stromatodes*, *Bge.*, Akherdagh.  
 " " var. *microphyllus*, *Post*, Akherdagh.  
 " *ambiguus*, *Bge.*, Amanus.  
 " *argyrophyllus*, *Boiss. et Gaill.*, Aintâb.  
 " *andrachnæfolius*, *Fenzl.*, Marash.  
 " *Andrachne*, *Bge.*, Akherdagh.  
 " *Seytunensis*, *Bge.*, Akherdagh.  
 " *Drusorum*, *Boiss.*, Akherdagh.  
 " *gossypinus*, *Fisch.*, Akherdagh.  
 " *elongatus*, *Willd.*, Marash.  
 " *macrocephalus*, *Willd.*, Akherdagh.  
 " *angustifolius*, *Lam.*, Amanus.  
 " *vaginans*, *D. C.*, Amanus.  
 " *strictifolius*, *Boiss.*, Akherdagh.  
 " *schizopterus*, *Boiss.*, Cassius.  
*Glycyrrhiza glabra*, *L.*, Amanus, Akherdagh.  
 " *echinata*, *L.*, Cassius, Marash.  
*Hammatolobium lotoides*, *Fenzl.*, Marash.  
*Coronilla varia*, *L.*, Marash.  
 " " var. *pauciflora*, *Boiss.*, Marash, Antioch.  
 " *emeroides*, *Boiss. et Spr.*, Amanus.  
*Hedysarum pogonocarpum*, *Boiss.*, Amanus, Marash.  
*Onobrychis æquidentata*, *S. et Sm.*, Marash.  
 " *sativa*, *Lam.*, var. *montana*, *Boiss.*, Akherdagh.  
 " *gracilis*, *Boiss.*, Marash.  
 " *Cadmea*, *Boiss.*, Marash.  
 " *cornuta*, *L.*, Marash.  
 " *aurantiaca*, *Boiss.*, Marash, Amanus.  
*Vicia Noëana*, *Reut.*, Marash.  
 " *sericocarpa*, *Fenzl.*, Marash.  
 " *sativa*, *L.*, Marash.  
 " *peregrina*, *L.*, Cassius, Marash.  
 " *gregaria*, *Boiss. et Held.*, Akherdagh.  
 " *Cracca*, *L.*, Marash.  
 " *Gerardi*, *Vill.*, Cassius.  
 " *Ervilia*, *L.*, common.  
 " *tenuifolia*, *Roth.*, Amanus.  
 " *disperma*, *D. C.*, Cassius.  
*Ervum lenticula*, *Schreb.*, Cassius.  
 " *Orientale*, *Boiss.*, Marash.  
*Lathyrus Aphaca*, *L.*, Marash.  
 " Cassius, *Boiss.*, Cassius, Aintâb.  
 " *amœnus*, *L.*, Aintâb.  
*Orobus sessilifolius*, *S. et Sm.*, var. *oblongifolius*, *Post*, Marash.  
 " *hirsutus*, *L.*, var. *angustifolius*, *Post*, Amanus.  
*Pisum elatius*, *M. B.*, Marash.  
*Cercis Siliquastrum*, *L.*, Marash.  
*Amygdalus lycioides*, *Spach.*, Aintâb, Marash.  
 " *Orientalis*, *Ait.*, Marash.  
*Prunus monticola*, *C. Koch*, Cassius.  
 " *spinosa*, *L.*, Amanus.



- Prunus ursina*, *Ky.*, Amanus.  
*Cerasus tortuosa*, *Boiss. et Haussk.*, Aintâb.  
*Malus communis*, *L.*, Marash.  
*Rubus discolor*, *W. et N.*, Antioch.  
   " *tomentosus*, *Borckh.*, Marash, Antioch.  
*Geum urbanum*, *L.*, Cassius, Marash.  
*Poterium verrucosum*, *Ehr.*, Marash.  
*Fragaria vesca*, *L.*, Amanus.  
*Potentilla reptans*, *L.*, Marash.  
   " *recta*, *L.*, Amanus.  
   " *geranioides*, *Willd.*, Amanus.  
*Agrimonia Eupatoria*, *L.*, Amanus, Cassius.  
*Rosa canina*, *L.*, Cassius.  
   " *Phoenicea*, *Boiss.*, Marash.  
   " *glutinosa*, *S. et Sm.*, Amanus.  
*Pyrus Syriaca*, *Boiss.*, Cassius, Antioch.  
*Cotoneaster pyracantha*, *L.*, Amanus.  
   " *nummularia*, *F. et M.*, Amanus, Cassius.  
*Cratægus Azarolus*, *L.*, Marash.  
   " *monogyna*, *Willd.*, Marash.  
*Mespilus Germanica*, *L.*, Akherdagh.  
*Saxifraga scotophila*, *Boiss.*, Cassius, Antioch.  
*Umbilicus Libanoticus*, *Labill.*, Marash.  
   " *Pestalozzæ*, *Boiss.*, Marash.  
   " *intermedius*, *Boiss.*, common.  
*Sedum*, *Sp.*, Marash.  
   " *stoloniferum*, *Gmel.*, Amanus.  
   " *album*, *L.*, Amanus.  
*Lythrum Salicaria*, *L.*, Antioch.  
   " *Græfferi*, *Ten.*, Marash.  
*Jussiaea repens*, *L.*, Aintâb, Marash.  
*Punica Granatum*, *L.*, Amanus, Marash.  
*Epilobium hirsutum*, *L.*, Marash, Antioch.  
   " *parviflorum*, *Schreb.*, Marash.  
   " *Sp.*, Akherdagh.  
*Bryonia multiflora*, *Boiss. et Held.*, Marash, Kessab.  
   " *Syriaca*, *Boiss.*, Aintâb.  
*Datisca Cannabina*, *L.*, Marash.  
*Eryngium Billardieri*, *Laroch.*, Amanus.  
   " *campestre*, *L.*, Amanus, Akherdagh.  
*Echinophora Sibthorpiana*, *Guss.*, Akherdagh, Marash.  
*Sanicula Europæa*, *L.*, Amanus.  
*Physospermum aquilegifolium*, *All.*, Cassius.  
*Coriandrum sativum*, *L.*, common.  
   " *tordylioides*, *Boiss.*, Aintâb.  
*Smyrnum connatum*, *Boiss. et Ky.*, Cassius.  
*Lecockia Cretica*, *Lam.*, Amanus.  
*Falcaria Alexandretta*, *Post*, Marshes of Alexandretta.  
*Buplevrum Antiochium*, *Post*, Antioch.  
   " *Boissieri*, *Post*, Amanus.  
   " *croceum*, *Fenzl.*, Aintâb, Marash.  
   " *protractum*, *Link.*, Marash.  
   " *lophocarpum*, *Boiss. et Bal.*, Marash.  
   " *odontites*, *L.*, Cassius.  
   " *Gerardi*, *Jacq.*, Cassius.  
   " *Kurdicum*, *Boiss.*, Amanus.

- Buplevrum Cappadocicum*, *Boiss.*, Aintáb, Marash.  
 „ *irregularare*, *Boiss. et Ky.*, Amanus.  
*Sium lancifolium*, *M. B.*, Amanus, Akherdagh.  
*Pimpinella corymbosa*, *Boiss.*, Amanus, Marash.  
 „ *peregrina*, *L.*, Sea-coast Plain.  
*Carum brachyactis*, *Post*, Akherdagh.  
 „ *nudum*, *Post*, Amanus.  
 „ *elegans*, *Fenzl.*, Aintáb.  
*Scaligeria Cretica*, *L.*, Antioch.  
 „ *capillifolia*, *Post*, Akherdagh.  
*Chærophyllum oligocarpum*, *Post*, Amanus.  
*Scandix pinnatifida*, *Vent.*, Marash.  
 „ *Pecten-Veneris*, *L.*, common.  
 „ *Iberica*, *M. B.*, common.  
*Oenanthe pimpinelloides*, *L.*, Amanus.  
*Zozimia absinthifolia*, *Vent.*, Marash.  
*Cachrys goniocarpa*, *Boiss.*, Amanus, Marash.  
*Prangos platyclæna*, *Boiss.*, Akherdagh.  
*Colladonia crenata*, *Fenzl.*, Cassius.  
*Fœniculum piperitum*, *D. C.*, Kessab.  
*Cnidium Orientale*, *Boiss.*, Cassius, Amanus.  
*Ferulago Blancheana*, *Post*, Akherdagh.  
 „ *Cassia*, *Boiss.*, Cassius.  
 „ *pauciradiata*, *Boiss. et Held.*, Cassius, Amanus.  
 „ *Syriaca*, *Boiss.*, Antioch, Amanus.  
 „ *Amani*, *Post*, Amanus.  
*Ferula meifolia*, *Fenzl.*, Cassius.  
*Peucedanum depaupertatum*, *Boiss. et Held.*, Akherdagh.  
 „ *var. alpinum*, *Boiss.*, Akherdagh.  
*Tordylium Syriacum*, *L.*, Marash.  
*Ainsworthia trachycarpa*, *Boiss.*, Marash.  
*Johrenia selinoides*, *Boiss. et Bal.*, Antioch.  
 „ *Porteri*, *Post*, Kapa-Cham-Dagh.  
*Exoacantha heterophylla*, *Labill.*, Amanus.  
*Malabaila pastinacæfolia*, *Boiss. et Bal.*, Amanus.  
 „ *Sekakul*, *Russ.*, Marash.  
*Artemisia squamata*, *L.*, Marash.  
*Torilis neglecta*, *Roem. et Sch.*, Akherdagh.  
*Daucus setulosus*, *Guss.*, Aintab.  
 „ *leptocarpus*, *Hochst.*, Marash.  
*Turgeniopsis foeniculacea*, *Fenzl.*, Cassius, Amanus.  
*Lisæa Syriaca*, *Boiss.*, Kessab.  
*Turgenia latifolia*, *L.*, Marash.  
*Laserpitium* sp., Akherdagh.  
*Angelica sylvestris*, *L.*, Kerhân.  
*Cornus Australis*, *C. et M.*, Cassius, Antioch, Amanus.  
 „ *Mas*, *L.*, Amanus.  
*Lonicera Etrusca*, *Santi*, Marash.  
 „ *nummularifolia*, *Jaub. et Sp.*, Amanus, Marash.  
 „ *Orientalis*, *Lam.*, Amanus.  
*Sambucus Ebulus*, *L.*, Amanus.  
*Putoria Calabrica*, *L.*, Marash.  
*Rubia Aucheri*, *Boiss.*, Cassius, Amanus.  
 „ *Olivieri*, *Rich.*, *var. stenophylla*, *Boiss.*, Amanus.  
*Galium cymulosum*, *Post*, Amanus.  
 „ *erectum*, *Huds.*, Amanus.

- Galium Orientale*, *Boiss.*, var. *alpinum*, *Boiss.*, Marash.  
 " " " *tenerum*, " "  
 " " " *hispidum*, *Post*, Gesbeldagh.  
 " *aureum*, *Vis.*, *Cassius*.  
 " *verum*, *L.*, *Cassius*, Amanus, Marash.  
 " *tricornis*, *L.*, Marash.  
 " *adhaerens*, *Boiss. et Bal.*, Marash.  
 " *Decaisnei*, *Boiss.*, *Cassius*.  
 " *coronatum*, *S. et Sm.*, Marash.  
*Asperula dissitiflora*, *Post*, Amanus.  
 " *odorata*, *L.*, Amanus.  
 " *humifusa*, *Bess.*, Amanus.  
 " *arvensis*, *L.*, Marash.  
 " *Orientalis*, *Boiss. et Hook.*, Marash.  
 " *stricta*, *Boiss.*, Amanus.  
 " " var. *alpina*, *Boiss.*, Marash.  
*Callipeltis Cucullaria*, *L.*, Aintâb.  
*Crucianella macrostachys*, *Boiss.*  
 " " var. *pennicillata*, *Boiss.*, Marash.  
 " " var. *brachystachys*, *Boiss.*, Marash.  
*Valeriana Dioscoridis*, *Sibth.*, Marash.  
*Centranthus longiflorus*, *Stev.*, var. *latifolius*, *Boiss.*, Marash.  
 " *ruber*, *L.*, Marash.  
*Valerianella coronata*, *W.*, Marash.  
 " *vesicaria*, *Willd.*, Marash.  
 " *carinata*, *Loisel.*, Aintâb.  
 " *Boissieri*, *Krok.*, Aintâb.  
*Morina Persica*, *L.*, Marash.  
*Cephalaria setosa*, *Boiss. et Hook.*, Amanus.  
 " *stellipilis*, *Boiss.*, Akherdagb.  
 " *ambrosioides*, *Sibth.*  
 " *Joppensis*, *Spreng.*, Aintâb, Marash.  
*Scabiosa rotata*, *M.B.*, Marash, Amanus.  
 " *ochroleuca*, *L.*, var. *intermedia*, *Post*, Amanus.  
 " *Palæstina*, *L.*, var. *latiloba*, *Boiss.*, Marash.  
 " *Ucranica*, *L.*, Marash, Aintâb.  
*Knautia hybrida*, *All.*, var. *bidens*, *Post*, Marash.  
*Pterocephalus plumosus*, *L.*, *Cassius*, Marash.  
*Eupatorium cannabinum*, *L.*, type and var. *Syriacum*, *Boiss.*,  
 Antioch.  
*Erigeron*, sp., Marshes near Kislar-Kalessi.  
*Bellis perennis*, *L.*, Marash.  
 " *sylvestris*, *L.*, Marash.  
*Helichrysum Siculum*, *Spring*, Amanus.  
*Inula viscosa*, *Ait.*, Antioch.  
*Pulicaria Arabica*, *Cass.*, Antioch.  
*Micropus longifolius*, *Boiss. et Reut.*, Aintâb.  
*Ambrosia maritima*, *L.*, near coast.  
*Achillæa micrantha*, *M.B.*, Marash.  
 " *Santolina*, *L.*, Amanus.  
*Artemisia monosperma*, *Del.*, Plain of Issus.  
 " *crithmifolia*.  
*Anthemis tinctoria*, *L.*, var. *discoidea*, *Boiss.*, *Cassius*, Amanus,  
 Kurd Dagb, Marash.  
 " *hyalina*, *D.C.*, Marash.  
 " *scariosa*, *D.C.*, Aintâb.

- Pyrethrum Cilicicum*, *Boiss.*, Amanus, Cassius.  
 densum, *Labill.*, Akherdagh.  
 " *Senecio vernalis*, *W.K.*, Marash.  
 " *doriaeformis*, *D.C.*, var. *megalophron*, *Boiss.*, Akherdagh.  
*Echinops minimus*, *Post*, Amanus.  
 " *vaginatus*, *Boiss. et Haussk.*, Akherdagh.  
*Gundelia Tournefortii*, *L.*, var. *tenuisecta*, *Boiss.*, Akherdagh.  
*Cardopathium corymbosum*, *L.*, Amanus.  
*Jurinea ramulosa*, *Boiss. et Haussk.*, Akherdagh.  
*Xeranthemum squarrosum*, *Boiss.*, Marash.  
*Carlina corymbosa*, *L.*, var. *involutrata*, *Boiss.*, Amanus.  
 " " var. *Libanotica*, *Boiss.*, Amanus.  
*Cirsium diacantha*, *Labill.*, Antioch.  
 " *Amani*, *Post*, Amanus, above Hassan Beyley.  
 " *leuconeurum*, *Boiss. et Haussk.*, Akherdagh.  
*Carduus nutans*, *L.*, Aintâb.  
*Stæhelia apiculata*, *Labill.*, Antioch.  
*Crupina crupinastrum*, *Moris.*, Marash.  
*Centaurea Cassia*, *Boiss.*, Cassius.  
 " *axillaris*, *Willd.*, Marash.  
 " *aggregata*, *F. et M.*, Marash.  
 " *Antiochia*, *Boiss.*, Antioch.  
 " *thriniciæfolia*, *D. C.*, Cassius, Antioch.  
 " *depressa*, *M. B.*, Aintâb.  
 " *arifolia*, *Boiss.*, Plain of Antioch.  
 " *Cataonica*, *Boiss. et Haussk.*, Akherdagh.  
 " *polycephala*, *Post*, Plain of Antioch.  
 " *Urvillei*, *D. C.*, Aintâb, Marash.  
 " *Behen*, *L.*, Amanus.  
 " *solstitialis*, *L.*, Marash.  
 " *Iberica*, *Trev.*, Marash.  
 " *Babylonica*, *L.*, Amanus.  
 " *cheiracantha*, *Fenzl.*, Cassius.  
*Phæopappus Kotschyi*, *Boiss. et Held.*, Akherdagh.  
*Ptosimopappus bracteatus*, *Boiss.*, Amanus.  
*Zoegea leptaura*, *L.*, Plain of Marash.  
*Cichorium Intybus*, *L.*, Marash.  
*Scolymus Hispanicus*, *L.*, common.  
*Lampsana peduncularis*, *Boiss.*, Akherdagh.  
*Hedypnois Cretica*, *L.*, Marash.  
*Picris stricta*, *Jord.*, Antioch.  
 " *hieracioides*, *L.*, Cassius.  
 " *Sprengeriana*, *Lam.*, Marash.  
*Helminthia echioides*, *L.*, Antioch.  
*Lagoseris bifida*, *Vis.*, Marash.  
*Cymboseris Palæstina*, *Boiss.*, Marash.  
*Crepis parviflora*, *Desf.*, Marash.  
 " *Reuteriana*, *Boiss.*, Marash.  
*Taraxacum Syriacum*, *Boiss.*, Akherdagh.  
 " *officinale*, *Wig.*, Akherdagh.  
 " *Sp.*, Akherdagh.  
*Lactuca Scariola*, *L.*, Akherdagh.  
 " *viminea*, *L.*, Amanus.  
*Sonchus asper*, *Vill.*, Marash.  
 " *oleraceus*, *L.*, common.  
*Tragopogon longirostre*, *Bisch.* Marash.

- Tragopogon latifolium*, *Boiss.*, var. *angustifolium*, *Boiss.*, Marash.  
 " *buphtalmoides*, *Boiss.*, var. *stenophyllum*, *Boiss.*, Marash.  
 " " *Boiss.*, var. *humile*, *Boiss.*, Marash.  
*Scorzonera papposa*, *D.C.*, Marash.  
*Leontodon asperum*, *W. K.*, var. *montanum*, *Boiss.*, Amanus.  
*Michauxia campanuloides*, *L'Heritier*, Marash.  
*Campanula Trachelium*, *L.*, Amanus.  
 " " var. *solitariaefolia*, *Post*, Amanus.  
 " *stricta*, *L.*, var. *Libanotica*, *Boiss.*, Akherdagh.  
 " *dichotoma*, *L.*, Marash.  
 " *strigosa*, *Russ.*, Marash.  
 " *retrorsa*, *Lab.*, Cassius.  
 " *Rapunculus*, *L.*, Amanus, Marash.  
*Specularia pentagonia*, *L.*, Marash.  
 " *speculum*, *L.*, common.  
 " *falcata*, *Ten.*, Cassius.  
*Arbutus Andrachne*, *L.*, Amanus.  
*Erica verticillata*, *Forsk.*, Cassius, Antioch, Amanus.  
*Acantholimon laxiflorum*, *Boiss.*, var. *condensatum*, *Post*, Amanus.  
 " *Baltanense*, *Willd.*, Amanus.  
 " *acerosum*, *Willd.*, Akherdagh.  
 " *Armenum*, *Boiss. et Huet.*, Akherdagh.  
 " *Kotschyi*, *Jaub. et Sp.*, Akherdagh.  
 " *Lycaonicum*, *Boiss. et Held.*, var. *pictum*, *Boiss.*, Akherdagh.  
*Statice Limonium*, *L.*, Alexandretta.  
 " *rorida*, *S. and S.*, Coast.  
*Lysimachia dubia*, *Ait.*, Marash, Kerhân.  
*Androsace maxima*, *L.*, Aintâb.  
*Anagallis arvensis*, *L.*, var. *phoenicea*, *Boiss.*, Marash.  
 " " var. *caerulea*, *Boiss.*, Marash.  
*Styrax officinale*, *L.*, Marash.  
*Jasminum fruticans*, *L.*, Amanus, Akherdagh.  
*Fontanesia phillyreoides*, *Lab.*, Cassius.  
*Fraxinus oxyphylla*, *W. B.*, var. *Syriaca*, *Boiss.*, Amanus.  
*Vinca Libanotica*, *Zucc.*, Marash.  
*Periploca Græca*, *L.*, Marash.  
*Cynanchum acutum*, *L.*, Antioch.  
*Cionura erecta*, *L.*, Marash.  
*Chlora serotina*, *Koch.*, Marash.  
 " *perfoliata*, *Willd.*, Amanus.  
*Erythraea ramosissima*, *Pers.*, Marash.  
*Heliotropium supinum*, *L.*, Akherdagh.  
 " *Bovei*, *Boiss.*, Marash.  
 " *villosum*, *Willd.*, common.  
*Symphytum Palæstinum*, *Boiss.*, var. *breviflora*, *Boiss.*, Marash.  
*Paracaryum Reuteri*, *Boiss. et Haussk.*, Akherdagh.  
*Anchusa Italica*, *Retz.*, var. *angustifolia*, *Post*, Marash.  
 " *Barrelieri*, *All. Ped.*, Marash.  
 " *Shattuckii*, *Post*, Marash, Aintâb.  
 " *neglecta*, *Alph. D. C.*, Cassius, Amanus.  
*Nonnea obtusifolia*, *W.*, Cassius, Amanus.  
*Alkanna megalocarpa*, *Alph. D. C.*, var. *Shattuckia*, *Post*, Amanus.  
*Myosotis sylvatica*, *Hoffm.*, Marash.  
 " *hispida*, *Sch.*, Marash.  
 " *refracta*, *Boiss.*; Cassius, Amanus.

- Cynoglossum Nebrodense, *Guss*, Cassius.  
 " pictum, *Ait.*, common.  
 Lithospermum arvense, *L.*, Amanus.  
 " tenuiflorum, *L.*, Amanus.  
 " hispidulum, *S. et Sm.*, Antioch, Amanus.  
 " purpureo-cæruleum, *L.*, Amanus.  
 Echium Italicum, *L.*, Marash.  
 " glomeratum, *Poir.*, Marash.  
 Onosma frutescens, *Lam.*, Antioch, Amanus.  
 " sericeum, *Willd.*, Amanus.  
 " flavum, *Lehm.*, Aintâb.  
 " Cassium, *Boiss.*, Amanus.  
 " Roussæi, *D. C.*, Marash, Aintâb.  
 " giganteum, *Lam.*, Amanus.  
 " stellulatum, *W.K.*, var. genuinum, *Boiss.*, Marash.  
 " " brevifolium, " Cassius.  
 Convolvulus Dorycnium, *L.*, var. oxysepalus, *Boiss.*, Cassius.  
 " Aucheri, *Choisy*, El-Jebel-el-Ahmar.  
 " Galaticus, *Rost.*, Cassius.  
 " althæoides, *L.*, Aintâb.  
 Ipomæa sagittata, *Desf.*, Marshes of Alexandretta.  
 Physalis Alkekengi, *L.*, Marash.  
 Hyoscyamus aureus, *L.*, walls ; general.  
 Withania somnifera, *L.*, Antioch.  
 Solanum nigrum, *L.*, general.  
 " Dulcamara, *L.*, Cassius, Amanus.  
 Cuscuta monogyna, *Vahl.*, Aintâb.  
 Verbascum Antiochium, *Boiss.*, Walls of Antioch.  
 " Cæsareum, *Boiss.*, Cassius.  
 " Galilæum, *Boiss.*, Marash, Amanus.  
 " mucronatum, *Lam.*, Akherdagh.  
 " subnivale, *Boiss. et Haussk.*, Akherdagh.  
 " Barbeyi, *Post.*, Amanus.  
 " Amanum, *Boiss.*, Amanus.  
 " Syriacum, *Schrad.*, Aintâb, Marash.  
 " sinuatum, *L.*, Base of Cassius.  
 " Germanicia, *Haussk.*, Amanus, Marash.  
 " scaposum, *Boiss.*, Amanus, Cassius.  
 Siphonostegia Syriaca, *B. et R.*, Antioch.  
 Celsia heterophylla, *Desf.*, Marash.  
 " Orientalis, *L.*, Marash.  
 Linaria genistifolia, *L.*, Akherdagh.  
 " Dalmatica, *L.*, Amanus, Akherdagh.  
 " lanigera, *Desf.*, Antioch.  
 " Elatine, *L.*, Amanus.  
 " Græca, *Bory et Ch.*, Amanus.  
 " arvensis, *L.*, var. flaviflora, *Boiss.*, Aintâb.  
 " Chalepensis, *L.*, Marash.  
 " Persica, *Chav.*, Aintâb.  
 Anarrhinum Orientale, *Bth.*, Marash.  
 Scrophularia xanthoglossum, Amanus, Marash.  
 " sphaerocarpa, *Boiss. et Reut.*, Beilân.  
 " alata, *Gilib.*, Marash.  
 " variegata, *M. B.*, Cassius, Marash.  
 Wulfenia Orientalis, *Boiss.*, Antioch.  
 Veronica Anagallis, *L.*, Marash.

- Veronica Anagallioides*, *Guss.*, Marash.  
 " *Orientalis*, *Mill.*, Amanus, Marash.  
 " " var. *tenuifolia*, *Boiss.*, Akherdagh.  
 " *cinerea*, *Boiss. et Bl.*, Akherdagh.  
 " *stenobotrys*, *Boiss. et Bl.*, Cassius.  
 " *Cymbalaria*, *Boiss.*, Aintâb, Marash.  
 " *acinifolia*, *L.*, Marash.  
 " *Syriaca*, *Roem. et Sch.*, Marash.  
 " *Aleppica*, *Boiss.*, Amanus.  
*Odontites lutea*, *L.*, Antioch, Akherdagh.  
 " *glutinosa*, *M. B.*, Amanus.  
 " *Aucheri*, *Boiss.*, Akherdagh.  
*Eufragia viscosa*, *L.*, Marash.  
*Phelipea lavandulacea*, *Rchb.*, Marash.  
 " *ramosa*, *L.*, Marash.  
*Orobanche Anatolica*, *Boiss. et Reut.*, Amanus, Marash.  
 " " var. *glabrescens*, *Post*, Marash.  
 " *Palæstina*, *Reut.*, Cassius.  
 " *speciosa*, *D. C.*, Cassius, Marash.  
*Globularia vulgaris*, *L.*, Amanus, Marash.  
*Acanthus Syriacus*, *Boiss.*, Marash.  
*Verbena supina*, *L.*, Antioch.  
 " " var. *minor*, *Post*, Akherdagh.  
*Vitex Agnus-Castus*, *L.*, Antioch, Marash.  
*Mentha sylvestris*, *L.*, Antioch.  
 " *aquatica*, *L.*, Marash.  
*Lycopus Europæus*, *L.*, Antioch.  
*Origanum lævigatum*, *Boiss.*, Antioch.  
 " *Maru*, *L.*, Antioch.  
*Thymus Serpyllum*, *L.*, Amanus, Akherdagh.  
 " " var. *Kotschyanus*, *Boiss.*, Akherdagh.  
 " *Syriacus*, *Boiss.*, Plain of Antioch.  
*Satureia hortensis*, *L.*, Marash.  
 " *Thymbra*, *L.*, Antioch.  
*Micromeria serpyllifolia*, *M. B.*, Antioch.  
*Thymbra spicata*, *L.*, Amanus, Marash.  
*Calamintha grandiflora*, *L.*, Amanus.  
 " *Clinopodium*, *Bth.*, Kessab, Akherdagh.  
 " *graveolens*, *M. B.*, Aintâb.  
*Salvia grandiflora*, *Ett.*, Cassius, Antioch.  
 " *Aucheri*, *Bth.*, Cassius.  
 " *acetabulosa*, *Vahl.*, Amanus, Marash.  
 " *purpurascens*, *Post*, between Marash and Adana.  
 " *Pinardi*, *Boiss.*, Antioch.  
 " *Syriaca*, *L.*, Marash.  
 " *Euphratica*, *M. et Auch.*, Aintâb.  
 " *Sclarea*, *L.*, Cassius.  
 " *glutinosa*, *L.*, Amanus.  
 " *verbascifolia*, *M. B.*, Amanus.  
 " *Horminum*, *L.*, common.  
 " *brachycalyx*, *Boiss.*, Marash.  
 " *Verbenaca*, *L.*, common.  
 " *Russelii*, *Bth.*, Aintâb, Marash.  
*Zizyphora clinopodoides*, *M. B.*, var. *canescens*, *Boiss.*, Akherdagh.  
 " *capitata*, *L.*, Marash.

- Lallemantia Iberica*, *M. B.*, Aintâb.  
*Nepeta nuda*, *L.*, var. *albiflora*, *Boiss.*  
   " *Orientalis*, *Mill.*, Marash.  
   " *Cilicica*, *Boiss.*, Akherdagh.  
   " *glomerata*, *Montb.*, Akherdagh.  
   " *leptantha*, *Boiss. et Haussk.*, Akherdagh.  
   " *Shepardi*, *Post*, Aintâb.  
*Scutellaria Orientalis*, *L.*, var. *alpina*, *Boiss.*, Amanus.  
   " " var. *genuina*, *Boiss.*, Marash.  
   " *fruticosa*, *Desf.*, Akherdagh.  
   " *diffusa*, *Bth.*, Marash.  
   " *peregrina*, *L.*, Cassius, Antioch.  
*Brunella vulgaris*, *L.*, Cassius, Amanus.  
*Sideritis Libanotica*, *Labill.*, Akherdagh.  
*Marrubium faucidens*, *Boiss. et Bal.*, Marash.  
   " *Libanoticum*, *Boiss.*, Akherdagh.  
   " " var. *Hermonis*, *Boiss.*, Amanus.  
*Stachys Cretica*, *S. et S.*, Akherdagh.  
   " " var. *Garana*, *Boiss.*, Marash.  
   " *viticina*, *Boiss.*, Cassius, Antioch.  
   " *pinetorum*, *Boiss.*, Amanus.  
   " *Germanica*, *L.*, var. *spicata*, *Post*, Antioch.  
   " *Iberica*, *M. B.*, Amanus.  
   " *pumila*, *Russ.*, var. *brachyodonta*, *Boiss.*, Antioch.  
   " *diversifolia*, *Boiss.*, Cassius, Amanus.  
*Lamium striatum*, *S. et S.*, var. *minus*, *Boiss.*, Amanus, Akherdagh.  
   " *Aleppicum*, *Boiss. et Haussk.*, Marash.  
   " *truncatum*, *Boiss.*, var. *longidentatum*, *Post*, Marash.  
*Molucella lævis*, *L.*, Marash.  
*Phlomis Nissolii*, *L.*, Marash.  
   " *viscosa*, *Poir.*, Amanus.  
   " *Armeniaca*, *Willd.*, Akherdagh.  
   " *linearis*, *Boiss. et Bal.*, Akherdagh.  
   " *Herba-Venti*, *L.*, Marash.  
*Teucrium multicaule*, *Montb. et Auch.*, Marash.  
   " " var. *planifolium*, *Post*, Marash.  
   " *procerum*, *B. et Bl.*, var. *humile*, *Boiss.*, Marash.  
   " *Chamædrys*, *L.*, Cassius, Amanus.  
   " *scordioides*, *Schreb.*, Amanus.  
   " *Polium*, *L.*, Antioch.  
*Ajuga lævigata*, *Russ.*, Marash.  
*Plantago lanceolata*, *L.*, var. *altissima*, *Boiss.*, Marash.  
   " *maritima*, *L.*, coast near Alexandretta.  
   " *major*, *L.*, everywhere.  
*Amarantus hypochondriacus*, *L.*, Antioch.  
   " *chlorostachys*, *Willd.*, Antioch.  
   " *retroflexus*, *L.*, common.  
*Chenopodium album*, *L.*, Antioch, Marash.  
*Blitum virgatum*, *L.*, Akherdagh.  
*Atriplex Amanum*, *Post*, Gesbel-dagh.  
*Noœa spinosissima*, *Moq.*, Akherdagh.  
   " *Tournefortii*, *Spach*, Akherdagh.  
*Polygonum Convolvulus*, *L.*, Amanus.  
   " *equisitifforme*, *S. et Sm.*, Antioch.  
   " *Bellardi*, *All.*, Amanus.



- Polygonum Libani*, *Boiss.*, Akherdagh.  
 „ *setosum*, *Jacq.*, Akherdagh.  
*Rheum Ribes*, *Gronov.*, Amanus.  
*Rumex acetosa*, *L.*, Aintáb.  
 „ *acetoselloides*, *Bal.*, Marash.  
 „ *scutatus*, *L.*, Marash.  
 „ *Cassius*, *Boiss.*, Cassius.  
*Lygia Aucheri*, *Meisn.*, Aintáb.  
*Aristolochia Maurorum*, *L.*, Marash.  
*Daphne sericea*, *Vahl.*, Amanus.  
 „ *olæoides*, *Schreb.*, Amanus, Akherdagh.  
*Laurus nobilis*, *L.*, Cassius, Antioch.  
*Elæagnus hortensis*, *M. B.*, Marash.  
*Thesium Bergeri*, *Zucc.*, Amanus, Cassius.  
 „ *compressum*, *Boiss. et Held.*, Amanus.  
*Osyris alba*, *Lam.*, Cassius, Amanus.  
*Viscum album*, *L.*, Amanus.  
*Arceuthobium Oxycedri*, *D. C.*, Amanus.  
*Euphorbia pubescens*, *Vahl.*, Antioch.  
 „ *altissima*, *Boiss.*, var. *glabrescens*, *Boiss.*, Marash.  
 „ *tinctoria*, *Boiss.*, Marash.  
 „ *denticulata*, *Lehm.*, Marash.  
 „ *Apios*, *L.*, Amanus.  
 „ *Cassia*, *Boiss.*, Cassius.  
*Crozophora tinctoria*, *L.*, Antioch.  
 „ *verbascifolia*, *Willd.*, Antioch.  
*Cynocrambe prostrata*, *Gaertn.*, Antioch.  
*Carpinus Duiensis*, *Scop.*, Amanus, Cassius.  
*Ostrya carpinifolia*, *Scop.*, Amanus, Cassius.  
*Quercus Lusitanica*, *Lam.*, Amanus, Akherdagh.  
 „ *Cerris*, *L.*, Cassius, Antioch, Amanus.  
 „ *Ilex*, *L.*, Plain of Issus, Amanus.  
 „ *coccifera*, *L.*, Cassius, Amanus, Littoral.  
 „ *Ægilops*, *L.*, Amanus.  
 „ *Libani*, *Oliv.*, Amanus, Akherdagh.  
*Fagus sylvatica*, *L.*, Amanus.  
*Alnus Orientalis*, *Dec.*, Amanus.  
*Celtis australis*, *L.*, Amanus.  
*Juglans regia*, *L.*, Cassius, Amanus, Akherdagh.  
*Platanus Orientalis*, *L.*, Amanus.  
*Salix alba*, *L.*, Antioch, Amanus.  
 „ *nigricans*, *Fries.*, Amanus.  
*Populus nigra*, *L.*, cultivated.  
*Cedrus Libani*, *L.*, Amanus, Akherdagh.  
*Juniperus Oxycedrus*, *L.*, Antioch, Amanus.  
 „ *drupacea*, *Labill.*, Amanus.  
 „ *fetidissima*, *Willd.*, Amanus, Akherdagh.  
*Pinus Halepensis*, *Mill.*, Cassius, Amanus, Akherdagh.  
 „ *Pinea*, *L.*, Plain of Issus.  
 „ *Brutia*, *Ten.*, Akherdagh.  
*Abies Cilicica*, Amanus.  
*Taxus baccata*, *L.*, Amanus (Gesbeldagh).  
*Epipactis latifolia*, *All. Ped.*, Cassius.  
*Cephalanthera ensifolia*, *Murr.*, Amanus.  
*Orchis sancta*, *L.*, Marash.  
 „ *tridentata*, *Scop.*, Amanus.

- Orchis longicruris*, *Link.*, Marash.  
 „ *Anatolica*, *Boiss.*, Marash.  
 „ *laxiflora*, *Lam.*, Marash.  
 „ „ *var. major*, *Boiss.*, Kerhân.  
 „ *angustifolia*, *M. B.*, Amanus, Akherdagh.  
 „ *saccata*, *Ten.*, Aintâb.  
 „ *latifolia*, *L.*, Marash.  
*Ophrys fusca*, *Link.*, Marash.  
 „ *aranifera*, *Huds.*, Marash.  
 „ *arachnites*, *Scop.*, Mouth of Orontes, Cassius.  
*Serapias pseudocordigera*, *Murr.*  
*Anacamptis pyramidalis*, *Rchb.*, Cassius.  
*Iris Sisyrinchium*, *L.*, common.  
 „ *reticulata*, *M. B.*, Marash.  
 „ *Palæstina*, *Baker*, Marash.  
*Crocus graveolens*, *Boiss.*, Marash.  
*Romulea Bulbocodium*, *L.*, Cassius, Amanus.  
*Sternbergia Fischeriana*, *Herb. Amar.*, Marash.  
*Gladiolus segetum*, *Gawl.*, Marash.  
 „ *Illyricus*, *Koch.*, common.  
 „ *atroviolaceus*, *Boiss.*, Marash.  
*Ixiolirion montanum*, *Labill.*, Amanus, Akherdagh  
*Tamus communis*, *L.*, Marash.  
*Ruscus aculeatus*, *L.*, Cassius.  
*Tulipa Oculus-Solis*, *St. Amand.*, common.  
 „ *montana*, *Lindl.*, Cassius, Amanus.  
*Gagea foliosa*, *Presl.*, Marash.  
*Fritillaria acmopetala*, *Boiss.*, Cassius.  
*Asparagus acutifolius*, *L.*, common.  
*Asphodeline brevicaulis*, *Bert.*, Cassius, Amanus, Akherdagh.  
 „ *Damascena*, *Boiss.*, Antioch.  
 „ *lutea*, *L.*, Amanus, Cassius.  
*Puschkinia scilloides*, *Adams.*, Marash, Cassius.  
*Hyacinthus Orientalis*, *L.*, Cassius, Amanus, Akherdagh.  
*Bellevalia ciliata*, *Cyr.*, Aintâb, Cassius.  
*Muscari Pinardi*, *Boiss.*, Marash.  
 „ *comosum*, *Mill.*, Marash.  
 „ *parviflorum*, *Desf.*, Marash.  
 „ *commutatum*, *Guss.*, Aintâb.  
 „ *racemosum*, *L.*, Aintâb.  
 „ *neglectum*, *Guss.*, Aintâb.  
*Allium Cilicicum*, *Boiss.*, Marash.  
 „ *rotundum*, *L.*, Marash, Aintâb.  
 „ *sphærocephalum*, *L.*, Aintâb.  
 „ *Cassium*, *Boiss.*, Marash.  
 „ *Tauricolum*, *Boiss.*, Akherdagh.  
 „ *Aschersonianum*, *Barb.*, Amanus.  
 „ *chloranthum*, *Boiss.*, Marash.  
 „ *hirsutum*, *Zucc.*, Marash.  
*Ornithogalum Narbonense*, *L.*, Cassius, Amanus, Marash.  
 „ *umbellatum*, *L.*, Marash.  
 „ *montanum*, *Cyr.*, Aintâb.  
*Scilla autumnalis*, *L.*, Amanus.  
*Urginea maritima*, *L.*, Plain of Issus.  
*Colchicum lætum*, *Steud.*, Amanus.  
 „ *Decaisnei*, *Boiss.*, Amanus.

- Colchicum Haussknechtii*, *Boiss.*, Amanus.  
 „ *latifolium*, *Sibth. et Sm.*, Amanus.  
 „ *candidum*, *Schott. et Ky.*, Amanus.  
 „ *brachyphyllum*, *Boiss. et Haussk.*, Aintâb.  
*Juncus maritimus*, *L.*, Coast, Marash.  
 „ *bufonius*, *L.*, common.  
*Helicophyllum Rauwolfii*, *Bl.*, Marash.  
*Arum Dioscoridis*, *S. et Sm.*, Aintâb, Marash.  
*Butomus umbellatus*, *L.*, Aintâb, Marash.  
*Cyperus flavescens*, *L.*, Antioch.  
 „ *fuscus*, *L.*, var. *virescens*, *Bolser.*, Antioch.  
 „ *longus*, *L.*, Marash.  
*Fimbristylis dichotoma*, *Rottb.*, Antioch.  
 „ *ferruginea*, *L.*, Antioch.  
*Carex divulsa*, *Good.*, Amanus.  
 „ *divisa*, *Huds.*, Cassius, Amanus.  
*Scirpus maritimus*, *L.*, common.  
*Spondiopogon pogonanthus*, *Boiss.*, Plain of Issus.  
*Oryza sativa*, *L.*, Marash.  
*Panicum sanguinale*, *L.*, Antioch.  
 „ *Crista-Galli*, *L.*, Antioch.  
*Setaria verticillata*, *L.*, Antioch.  
*Andropogon hirtus*, *L.*, Antioch.  
 „ *Ischænum*, *L.*, plains along coast.  
*Sporobolus pungens*, *Kth.*, coast.  
*Antisthiria ciliata*, *L.*, Cassius.  
*Piptatherum miliaceum*, *L.*, Antioch.  
*Heleochoa schænoides*, *L.*, Antioch.  
 „ *alopecuroides*, *Schrad.*, Akherdagh.  
*Polygogon Monspeliense*, *L.*, Cassius.  
*Pennisetum Orientale*, *Rich.*, Plain of Issus, Wadi Kondîl.  
*Tragus racemosus*, *L.*, Plain of Issus.  
*Imperata cylindrica*, *L.*, Plain of Issus.  
*Crypsis aculeata*, *L.*, Marshes of Alexandretta.  
*Cynodon dactylon*, *L.*, everywhere.  
*Arundo Donax*, *L.*, Plain of Issus, Alexandretta.  
*Eragrostis megastachya*, *Link.*, Antioch.  
*Melica ciliata*, *L.*, Cassius.  
 „ *Cupani*, *Guss.*, Marash.  
*Cynosurus elegans*, *Desf.*, Cassius.  
*Poa annua*, *L.*, everywhere.  
 „ *bulbosa*, *L.*, Marash.  
*Scleropoa rigida*, *Gaud.*, Marash.  
*Brachypodium distachyum*, *L.*, Cassius, Amanus.  
*Bromus erectus*, *Huds.*, Cassius.  
 „ *tectorum*, *L.*, Cassius.  
*Ægilops triuncialis*, *L.*, common.  
 „ *ovata*, *L.*, common.  
 „ *Aucheri*, *Boiss.*, Amanus.  
*Hordeum murinum*, *L.*, Amanus.  
*Cystopteris fragilis*, *L.*, Amanus.  
*Asplenium Trichomanes*, *L.*, Antioch.  
*Cetarach officinarum*, *L.*, Antioch.  
*Scolopendrium officinale*, *Sm.*, Antioch.  
*Nephrodium rigidum*, *Sw.*, Marash.  
*Notochlaena Marantæ*, *L.*, Cassius.

V. The *Nusairy Chain* consists of low featureless mountains, denuded of their forests, and in no case rising as high as 4,000 feet. This range has been less studied botanically, or even visited, than any other portion of Syria, not a single locality being noted in Boissier's *Flora Orientalis*. The following list, consisting of collections made by the writer, and by Dr. Kay, of the Syrian Protestant College, is the first attempt to catalogue the plants of this region. It is, of course, far from complete. It does not contain a single species new to science:—

- |   |  |
|---|--|
| Anemone Coronaria, <i>L.</i>                  | Raphanus sativus, <i>L.</i>                                  |
| "    "    var. <i>cærulea</i> , <i>Boiss.</i> | Reseda lutea, <i>L.</i> , var. <i>nutans</i> , <i>Boiss.</i> |
| "    " <i>blanda</i> , <i>Schott et Ky.</i>   | Cistus villosus, <i>L.</i>                                   |
| Adonis Aleppica, <i>Boiss.</i>                | "    "    var. <i>genuinus</i> , <i>Boiss.</i>               |
| Ranunculus aquatilis, <i>L.</i>               | "    " <i>salviaefolius</i> , <i>L.</i>                      |
| " <i>cuneatus</i> , <i>Boiss.</i>             | Helianthemum salicifolium, <i>L.</i>                         |
| " <i>asiaticus</i> , <i>L.</i>                | Viola odorata, <i>L.</i>                                     |
| " <i>chærophyllus</i> , <i>L.</i>             | "    "    var. <i>Dehnhartii</i> , <i>Boiss.</i>             |
| " <i>myriophyllus</i> , <i>Russ.</i>          | Saponaria Vaccaria, <i>L.</i>                                |
| "    var. <i>Hierosolymitanus</i> ,           | Silene Gallica, <i>L.</i>                                    |
| <i>Post.</i>                                  | " <i>Damascena</i> , <i>Boiss. et Gaill.</i>                 |
| " <i>Constantinopolitanus</i> ,               | " <i>bipartita</i> , <i>Desf.</i>                            |
| <i>Arv.</i>                                   | " <i>Atocion</i> , <i>Murr.</i>                              |
| "    var. <i>Palæstinus</i> , <i>Boiss.</i>   | " <i>longipetala</i> , <i>Vent.</i>                          |
| " <i>lomatacarpus</i> , <i>Boiss.</i>         | Cerastium glomeratum, <i>Thuil.</i>                          |
| "    var. <i>cornutus</i> , <i>Post.</i>      | Alsine tenuifolia, <i>L.</i>                                 |
| Nigella ciliaris, <i>D. C.</i>                | Tamarix Pallasii, <i>Desv.</i>                               |
| Papaver Rheas, <i>L.</i>                      | Alcea acaulis, <i>Cav.</i> , var. <i>caulescens</i> ,        |
| Hypecoum grandiflorum, <i>Bth.</i>            | <i>Boiss.</i>  |
| " <i>procumbens</i> , <i>L.</i>               | Lavatera Cretica, <i>L.</i>                                  |
| Corydalis solida, <i>Smith.</i>               | " <i>trimestris</i> , <i>L.</i>                              |
| Fumaria parviflora, <i>Lam.</i>               | Malva rotundifolia, <i>L.</i>                                |
| " <i>Anatolica</i> , <i>Boiss.</i>            | Linum pubescens, <i>Russ.</i>                                |
| Nasturtium officinale, <i>R. Br.</i>          | " <i>angustifolium</i> , <i>Huds.</i>                        |
| Arabis perfoliata, <i>Lam.</i>                | Geranium tuberosum, <i>L.</i>                                |
| " <i>verna</i> , <i>R. Br.</i>                | " <i>Libanoticum</i> , <i>Boiss. et Bl.</i>                  |
| " <i>Montbretiana</i> , <i>Boiss.</i>         | " <i>molle</i> , <i>L.</i>                                   |
| " <i>Aucherii</i> , <i>Boiss.</i>             | " <i>Robertianum</i> , <i>L.</i>                             |
| Fibigia clypeata, <i>L.</i>                   | " <i>lucidum</i> , <i>L.</i>                                 |
| "    "    var. <i>rostrata</i> , <i>Post.</i> | Erodium Romanum, <i>L.</i>                                   |
| Alyssum Mouradicum, <i>Boiss. et Bal.</i>     | " <i>cicutarium</i> , <i>L.</i>                              |
| Erophila setulosa, <i>Boiss. et Bal.</i>      | " <i>moschatum</i> , <i>L.</i>                               |
| Sisymbrium Thalianum, <i>Steph.</i>           | Pistacia Terebinthus, <i>L.</i>                              |
| " <i>officinale</i> , <i>L.</i>               | "    "    var. <i>Palæstina</i> , <i>Post.</i>               |
| Capsella Bursa-Pastoris, <i>L.</i>            | Ruta Chalepensis, <i>L.</i>                                  |
| Lepidium cornutum, <i>S. et Sm.</i>           | Lupinus, <i>Sp.</i>  |
| " <i>crassifolium</i> , <i>M. K.</i>          | Ononis Natrrix, <i>L.</i>                                    |
| Biscutella Columnæ, <i>Fen.</i>               | " <i>serrata</i> , <i>Forsk.</i>                             |
| Iberis odorata, <i>L.</i>                     | Anthyllis vulneraria, <i>L.</i>                              |
| Peltaria angustifolia, <i>D. C.</i>           | Hymenocarpus circinnatus, <i>L.</i>                          |
| Isatis Aleppica, <i>Scop.</i>                 | Trigonella Hierosolymitana, <i>Boiss.</i>                    |
| Ochthodium Ægyptiacum, <i>L.</i>              | " <i>filipes</i> , <i>Boiss.</i>                             |
| Enarthrocarpus arcuatus, <i>Labill.</i>       | " <i>stellatum</i> , <i>L.</i>                               |

- Trifolium purpureum*, *Loisel.*  
 " " var. *prostratum*, *Post.*  
 " *Alexandrinum*, *L.*  
 " *clypeatum*, *L.*  
 " *globosum*, *L.*  
 " *resupinatum*, *L.*  
 " *tomentosum*, *L.*  
 " *spumosum*, *L.*  
 " *xerocephalum*, *Fenzl.*  
 " *nervulosum*, *Boiss.* et  
     *Held.*  
 " *repens*, *L.*  
 " *speciosum*, *L.*  
*Cytisoides doryeniifolia*, *J. et Sp.*  
*Tetragonolobus purpureus*, *Mönch.*  
     var. *Palæstinus*, *Post.*  
*Astragalus macrocarpus*, *D. C.*  
     " *schizopterus*, *Boiss.*  
*Vicia sativa*, *L.*  
     " *hybrida*, *L.*  
     " *Palæstina*, *Boiss.*  
*Pisum elatius*, *M. B.*  
*Orobis sessilifolius*, *S. et Sm.*  
*Cercis siliquastrum*, *L.*  
*Malus communis*, *L.*  
*Poterium verrucosum*, *Ehr.*  
*Saxifraga scotophila*, *Boiss.*  
*Umbilicus pendulinus*, *D. C.*  
*Sedum littoreum*, *Guss.*  
*Lythrum Graefferi*, *Ten.*  
*Ammi Visnaga*, *Lam.*  
*Scandix Pecten-Veneris*, *L.*  
*Tordylium Ægyptiacum*, *L.*  
*Caucalis leptophylla*, *L.*  
     " *tenella*, *L.*  
*Sambucus nigra*, *L.*  
*Vaillantia hispida*, *L.*  
*Rubia Olivieri*, *A. Rich.*  
     " var. *stenophylla*, *Boiss.*  
*Galium tricornis*, *With.*  
     " " var. *verruculosum*, *Post.*  
     " *spurium*, *L.*  
     " *coronatum*, *S. et Sm.*  
     " var. *stenophyllum*, *Boiss.*  
     " *articulatum*, *L.*  
*Asperula arvensis*, *L.*  
*Sherardia arvensis*, *L.*  
*Valeriana Dioscoridis*, *Sibth.*  
*Valerianella carinata*, *Loisel.*  
     " *coronata*, *W.*  
     " *Kotschyi*, *Boiss.*  
     " *vesicaria*, *Willd.*  
*Knautia hybrida*, *All.*  
*Scabiosa Palæstina*, *L.*  
*Helichrysum Siculum*, *Spring.*  
*Anthemis Cassia*, *Boiss.*
- Anthemis montana*, *Boiss.*  
     " *leucanthemifolia*, *Boiss. et*  
         *Bl.*  
     " *Chia*, *L.*  
     " *cotula*, *L.*  
*Chrysanthemum segetum*, *L.*  
*Senecio vernalis*, *W. K.*  
*Centaurea cyanoides*, *Berg et Wahl.*  
     " *spicata*, *Boiss.*  
*Lagoseris bifida*, *Vis.*  
*Thrinicia tuberosa*, *L.*  
*Tragopogon longirostre*, *Bisch.*  
*Scorzonera mollis*, *M. B.*  
*Campanula strigosa*, *Russ.*  
     " *Rapunculus*, *L.*  
*Specularia Speculum*, *L.*  
*Arbutus Andrachne*, *L.*  
*Erica verticillata*, *Forsk.*  
*Primula acaulis*, *Jacq.*  
*Anagallis arvensis*, *L.*  
     " var. *Phoenicea*, *Boiss.*  
     " var. *cærulea*, *Boiss.*  
*Styrax officinale*, *L.*  
*Jasminum fruticans*, *L.*  
*Phillyrea media*, *L.*  
*Vinca Libanotica*, *Zucc.*  
*Nerium Oleander*, *L.*  
*Cynoglossum pictum*, *Ait.*  
*Symphytum Palæstinum*, *Boiss.*  
*Anchusa undulata*, *Guss.*  
     " *strigosa*, *Labill.*  
*Alkanna macrophylla*, *Boiss. et Held.*  
*Nonnea obtusifolia*, *Willd.*  
*Myosotis hispida*, *Sch.*  
*Lithospermum arvense*, *L.*  
*Echium plantagineum*, *L.*  
*Convolvulus Cantabrica*, *L.*  
*Hyoscyamus aureus*, *L.*  
*Verbascum Blancheanum*, *Boiss.*  
*Celsia Orientalis*, *L.*  
*Linaria Chalepensis*, *L.*  
*Antirrhinum Orontium*, *L.*  
     " var. *brevifolium*, *Post.*  
*Scrophularia Scopoli*, *Hoppe.*  
*Veronica Anagallis*, *L.*  
     " " var. *denticulata*, *Post.*  
     " *Syriaca*, *D. C.*  
     " *cymbalaria*, *Boiss.*  
*Trixago Apula*, *Stev.*  
*Eufragia latifolia*, *L.*  
     " *viscosa*, *L.*  
*Phelipea ramosa*, *L.*  
*Globularia trichosantha*, *F. et M.*  
*Salvia triloba*, *L.*  
     " *brachycalyx*, *Boiss.*  
     " *Horminum*, *L.*

Stachys annua, <i>L.</i>	Orchis lactea, <i>Poir.</i>
" Arabica, <i>Horn.</i>	" longicruris, <i>Link.</i>
Lamium alexiprurica, <i>L.</i>	" Anatolica, <i>Boiss.</i>
" truncatum, <i>Boiss.</i>	Serapias pseudocordigera, <i>Murr.</i>
Phlomis viscosa, <i>Poir.</i>	Ophrys lutea, <i>Cav.</i>
" var. lanceolata, <i>Boiss.</i>	Iris Sisyrrhinchium, <i>L.</i>
Ajuga Orientalis, <i>L.</i>	" pseudacorus, <i>L.</i>
" Chia, <i>Poir.</i>	" Palæstina, <i>Baker.</i>
Plantago major, <i>L.</i>	Gladiolus segetum, <i>Gawl.</i>
" lanceolata, <i>L.</i>	Ruscus aculeatus, <i>L.</i>
" var. altissima, <i>Boiss.</i>	Allium Orientale, <i>Boiss.</i>
" Cretica, <i>L.</i>	Bellevalia ciliata, <i>Cyr.</i>
" Psyllium, <i>L.</i>	" var. paniculata, <i>Post.</i>
Polygonum, <i>sp.</i>	" trifoliata, <i>Ten.</i>
Rumex bucephalophorus, <i>L.</i>	" macrobotrys, <i>Boiss.</i>
Laurus nobilis, <i>L.</i>	" flexuosa, <i>Boiss.</i>
Euphorbia tinctoria, <i>Boiss.</i>	Muscari racemosa, <i>L.</i>
Celtis Australis, <i>L.</i>	Hyacinthus Orientalis, <i>L.</i>
Morus alba, <i>L.</i>	Puschkinia scillioides, <i>Adans.</i>
Urtica urens, <i>L.</i>	Scilla hyacinthoides, <i>L.</i>
" pilulifera, <i>L.</i>	Ornithogalum Narbonense, <i>L.</i>
Parietaria officinalis, <i>L.</i>	" montanum, <i>Cyr.</i>
" Judaica, <i>L.</i>	" fimbriatum, <i>Willd.</i>
Cupressus sempervirens, <i>L.</i>	" var. ciliatum, <i>Boiss.</i>
Juniperus Oxycedrus, <i>L.</i>	Fritillaria acmopetala, <i>Boiss.</i>
Cephalanthera ensifolia, <i>Murr.</i>	" Libanotica, <i>Boiss.</i>
Orchis papilionacea, <i>L.</i>	Tulipa Oculus-Solis, <i>St. Am.</i>
" Morio, <i>L.</i>	Gagea reticulata, <i>Pall.</i>
" sancta, <i>L.</i>	

VI. *Lebanon and Antilebanon.*—These majestic mountains form the most commanding feature in the physical geography of Syria, and are better known botanically than any other portion of the country, except the Littoral. They have been perseveringly explored by Labillardière, Boissier, Blanche, the author, and his pupils in the Syrian Protestant College. They are easily accessible, and a botanist can find in most parts of Lebanon, and in many of Antilebanon, tolerably comfortable quarters in the native villages.

The northernmost range of Lebanon is known as Jebel 'Akkâr, and at its summit is a bold escarpment 2,000 feet high, facing to the west, and overlooking the fertile plain of 'Akkâr. Its highest peaks are but little lower than the more visited summits of Makmel above the cedars. Its botany is far less explored than that of the remainder of Lebanon. Along its eastern flank, and in some of its sheltered ravines, it is somewhat densely wooded. Its more thorough study will doubtless multiply the number of the already rich Lebanon flora. South of this range is that of Makmel, with its sister peaks of the Dhohr-el-Qodhîb, the most truly alpine summits of the chain. These rise to a height of over 10,000 feet.

Their surface is for the most part rounded or conical, and they rise from a plateau or tableland about 9,000 feet above the sea. At the latitude of the cedars, the range of Makmel breaks down into a ridge about 7,000 feet above the sea. This ridge runs southward about thirty miles to Jebel Sunnîn, a pyramidal peak 8,500 feet above the Mediterranean. The top of this peak is truncated, with a triangular surface, having three nearly equal sides, each about three miles long. This surface is broken and hollowed into funnel-shaped excavations, from 500 to 1,000 feet broad at top, and from 200 to 500 feet deep. In these excavations the snowdrifts are deep enough to last all through the summer and autumn, so that Sunnîn is never without snow. South of Sunnîn is another depression of the main chain of Lebanon, to a height of 6,000 feet, then a cathedral-shaped peak 7,500 feet high, known as Jebel Kenîseh (the Church Mountain), then a depression again to about 6,000 feet, a height which is maintained for about twenty-five miles; then a saddle-back double peak, Taumât-Niha (the Twins of Niha), about 6,500 feet high; after which the chain of Lebanon sinks gradually through the range of Jebel Rihân until it ends opposite the Qal'at-esh Shuqîf (Castle of Belfort).

Antilebanon, separated from Lebanon by the Valley of Cœle-Syria, begins opposite the northern end of Lebanon, and runs most of its course as a sub-alpine chain, about 6,000 to 7,000 feet high, until, at its southern extremity, it rises to the only true alpine peak of Hermon, variously estimated at from 9,500 to 10,500 feet high.

The great diversity of surface of these chains, the lofty height of so large a part of their mass, their north and south course, the different meteorological conditions of their seaward and landward slopes, and their isolation on all sides, give a special character of the highest interest to the Lebanon and Antilebanon flora. The list of peculiar plants is a long one. Doubtless it will be diminished as the botany of Northern Syria is better known, but it will still remain one of striking peculiarities and interest.

Lebanon and Antilebanon were once heavily wooded. The many allusions in Scripture indicate that, at least as late as the time of Isaiah, Lebanon was a forest-clothed range. Of its cedar-forests only a few groves remain. They are as follows. The northernmost thus far noted is that of Besherri, the famous "Cedars of the Lord," with about 450 trees. A few miles south of this are the forests of the Maronite Patriarch at El-Hadeth. Farther south are groves at 'Ain Zehaltah, Barûk, and Me'âsir. Cedars have not been noted on

Antilebanon. It would not be strange if they should yet be found. Of other forest trees, the cypress, *Quercus Lusitanica*, *Lam.*; *Q. Cerris*, *L.*; *Q. Libani*, *Oliv.*; *Q. coccifera*, *L.*; *Pinus Halepensis*, *Mill.*; *Acer Monspessalanum*, *L.*; *A. Syriacum*, *Boiss. et Gaill.*; *Pistacia Terebinthus*, *L.*, with its variety *Palestina*; *Juniperus excelsa*, *M.B.*; *J. drupacea*, *Lab.*; *Prunus ursina*, *Ky.*, are common. *Pinus Pinea*, *L.*, is cultivated in open groves, rarely in dense forests, over a large portion of the outcropping sandstone spurs of Lebanon, from an elevation varying from the base to 4,500 feet. It is little, if at all, cultivated in Antilebanon, seeming not to thrive far from the sea. *Ceratonia Siliqua*, *L.*, is scattered here and there over the lower slopes. But the term "forest," in the sense of a continuous, dense growth of trees, covering large tracts of country, can hardly be applied to the tree growth of Lebanon, and only to that of a few places on the eastern flanks of Antilebanon. Isolated trees of *Quercus coccifera*, *L.*, usually planted near tombs of Moslem, or Druze, or Nusairy, or Mutawaly sheiks, often attain imposing proportions, and stand out in bold relief on the mountain peaks, and on the flanks of the ravines.

Of cultivated trees, the olive, the mulberry, and the fig cover a large part of the slopes of Lebanon from its base to a height of 3,000 to 5,000 feet. Silk culture forms one of the principal branches of industry. Wheat and barley are cultivated to a height of 6,000 feet. On the higher levels they are sown in autumn, sprout immediately, are then covered with snow, which kills the tops; but as soon as the snow melts they grow rapidly and vigorously in the moist soil, and produce strong stalks and fine grain.

But for terracing, a large part of Lebanon and Antilebanon would be naked rock. Under the good government guaranteed by the European powers, this process is extending from year to year. If applied to the higher levels, which could thus be utilised for forest-culture, the ancient character of this range could be restored with vast advantage to the climate of the whole Levant.

A complete list of all the plants found in the chain would greatly exceed the limits of this article, and include a large part of the flora of Syria. I will confine myself to a list of plants not hitherto observed elsewhere, so far as known to the writer:—

- Ranunculus Pinardi*, *Boiss.*, Antilebanon.  
*Papaver Libanoticum*, *Boiss.*, Lebanon and Antilebanon.  
*Aubrietia Libanotica*, *Boiss.*, Lebanon.



- Draba oxycarpa*, *Boiss.*, Lebanon.  
 „ *vesicaria*, *Desv.*, Lebanon.  
*Viola Libanotica*, *Boiss.*, Lebanon.  
*Silene Makmeliana*, *Boiss.*, Lebanon.  
 „ *grisea*, *Boiss.*, Lebanon.  
*Alsine rupestris*, *Labill.*, Lebanon and Hermon.  
*Arenaria Libanotica*, *Ky.*, Lebanon.  
*Astragalus hirsutissimus*, *D.C.*, Lebanon.  
 „ *Cedreti*, *Boiss.*, Lebanon.  
 „ *emarginatus*, *Labill.*, Lebanon and Hermon.  
 „ *Antilibani*, *Bunge.*, Antilebanon.  
 „ *coluteoides*, *Willd.*, Lebanon and Antilebanon.  
 „ *Hermoneus*, *Boiss.*, Lebanon and Antilebanon.  
*Vicia canescens*, *Labill.*, Lebanon.  
*Rosa Schergiana*, *Boiss.*, Antilebanon.  
*Potentilla Libanotica*, *Boiss.*, Lebanon.  
*Poterium compactum*, *Boiss.*, Lebanon.  
*Buplevrum Libanoticum*, *Boiss. et Bl.*, Lebanon.  
 „ *irregulare*, *Boiss. et Ky.*, Lebanon.  
*Prangos Hermonis*, *Boiss.*, Antilebanon.  
*Pimpinella depaupertata*, *Post.*, Lebanon.  
*Ferula Hermonis*, *Boiss.*, Lebanon.  
*Ferulago frigida*, *Boiss.*, Alpine Lebanon and Antilebanon.  
*Galium Pestalozzæ*, *Boiss.*, Subalpine Lebanon.  
 „ *Ehrenbergii*, *Boiss.*, Subalpine Lebanon.  
 „ *jungermannioides*, *Boiss.*, Subalpine Lebanon.  
*Helichrysum Billardieri*, *Boiss. et Bl.*, Lebanon.  
*Cousinia Libanotica*, *D.C.*, Lebanon.  
*Cirsium phyllocephalum*, *Boiss. et Bl.*, Lebanon.  
*Jurinea stæhelia*, *D.C.*, Lebanon and Antilebanon.  
*Phæopappus Libanoticus*, *Boiss.*, Lebanon and Antilebanon.  
*Centaurea hololeuca*, *Boiss.*, Lebanon.  
*Leontodon Libanoticum*, *Boiss.*, Lebanon.  
*Scorzonera Libanotica*, *Boiss.*, Lebanon.  
 „ *Mackmeliana*, *Boiss.*, Alpine Lebanon and Antilebanon.  
*Crepis robertioides*, *Boiss.*, Alpine Lebanon and Antilebanon.  
 „ *pterothecoides*, *Boiss.*, Antilebanon.  
*Hieracium Libanoticum*, *Boiss. et Bl.*, Subalpine Lebanon.  
*Campanula trichopoda*, *Boiss.*, Subalpine Lebanon.  
*Convolvulus Libanoticus*, *Boiss.*, Lebanon and Antilebanon.  
*Verbascum Cedreti*, *Boiss.*, Lebanon and Antilebanon.  
*Veronica bombycina*, *Boiss. et Ky.*, Alpine Lebanon.  
*Origanum Libanoticum*, *Boiss.*, Lebanon.  
 „ *Ehrenbergii*, *Boiss.*, Lebanon.  
*Micromeria nummulariæfolia*, *Boiss.*, Lebanon and Hermon.  
 „ *Libanotica*, *Boiss.*, Alpine Lebanon.  
*Marrubium Libanoticum*, *Boiss.*, Lebanon and Antilebanon.  
*Stachys Ehrenbergii*, *Boiss.*, Lebanon.  
*Phlomis brevibrabis*, *Ehr.*, Lebanon and Antilebanon.  
 „ *chrysophylla*, *Boiss.*, Lebanon and Antilebanon.  
*Acantholimon Libanoticum*, *Boiss.*, Lebanon and Antilebanon.  
*Polygonum Libani*, *Boiss.*, Lebanon and Antilebanon.  
*Thesium Libanoticum*, *Boiss.*, Alpine Lebanon.  
*Euphorbia erinacea*, *Boiss. et Ky.*, Alpine Antilebanon.  
 „ *caudiculosa*, *Boiss.*, Alpine Lebanon.  
*Colchicum Libanoticum*, *Ehr.*, Alpine Lebanon.

- Tulipa Lownei*, *Baker*, Lebanon and Antilebanon.  
*Ornithogalum Libanoticum*, *Boiss. et Bl.*, Lebanon.  
*Allium Schergianum*, *Boiss.*, Antilebanon.  
 „ *Zebedanense*, *Boiss. et Noc.*, Antilebanon.

A botanist ascending Lebanon from the seacoast plain passes in many places through plantations of *Pinus Pinea*, *L.*, and native groves of *P. Halepensis*, *Mill.*, and scrubs of *Quercus coccifera*, *L.* He will note at an elevation of 1,000 feet *Erica verticillata*, *Forsk.*, which flourishes especially on the red sandstone which crops out occasionally from the limestone; *Cistus villosus*, *L.*, and *C. salviæfolius*, *L.* At a height of 4,000 feet he will encounter *Centranthus longiflorus*, *Stev.*, and *Sambucus Ebulus*, *L.* From this level the flora begins to be sub-alpine, comprising such plants as *Eryngium Billardieri*, *Lar.*; *Rhododendrum Ponticum*, *L.*; and *Cedrus Libani*, *L.* It is not until the alpine region is reached, however, that the peculiarities of Lebanon appear. On those rounded, naked summits are innumerable hemispherical clumps of *Acantholimon Libanoticum*, *Boiss.*, several excessively thorny erinaceous species of *Astragalus*, and *Onobrychis cornuta*, *L.* On the surface of the rocks are patches of *Cerasus prostrata*, *Labill.*, and *Cotoneaster nummularia*, *F. et M.*, both intricately branched shrubs. In the patches of soil among the rocks are herbaceous perennials, such as *Heracleum humile*, *Flor. Græc.*, *Nepeta Cilicica*, *Boiss.*; and in crevices and caves *Asplenium Ruta-Muraria*, *L.*; *A. Bourgæi*, *Boiss.*; and *Cystopteris fragilis*, *L.* On the gravelly hillsides are found *Pisum formosum*, *Stev.*, *Erodium trichomanefolium*, *L'Her.*, and *Astragalus trichopterus*, *Boiss.* After a few minutes collecting the portfolio of the botanist is full of rare and most interesting species, many not elsewhere found.

VII. *The Table-lands of Palestine*, east and west of the Jordan, are about 2,500 feet above the Mediterranean. The climate is considerably cooler than that of the semi-tropical maritime plain, and the rainfall in winter is abundant. There is a general resemblance between the flora east and west of the Jordan, but that of the former shades off gradually into that of the central and northern plains. Thus in rising from the maritime plain to the hill country of Palestine one encounters the plants of the coast range of Lebanon. At the summit he finds a flora closely resembling that of the middle zone of Lebanon. Soon after crossing the watershed and descending towards the Ghor, the flora assumes the desert type, which increases as one descends into the trough

of the Dead Sea. Thus there is a very strong contrast between the eastern and western slopes of the Palestine hills. On the other hand, on rising from the Jordan valley up the hills of Moab and Gilead, the botanist soon begins to encounter the familiar plants of the western slopes of Palestine and Lebanon.

Western Palestine has few trees and almost no forests. Eastern Palestine, on the contrary, has some forests, especially in Gilead. There is a considerable grove of *Arbutus Andrachne*, *L.*, on the northern slope of Jebel Hoshah, and there are shady forests of oak, pine, and terebinth in many of the wadis which debouche into the Jordan Valley. So closely are the botanical characteristics of the uplands of western Palestine allied to those of the lower and middle zone of Lebanon that there are almost no plants peculiar to this region. East of the Jordan in Moab and Gilead the following plants were found by the author in the spring of 1886:—

*Æthionema Gileadense*, *Post.*  
*Anthriscus laticarpa*, *Post.*  
*Hypochaeris altissima*, *Post.*

*Trichodesma Boissieri*, *Post.*  
*Scrophularia Gileadense*, *Post.*

VIII. *The Trough of the Jordan and Dead Sea.*—The flora of the mountain flanks on either side of this great cleft changes at the sea level, which is about half-way down their sides at the latitude of Jericho and three quarters at Tiberias. Above this level the plants are those of the middle mountain zone, while below it they approximate more and more to the desert types. In going down from Jerusalem to Jericho or from Bethlehem to the Dead Sea the change on the former route is noted at Khan Hatrûr (the inn where the Good Samaritan left the wounded man), and on the latter above Mar. Saba. The first of the characteristic plants met with is *Statice Thouini*, *Viv.*; then *Atriplex Palestinum*, *Boiss.*; *Matthiola oxyceras*, *D.C.*; and, as we descend deeper into the torrid valley, *Gymnocarpum fruticosum*, *Pers.*; *Haplophyllum longifolium*, *Boiss.*; *Gypsophila Rokejeka*, *Del.*; *Allium Hierochuntinum*, *Boiss.*; and *Zygophyllum dumosum*, *Boiss.* To the present time the following species have been found only in this valley:—

*Tamarix Jordanis*, *Boiss.*  
*Umbilicus lineatus*, *Boiss.*  
*Daucus Jordanicus*, *Post.*  
*Psammogeton microcarpum*, *Post.*

*Verbascum Tiberiadis*, *Boiss.*  
*Asparagus Palestinus*, *Baker.*  
 „ *Lownei*, *Baker.*

There are, however, a number of striking species which are peculiar to this cleft as far as our district is concerned,

such as *Balanites Ægyptiaca*, *Del.*; *Solanum coagulans*, *Forsk.*; *Calotropis procera*, *Willd.*; *Loranthus Acaciæ*, *Zucc.*; *Berberis* *plumbaginea*, *Cav.*; *Periploca aphylla*, *Dec.*; *Populus Euphratica*, *Oliv.*; besides a considerable number of herbaceous plants, in all about twenty-five species.

The fringe of trees along the Jordan is principally composed of *Populus Euphratica*, *Oliv.*, several *Salices*, and *Tamarix Jordanis*, *Boiss.*, and *T. Pallasii*, *Desv.* The most numerous of all the trees of the plain about Jericho is the *Zizyphus Spina-Christi*, *L.* The flora of the deep valleys which drain the table-lands on either side of the Jordan is quite of the desert type. For example, about Callirrhœ are found *Aizoön Canariense*, *L.*; *Moringa aptera*, *Gaestn.*; *Pentatropis spiralis*, *Forsk.*; *Dæmia cordata*, *R. Br.*; *Fagonia glutinosa*, *Del.*; *Cleome trinervia*, *Fresen.*; *Trichodesma Africanum*, *L.* From these valleys the transition is easy to—

**IX. The Deserts.**—The surface of these deserts is extremely varied, and the substratum not less so. In some places there is nothing but hot, barren rocks, and yet even from these spring many interesting plants, such as *Helianthemum Kahiricum*, *Del.*; *Chenolea Arabica*, *Boiss.*; *Moricandia dumosa*, *Boiss.*; *Reaumuria Palestina*, *Boiss.*; *Boucerosia Aaronis*, *Hart.* (peculiar, so far as yet known, to Mount Seir); *Capparis spinosa*, *L.* In other places where the soil is sandy or gravelly, as at the bottom of the wadis, there is a host of annuals, such as *Nigella deserti*, *Boiss.*; *Notoceras Canariense*, *R. Br.*; *Anastatica Hierochuntinum*, *L.*; *Hippocrepis cornigera*, *Boiss.*; *Linaria macilentata*, *Decaisn.*; *L. Hælava*, *Forsk.*; *Atriplex dimorphostegium*, *Kar. et Kir.*; *Kochia latifolia*, *Fresen.*; *K. muricata*, *L.* The majority, however, of the desert plants are perennial herbs or shrubs, as *Farsetia ovalis*, *Boiss.*; *Reseda muricata*, *Presl.*; and *R. pruinosa*, *Del.*; several species of *Zygophyllum* and *Fagonia*; *Nitraria tridentata*, *Desf.*, the Gharqod of the Arabs; *Astragalus Sieberi*, *Del.*; *Acacia Seyal*, *Del.*; *Lithospermum callosum*, *Vahl.*; *Phelipea lutea*, *Desf.*; and *Ph. tubulosa*, *Schenk.*; *Statice pruinosa*, *L.*; *Atriplex Palestinum*, *Boiss.*; and *Ephedra alata*, *Decaisne.*

The following species have their centre of dispersion in or not far from the Tih, although all are not wholly confined to our deserts:—

*Delphinium deserti*, *Boiss.*  
 " *Bovei*, *Dec.*  
*Glaucium Arabicum*, *Fres.*  
*Morettia canescens*, *Boiss.*  
*Nasturtiopsis Arabica*, *Boiss.*  
*Hussonia uncatata*, *Boiss.*

*Koniga Arabica*, *Boiss.*  
*Isatis microcarpa*, *J. Gay.*  
*Moricandia dumosa*, *Boiss.*  
*Schimpera Arabica*, *H.*  
*Dianthus Judaicus*, *Boiss.*  
*Reaumuria Palestina*, *Boiss.*

<i>Moringa aptera</i> , Gaertn.	<i>Salsola tetragona</i> , Del.
<i>Crucianella membranacea</i> , Boiss.	" <i>lancifolia</i> , Boiss.
<i>Scabiosa eremophila</i> , Boiss.	<i>Ephedra Alte</i> , C. A. M.
" <i>arenaria</i> , Forsk.	<i>Iris Helenæ</i> , W. Barb.
<i>Anthemis microsperma</i> , Boiss.	<i>Pancretium Sickenbergieri</i> , Asch. et Schweinf.
" <i>melanopodina</i> , Del. et G.	<i>Allium Sinaiticum</i> , Boiss.
<i>Chamæmelum auriculatum</i> , Boiss.	" <i>modestum</i> , Boiss.
<i>Brocchia cinerea</i> , Del.	" <i>hirsutum</i> , Zucc.
<i>Artemisia Judaica</i> , L.	" <i>Rothii</i> , Zucc.
<i>Atractylis prolifera</i> , Boiss.	<i>Muscari longipes</i> , Boiss.
<i>Centaurea ammocyanus</i> , Boiss.	<i>Trisetum glumaceum</i> , Boiss.
<i>Carduncellus eriocephalus</i> , Boiss.	<i>Avena Wiestii</i> , Stead.
<i>Leontodon Arabicum</i> , Boiss.	<i>Boissiera bromoides</i> , Hochst.
<i>Crepis Arabica</i> , Boiss.	<i>Vulpia pectinella</i> , Del.
<i>Pentatropis spiralis</i> , Forsk.	<i>Sclerochloa dichotoma</i> , Forsk.
<i>Boucerosia Aaronis</i> , Hart.	
<i>Traganum nudatum</i> , Del.	

The following plants are peculiar to the as yet almost unknown Syrian Desert, which is, however, more to be regarded as an extension of the great plains than a proper desert:—

<i>Reaumuria Billardieri</i> , Jaub. et Sp.
<i>Haplophyllum Blanchei</i> , Boiss.
<i>Trigonella Blanchei</i> , Boiss.
<i>Astragalus ancistrocarpus</i> , Boiss. et Haussk.
<i>Ferula Blanchei</i> , Boiss.
<i>Picris Blancheana</i> , Boiss.
<i>Scleropoa procumbens</i> , Curt.

X.—*The Great Plains* of Cœle-Syria, Haurân, Damascus, Aleppo, and Aintâb are extensive prairies, often broken by ranges of hills or isolated eminences. On these breezy uplands grow a great number of species not found in the mountain, coast, or desert regions, but having a wide range to the eastward, which the journeys of successive travellers are ever extending. These plains are in many places exceedingly fertile, and once supported a teeming population, as is testified by the ruined cities of Haurân and the vast territory to the north-east of Aleppo.

The most characteristic genus of these plains is *Astragalus*, with a list of about thirty species. After it come *Verbascum* and *Phlomis*.

The following list of plants thus far found only in these plains, but in many cases doubtless found also in the Syrian Desert, which shades off into them by imperceptible lines. The peculiar genera are in italics:—

<i>Malcolmia Aurantica</i> , Post.	<i>Habrosia spinuliflora</i> , Ser.
<i>Chrysochamela velutina</i> , D. C.	<i>Hypericum retusum</i> , Auch.
<i>Brassica Aintabensis</i> , Post.	<i>Erodium Gaillardoti</i> , Boiss.
<i>Isatis cochlearia</i> , Boiss.	<i>Fagonia Olivieri</i> , D.C.

Haplophyllum fruticosum, <i>Labill.</i>	Echinops <i>Blancheana</i> , <i>Boiss.</i>
"    villosulum, <i>Boiss et</i>	Cousinia <i>Aleppica</i> , <i>Boiss.</i>
<i>Haussk.</i>	" <i>Aintabensis</i> , <i>Boiss. et</i>
Medicago <i>Shepardii</i> , <i>Post.</i>	<i>Haussk.</i>
Trifolium <i>Aintabense</i> , <i>Boiss. et</i>	Centaurea <i>laxa</i> , <i>Boiss. et Haussk.</i>
<i>Haussk.</i>	" <i>thriniciæfolia</i> , <i>D. C.</i>
Psoralea <i>Jaubertiana</i> , <i>Fenzl.</i>	" <i>Onopordifolia</i> , <i>Boiss.</i>
Astragalus <i>triradiatus</i> , <i>Bge.</i>	" <i>polycephala</i> , <i>Post.</i>
" <i>pauciflora</i> , <i>Post.</i>	" <i>Trachonitica</i> , <i>Post.</i>
" <i>Damascenus</i> , <i>Boiss. et</i>	" <i>Postii</i> , <i>Boiss.</i>
<i>Gaill.</i>	Zoegea <i>leptaurea</i> , <i>L.</i>
" <i>aulacolobus</i> , <i>Boiss.</i>	Garhadiolus <i>hamosus</i> , <i>Boiss. et Bl.</i>
" <i>conduplicatus</i> , <i>Best.</i>	Picris <i>Kotschyi</i> , <i>Boiss.</i>
" <i>Dorcoceras</i> , <i>Bge.</i>	Scorzonera <i>Kotschyi</i> , <i>Boiss.</i>
" <i>chrysophyllus</i> , <i>Boiss.</i>	Trachelium <i>Postii</i> , <i>Boiss.</i>
" <i>Rousseanus</i> , <i>Boiss.</i>	Convolvulus <i>stachydidifolius</i> , <i>Choisy.</i>
" <i>lepidanthus</i> , <i>Boiss.</i>	Verbascum <i>simplex</i> , <i>Labill.</i>
" <i>Aintabicus</i> , <i>Boiss.</i>	" <i>Syriacum</i> , <i>Schrad.</i>
" <i>deinacanthus</i> , <i>Boiss.</i>	" <i>ptychophyllum</i> , <i>Boiss.</i>
" <i>dipodurus</i> , <i>Bge.</i>	" <i>Damascenum</i> , <i>Boiss.</i>
" <i>oxyphyllum</i> , <i>Boiss. et</i>	" <i>Germaniciæ</i> , <i>Haussk.</i>
<i>Haussk.</i>	" <i>Aleppense</i> , <i>Benth.</i>
" <i>Russelii</i> , <i>Boiss.</i>	Linaria <i>Damascena</i> , <i>Boiss. et Gaill.</i>
" <i>Oocephalus</i> , <i>Boiss.</i>	Scrophularia <i>scariosa</i> , <i>Boiss.</i>
" <i>Trachoniticus</i> , <i>Post.</i>	" <i>tagetifolia</i> , <i>Boiss. et</i>
Hedysarum <i>atomarium</i> , <i>Boiss.</i>	<i>Haussk.</i>
Onobrychis <i>megataphros</i> , <i>Boiss.</i>	Zizyphora <i>acutifolia</i> , <i>Montb. et Auch.</i>
" <i>galegifolia</i> , <i>Boiss.</i>	Nepeta <i>cryptantha</i> , <i>Boiss. et Haussk.</i>
Vicia <i>mollis</i> , <i>Boiss. et Haussk.</i>	" <i>Shepardii</i> , <i>Post.</i>
" <i>Aintabensis</i> , <i>Boiss. et Haussk.</i>	" <i>Trachonitica</i> , <i>Post.</i>
Cucumis <i>trigonus</i> , <i>Roeb.</i>	Stachys <i>satureoides</i> , <i>Montb. et Auch.</i>
Actinolema <i>eryngiodes</i> , <i>Fenzl.</i>	Lamium <i>Aleppicum</i> , <i>Boiss. et</i>
Carum <i>polyphyllum</i> , <i>Boiss. et Bl.</i>	<i>Haussk.</i>
" <i>brachyactis</i> , <i>Post.</i>	Teucrium <i>Auraniticum</i> , <i>Post.</i>
" <i>nudum</i> , <i>Post.</i>	Polygonum <i>Aleppicum</i> , <i>Boiss. et</i>
Coriandrum <i>tordylioides</i> , <i>Boiss.</i>	<i>Haussk.</i>
Colladonia <i>Auranitica</i> , <i>Post.</i>	Euphorbia <i>Chesneyi</i> , <i>Kl. et Gike.</i>
Smyrniopsis <i>cachroides</i> , <i>Boiss.</i>	" <i>Postii</i> , <i>Boiss.</i>
Ferulago <i>Auranitica</i> , <i>Post.</i>	Biarum <i>Russelianum</i> , <i>Schott.</i>
Ferulago <i>Trachonitica</i> , <i>Post.</i>	Arum <i>melanopus</i> , <i>Boiss.</i>
Galium <i>Syriacum</i> , <i>Boiss.</i>	Iris <i>fumosa</i> , <i>Boiss. et Haussk.</i>
" <i>bracteatum</i> , <i>Boiss.</i>	Colchicum <i>fasciculare</i> , <i>L.</i>
<i>Mericarpæa vaillantoides</i> , <i>Boiss.</i>	" <i>brachyphyllum</i> , <i>Boiss. et</i>
Achillæa <i>membranacea</i> , <i>Labill.</i>	<i>Haussk.</i>
" <i>oligocephala</i> , <i>D. C.</i>	[These two species are probably
Anthemis <i>Haussknechtii</i> , <i>Boiss. et</i>	one, and identical with <i>C. Ritchii</i> , in
<i>Bul.</i>	which case they are not peculiar to
" <i>Damascena</i> , <i>Boiss. et</i>	this region.]
<i>Gaill.</i>	Allium <i>Noëanum</i> , <i>Reut.</i>
Chamæmelum <i>grandiflorum</i> , <i>Boiss.</i>	Bellevalia <i>densiflora</i> , <i>Boiss.</i>
<i>et Haussk.</i>	Asphodeline <i>Damascena</i> , <i>Boiss.</i>
Dipterocome <i>pusilla</i> , <i>F. et M.</i>	

Besides the above list of plants thus far peculiar to these plains, the following plants, although found farther east and north, are highly characteristic:—

Delphinium Cappadocicum, <i>Boiss.</i>	<i>Onobrychis</i> Gaillardoti, <i>Boiss.</i>
Sterigma sulphureum, <i>Russ.</i>	<i>Lathyrus</i> chrysanthus, <i>Boiss.</i>
Crambe Orientalis, <i>L.</i>	<i>Asperula</i> Orientalis, <i>Boiss. et Hoh.</i>
Cleome ornithopodoides, <i>L.</i>	<i>Postia</i> lanuginosa, <i>D. C.</i>
Trigonella Aleppica, <i>Boiss. et Haussk.</i>	<i>microcephala</i> , <i>Boiss.</i>
Astragalus Aleppicus, <i>Boiss.</i>	<i>Acantholopis</i> Orientalis, <i>L.</i>
<i>Echinops</i> , <i>Boiss.</i>	<i>Phelipea</i> salsa, <i>C. A. M.</i>
<i>Onobrychis</i> Kotschyana, <i>Fenzl.</i>	<i>Bellevalia</i> nervosa, <i>Bert.</i>

The isolated range of Jebel-ed-Durúz might almost be erected into an eleventh botanical subdivision of the lands which form the subject of this article. This range, which was called by the Romans Alsdamus, and by the Hebrews the Hills of Bashan, is one of the most remarkable geological features of Syria. Set back forty miles from the main chain which bounds the great longitudinal cleft to the east, it differs from the other mountains in that it is volcanic in origin. Jebel-Qulêb, the highest peak, 5,400 feet above the sea, is a long extinct crater, with its steep cone still formed of pumice. El-Jawalîl, the next in height, is not crater-like, but is none the less volcanic. Tel-Šihân, at the eastern angle of the Leja, is one of several craters, formed of pumice and lava, the immense stream of which has flowed across the plain, and formed the strange sea, amid the solid waves of which are the crevasses and caverns in which the rebellious Druzes have often been able to defy the military power of Turkey. The black basalt, which is scattered freely over the plain, and of which the solid stone doors and windows of the giant cities of Bashan are formed, extends more or less northward to Aleppo. Doubtless the whole of the region from Callirrhœ to Aleppo was once a seat of volcanic disturbance and eruptions. In this respect it is in striking contrast with the regions west of the Jordan, and Cœle-Syria, and the valley of the Orontes. Only at Safed, at the base of Cassius, about Antioch, and in portions of the Amanus chain is there evidence of volcanic disturbance, and that of the highest antiquity. Nevertheless, the periodical earthquakes at Safed, Lattakia, and Antioch show that some vestiges of subterranean activity are still at work.

The flora of the Hauran Mountains and the continuous ranges of hills to the north and south is as little explored as that of the surrounding plain. Nevertheless, it is certain that the woods which once covered the higher regions of these hills are all cut down. A scanty fringe of *Pistacia terebinthus*, *L.*, only remains on the cone of Jebel-Qulêb. There are, however, extensive oak scrubs along the western foot of the range. Of the herbaceous flora, in addition to other peculia of the trans-Jordanic region, the writer noted *Thalictrum isopy-*

roides, *C. A. U.*, and *Anthriscus nemorosa, M. B.*, on the northern declivity of the cone of *Jebel-Quléb*. These plants have not before been observed in Syria. He also observed an immature *Dianthus*, perhaps *D. libanotis, Labill.* The summit of *El-Jawalil*, is almost totally bare of vegetation. Two new species, *Trifolium Alsadami, Post*, and *Alopecurus involucratus, Post*, were discovered near the base of *Jebel-Quléb*, and *Verbascum Qulebicum, Post*, near its summit.

In closing this article it may not be amiss to allude to the range and number of plants cultivated with ease in the open air in Syria and Palestine. *Nigella arvensis, L.*, is raised from the black seeds which are known as the *El-Habbat-es-saudā* (the black seed), or *Habbat-el-Barakat* (the seed of blessing). These seeds are sprinkled over the surface of the flat loaves of bread. They are the *fitches* of *Is. xxviii. 25, 27*. *Pæonies* grow wild in the northern mountains. The opium poppy, *Papaver somniferum, L.*, is common in cultivation, though opium is not made in Syria. The capsules are used in making sedative infusions. Of crucifers we have black and white mustard, cabbage, cauliflower, turnip, cresses, and radishes.

Flax, rue, sorrel, and *Cactus Ficus-Indica* grow wild. The vine, with an endless variety of fruits, is universal, even to a height of 6,000 feet above the sea. There are maple, tamarisk, terebinth, *Schœnus*, *Pride of India*, and jujube trees. The lemon, orange, and citron are cultivated everywhere along the coast from *Tripoli* southward.

Of *Leguminosæ* the number of cultivated plants is very large,—lupine, beans, horse-beans, peas, lentiles, *Cicer arietinum*, mash (a species of *Phaseolus*), carob-trees, acacia (the *Shittim* of Scripture), and the locust, the latter introduced.

Of *Rosaceous* plants, the strawberry, blackberry, peach, plum, almond, apricot, nectarine, apple, quince, medlar, and *Photinia Japonica*, all flourish. Syria is pre-eminently a rose country, most cultivated varieties attaining an excellent development.

Of *Grossulaceæ* there are none which succeed well in this land, although gooseberries and currants have been cultivated. The pomegranate is indigenous in the north, and the myrtle everywhere. *Eucalypti* flourish in marshy ground. Water-melons, musk-melons, squash, pumpkins, and cucumbers all reach a fine development.

Of *Umbelliferæ*, the coriander, dill, fennel, caraway, anise, celery, parsley, parsnip, and carrot either grow wild or flourish under cultivation.



Valerian grows wild, as also carthamus, chicory, and lettuce of several kinds, and artichokes are cultivated.

Of Solanaceous plants the potato, tobacco, tomato, and egg-plant are cultivated, and henbane and nightshade grow wild.

The sesame forms a considerable part of the produce of the plains.

The olive flourishes everywhere, and yields a considerable part of the wealth of the country. Figs, sycamores, mulberries, hemp, and the ramié (Chinese silk) plant all flourish. The plane tree, the walnut, the edible pine, and a considerable variety of oaks, the hornbeam, and the beech are abundant, the latter two especially in Northern Syria. The castor-oil plant is almost universal.

Of Monocotyledons the palm, the banana, many liliaceous flowers, the *Colocasia antiquorum*, *Schott* (which is cultivated in marshy ground), many kinds of iris, tulip, and crocus flourish in appropriate situations.

Grass is not cultivated for hay, except on the farm of the Damascus Road Company at Shetoorah, in Cœle-Syria. Nevertheless, the success of this company, which makes the hay there raised a considerable part of the food of its large number of horses and mules, warrants the belief that hay could be made one of the staples of Syria.

Maize, wheat, barley, sorghum, and sugar-cane are staples. The papyrus is now confined to the Hûleh, and perhaps to the marshes of the Kishon. *Arundo Donax* and *Saccharum Ægyptiacum*, the gigantic grasses of the country, are put to numerous uses. They are everywhere cultivated as hedge plants.

In conclusion, although this list is illustrative, but by no means exhaustive, it will be seen from the foregoing sketch, that the variety of the flora of Syria and Palestine corresponds with its central situation and diversity of soil, climate, and surface, and the extreme inequality of the meteorological conditions of its different though not distant regions. It will not escape the thoughtful observer of these facts, that the microcosm selected for the development of the chosen people and the revelation of the Word was thus eminently suited to be the physical basis of the world-religion.

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The PRESIDENT (Professor G. G. Stokes, D.C.L., P.R.S.).—I have now to invite discussion on the paper just read,—a paper containing a most elaborate account of the botany of regions which, as yet, comparatively few have studied. Among those present who are acquainted with the countries spoken of, I observe Dr. Chaplin, who will, perhaps, be kind enough to open the discussion.

T. CHAPLIN, M.D.—I am much obliged to the President for giving me the opportunity of saying a few words, but I am sure, as all present will feel, I can have very little to add to the elaborate and complete description of the botany of Syria and Palestine given by Dr. Post, for which we owe him a deep debt of gratitude. It has fallen to my lot to study with some care, and not altogether without means of personal observation, the flora of a great portion of the district over which Dr. Post has carried us to-night, and I am very glad of the opportunity of finding how much I still have to learn on the subject. I allude particularly to the reasons the author has given as to why the flora of Palestine and Syria is so copious as we find it to be, and why also it contains, comparatively speaking, so few genera peculiar to itself. It may not, perhaps, be known to all present how very much the scientific world is indebted to Dr. Post for the earnest and constant industry with which he has devoted himself to this interesting and important subject, nor to how large an extent he has availed himself of the opportunities afforded him in Beyrout as the head of the Medical and Scientific College there established. I should like here to add that this is one more brilliant instance of the great and important contributions which have been made by Christian missionary institutions for the advancement of science and the benefit of mankind. Personally, I feel extremely glad to meet my old friend and colleague here in London, and am most deeply indebted to him for his very valuable paper.

REV. F. A. WALKER, D.D., F.L.S.—I am personally more interested in this than in any paper I ever heard read at the Victoria Institute. So far as my own brief and limited experience goes, I have seen in different localities many of the plants in Syria and Palestine which Dr. Post has here recorded, and I have also in Greece seen several of those mentioned as being found in Syria and Palestine. This, however, is only natural when we think of the wide uniformity of the Mediterranean littoral, there being the same

limestone formation in Corsica and Greece as prevails throughout Syria and Palestine. The colour of the soil and the botanical species and geological formations in Greece remind one strongly of what is met with in Syria and Palestine. If one takes an example, there is the *Gladiolus Illyricus* or *Gladiolus Atroviolescens*, which Dr. Post informs us is supposed to be "the lily of the field,"—the lily of the Gospel: first, because it is a lily, which the anemones are not; and, next, because it is found in the fields, where, as I myself have seen, it flourishes in the spring-time at Beyrout and in the neighbourhood of Issus. This gladiolus is found but rarely in England, the New Forest being one of the few localities where it is met with, and I think, speaking under correction, that the *Gladiolus Aleppicus*, a dusky species, is much rarer: I had one specimen of the latter given to me at Jerusalem. I should like to add a few words about the oak galls mentioned in the paper. My late father, Francis Walker, who was a Fellow of the Linnæan Society, was a great authority on oak galls, of which he made a special study, and in Professor Mayer's work, translated by him and continued by Mr. Edward Fitch, there is an account of the galls round Vienna. Five kinds of oak are mentioned as bearing galls. I always heard from my father that the oak had more galls peculiar to it than any other tree. Of the five kinds of oak here alluded to as bearing galls, some of them would seem to be Southern or Eastern species. In fact, most of the trees bearing galls appear to be peculiar to the East. I have seen galls on most of the trees here mentioned.

The AUTHOR.—I may here remark that the number of galls found in the region of Amanus is simply astounding. I never saw such a number. I am now engaged in the study of a collection, but am not at present able to report upon them. If any one would indicate a gentleman who would undertake the study of them I should be greatly obliged. The variety one meets with in the northern woods of Syria is simply astonishing.

Rev. J. NEIL.—I should like to add a word as to our indebtedness to Dr. Post, not only for this paper, but for the valuable work he has accomplished in the regions of which he speaks. In this paper there are no fewer than seventy-five new species or varieties,—mostly species,—which bear Dr. Post's name (applause). The discovery of such a number of species and varieties certainly entitles him to our best thanks. I should like to offer one or two remarks about Southern Palestine, as to the fewness of the

grasses. What Dr. Post says is very true,—the number of species generally in Palestine, when we consider the limit of its extent, is simply enormous. Look at the list given in Canon Tristram's *Flora of Palestine*, and then look at the list of British plants, and one is astonished at the immensely superior number of species found in Palestine,—a land scarcely larger than Wales. The *Leguminosæ* in Palestine are represented by 358 species, but in England, Scotland, and Wales by less than 90 species. That is, in Palestine there are four times as many species of *Leguminosæ* as we have in Great Britain. Of *Compositæ* there are twice as many species in Palestine as we have here; of *Cruciferae*, *Labiatae*, and *Umbelliferae*, more than twice as many; and of *Liliaceæ* more than three times as many. But this is not the case with regard to the grasses, for while there are only 158 species of the *Gramineæ* named in Palestine, we have in England about 138 species. That is, the proportion in this case is only about as eight to seven. This may be said to be characteristic of a country which is swept by the awful Sirocco, or south-east wind of the Bible, which visits it in May and October, and, blowing over a thousand miles of the Arabian sand-desert, bursts upon Palestine like the blast of a furnace, deprived of all ozone and possessed of a terribly scorching power. The small number of species of grasses, compared with the great number of species of other natural orders, is a very singular feature in the botany of Palestine. Hay, Dr. Post says, is made now, but it was never made in olden times, and there is no trace of it in what we have been able to gather of the life and habits of the people, nor any mention of it in the Bible. The practice of making hay has been introduced by Europeans. The natives feed their animals on crushed straw (*teben*, the Hebrew *teven*) and barley for the greater part of the year; and glad enough have I been to see the newly-cut fresh barley grass brought up to my stables for the horses during the two brief months, March and April, when alone any kind of grass could be had. Another feature is the abundance and splendour of the crimson flowers. I do not think Dr. Post points this out, though in the case of the littoral he speaks of *Anemone Coronaria*, and *Ranunculus Asiaticus*. Against all the brilliant crimson flowers of Palestine, we in England have only three amongst all our true wild plants,—the poppy, the pimpernel, and the pheasant's eye (*Adonis autumnalis*). In Syria one may see eight or nine different crimson or scarlet-crimson flowers in a day's walk. I will here say a word about the *Anemone Coronaria*, with which I would associate the

tulip, *Tulipa Gesneriana*, of a brilliant red, the prevailing species, which, when opening in the bud, appears very like *Anemone Coronaria* in the same condition, and which I still think, with all deference to Dr. Post, is the most likely claimant to the title of "the lily" of the Authorised Version. The tulip and the *Anemone Coronaria* are very common flowers. The gladiolus which we have in Southern Palestine seems to be the same as the English one, at least it is the same somewhat insignificant pinkish colour, the other mentioned by Dr. Post being very rare. But the lips of the bride in the Song of Songs are compared to "lilies," and this flower must therefore have been of a crimson colour. I take it that "the Rose of Sharon" must have been a cultivated plant, because among the natives you never hear them talk of the wild flower of any particular district, nor is any wild flower ever alluded to in that way in Holy Scripture. The whole utilitarian, ignorant, and unscientific nature of the masses in the East precludes the possibility of such a thing. Valuable cultivated products are thus alluded to as "the cedars of Lebanon," "the wheat of Minnith," &c., but wild flowers, never. If you ask a *fellah* the name of the loveliest wild flower, he will probably reply with undisguised contempt, *Ya hhwadajah hhasheeh*, "Oh, sir, it's grass." Consequently "the Rose of Sharon" must have been a cultivated flower. It was in all probability a white Damascene rose of the free flowering kind, now grown for the purposes of the perfume market. There is thus afforded a striking and beautiful contrast in the Song of Songs (answering to "the white and ruddy" of Canticles, v. 10) between the lowly wild crimson anemone or tulip, imaging our Saviour's human nature, and the rich white cultivated rose, representing His divine nature, in the words, "I am the Rose of Sharon, and the Lily of the Plains" (Cant. ii. 1). A further very peculiar and striking feature in connexion with the Flora of Southern Palestine, and more or less of all the adjacent regions, is the growth of plants mostly on the northern slopes of the hills, the southern slopes being left comparatively bare, or clothed chiefly with desert species with whitish-woolly or glaucous foliage. Three causes, I believe, account for this curious and highly characteristic feature of Northern Palestine, which makes the country look far greener and more fertile when traversed from north to south, than it does when traversed in the opposite direction. First, the sub-tropical rain, the *geshem*, or "gushing down-pour," of the Hebrew Bible, which during the wet season, November to April, comes up from the south-west, and

washes away the soil on part of the southern side. Secondly, the burning sun, scorching down unshaded by a single cloud all day, for some six months in succession, during the hot season, May to October, pouring its sultry rays from the south. Last, but not least, the terrible Sirocco, the burning south-east wind of May and October, to which I have already alluded. With regard to what is said at the end of Dr. Post's paper as to certain plants flourishing in Syria and Palestine,—in Southern Palestine, I must certainly, with reference to some of these plants, take exception to the word "flourishing." I allude especially to the apricot and the apple. The apples in any part of Palestine are certainly not to be compared with ours; and Mr. Meshullam, who for 25 years, as an experienced practical horticulturalist, cultivated the so-called gardens of Solomon at *Wady Urtas*, assured me that the apple-tree could not bear for more than three or four years running in Southern Palestine, without deteriorating and requiring a fresh graft. The same remark applies to the apricot, which is not grown in any quantity further south than 130 miles north of Jerusalem. I mention this because attempts have been made to identify the apple and the apricot with the *tappoahh*—"the apple," of our Authorised and Revised Versions—which latter I cannot doubt was the orange. (See my two letters to the *English Churchman*, of March 29th and April 5th, 1888.) All Southern Palestine is too hot and dry to allow of the apple flourishing there, as Dr. Tristram states in *Aids to Bible Students*; and this is true in a less measure of the apricot, which, like the apple, ripens well in the open in this country. In a *Guide to Kew*, published under Sir Joseph Hooker's authority, our apple is said to be the "apple" of Scripture.

Mr. W. GRIFFITH.—I agree with the previous speakers that we are greatly indebted to Dr. Post for the valuable contribution he has made to the science of botany. Such a contribution as this will stand as a monument of the research which has been successful in discovering so many new species. I should not be bold enough to criticise his paper; but I desire, as a learner, to ask one or two questions. The flora described to us is rich in the extreme, both the species and the genera being numerous. Will Dr. Post inform us whether many or any of the species contribute much to the *materia medica* of that science in which he has so greatly distinguished himself? Botany is a beautiful study in itself, but we must not lose sight of the utilitarian

part of the question. Again, Dr. Post might give us some information as to whether the articles which are of the greatest value, such as wheat, maize, and so on, are in that part of the world being increasingly produced for commercial purposes? If he would answer these questions he would add to the value of his paper by affording utilitarian information that might be of service, not only to the afflicted in mind or body, but to the wants of the trading, and also of the general, community.

Mr. T. CHRISTY, F.L.S.—I was about to ask the same questions as have just been put. With regard to the *Cannabis Indica*, no doubt this was much used for allaying pain in crucifixions, some of it being put on a sponge and passed into the mouth of the sufferer when nailed to the cross. A considerable effect was then produced on the nerves and muscles. As it was sometimes put forward as a grievance that the crucified persons escaped in consequence, the practice of mutilating their bodies was resorted to in order to prevent their friends taking them away for the purpose of restoring them to life. There are many other drugs used by the natives, opium being one. Of course, in many of these Eastern countries they cannot exist without these drugs. I would add that when we have regard to the great variety of trees and plants in Palestine and Syria, we must not forget the numerous wars that have been waged there; for it is well known that war was always a cause of bringing into the country in which it took place a considerable number of plants and seeds, these being carried by the invading troops and dropped about in places where they became fertilised. Beyond this the birds carry about the seed, a fact which may also help to account for the "enormous flora" of the districts described. With regard to the perfumed woods and gums, they are often very carefully collected, and any one who sees the gums and resins that are brought to this country to be used as incense knows that they are full of seeds, so that when they are broken and pounded the seeds will fall out; and in this way there might be seeds from India, Persia, and elsewhere thus liberated, and thereby accounting for the varieties that have been noticed. I hope this paper is only the first of many whereby Dr. Post will be able to add to the extremely interesting particulars he has already given; because, being on the spot, he is able to collect all the information he requires, feeling, doubtless, as he is doing so, that it is one of the great charms of travelled life to be able to bring together the different connecting links in nature. Moreover, those who come here and

listen to these things have supplied to them food for weeks and weeks of thought. It has certainly been a great treat to hear so interesting a paper, and I must again express a hope that it will ere long be followed by others.

Captain FRANCIS PETRIE, F.G.S. (Honorary Secretary).—I am sure many will regard Dr. Post's paper as one of the most valuable contributions we have had this session. In him we have one who is an undoubted authority, upon the botany of the East, as evidenced by the importance attached by the British Museum to his contributions to our national collections. The fulness of detail in the paper is also an advantage, for this makes it at once a book of reference upon the subject, and one which will be much appreciated and valued, especially by Bible students. Since the days of Dr. Colenso we have often heard dissertations and questions in regard to so called mis-statements on botanical matters in the Scriptures; and, therefore, a paper like this is a decided step in the right direction, for it will tend to prevent erroneous conclusions.

The following communication has been received in regard to the paper:—

“Dr. Post mentions in his most valuable paper that Globe Artichokes are cultivated in Palestine. This is the case at Jerusalem, especially in the gardens of the King's Dale at Siloam. But they are also indigenous on the great Plain of Sharon, where I was so fortunate as to see them growing in July, 1859, by millions, north of Ras el Ain (identified, by Consul Finn, with *Antipatris* in 1849). The stately plants, many of them six feet and more high, were full of blossom, the rich purple of which glowed over the plain for leagues. The name ‘artichoke’ is adopted by us from the native appellation (*Ard-i-shok*), ‘thorn of the ground.’ This name leads one to think that the Globe Artichoke, as well as many others of our vegetables and flowers, was brought to this country from Palestine by the Crusaders and pilgrims. Seeing these forests of artichokes was one of many instances in which we learned how easily the usual traveller may be unaware of the products of the country which he sees only at the particular season of his journey, perhaps in early spring, before many of the plants are in flower, or in autumn when the summer heats have ripened and dried up the greater part. None but residents can become fully acquainted with the botany of any country. And in Syria, where, as Dr. Post has shown, and as we constantly observed,



there is such immense difference between the climates of the various localities and of the various seasons, even a resident has but small chance of an accurate acquaintance with the plants, unless he is able to visit each locality again and again at the various seasons of the year, so as to find the plants which, utterly insignificant at other times, come into prominence, each at its own proper season. But for the fact that we passed our summers out in tents near Jerusalem, I should probably never have observed the blue Larkspur, which blossoms in some places of the neighbourhood in early June, or the Red Everlasting, the Yellow Stock, the Great Iris, the Hollyhock, the variety of *salvia* and of *cistrus*, or the Yellow Mullein, with its spreading branches like the great candlestick of the Temple. The sea-shore lily, near Tyre, and many other flowers are never seen by passing travellers. It flowers in summer. Major Conder, whose knowledge of Palestine is extensive, yet failed to observe the rose, and tells us in his *Tent Life* that the rose is not a product of Palestine. Yet I have a Dog-rose blossom gathered in the Lebanon, and have seen the Dog-rose flourishing between Jerusalem and Nabloos and elsewhere. The yellow roses, of Baalbek are celebrated. Dr. Post includes the rose among the native plants of Syria. Perhaps I may be allowed to add a word as to the magnificence and variety of the thistles of Palestine. They testify by their luxuriant growth to the fertility of the soil, and are in themselves a most interesting set of plants, and the fragrance of some kinds of thistles is also remarkable in this country where, as Dr. Post well observes, the land is clothed and covered with sweet-smelling flowers and foliage from year's end to year's end, 'even as a field which the Lord hath blessed.' Not only wild thyme and varieties of mint, rosemary, rose, and others, but also many kinds of *salvia* and *cistus*, and various shrubs, all add their fragrance, even in the hottest of the summer, to the perfumes brought out by the dews and wafted on every breeze. The *Poterium spinosum* abounds all over the Samaria and Judæan districts. It is there also still used as 'thorns for the burning of lime' (see Isaiah xxxiii. 12), and it has furnished not only the allusion to "thorns" growing in the path of the Sower in our Lord's parable, but also, I think, a remarkable emblem in the use of the Hebrew word  $\text{טַבַּח}$  in Jeremiah v. 10, translated *nettesh*—'battlements,'—which is, no doubt, its meaning. The *Poterium spinosum* (called Beilân in the North) is, in the Jerusalem district, called *nettesh*,—a word identical with that used

by Jeremiah for battlements. The link between the two seemed to me to be this. The Shepherds in Judæa use this thorny plant and pile it up as *battlements* for defence upon the loose stone walls of their open-air sheepfolds. And here we have another instance of the persistence of *local* phraseology and custom. Doubtless, *nettsk* was thus used by shepherds in ancient times, and hence the name was afterwards applied to stone-built battlements."—E. A. FINN, *Member of the Royal Asiatic Society.*

THE AUTHOR.—To reply fully to all that has been said to-night would take up so much time, that I should prefer to deal with it at some future opportunity in a paper on the economic and therapeutic products of Syria and Palestine, rather than to offer, on the spur of the moment, a few desultory remarks that would vanish into thin air. At some future period, when I return to Syria and get settled, I may obtain the leisure to finish a paper on that subject.

The meeting was then adjourned.

## NOTES BY THE REV. F. A. WALKER, D.D., F.L.S.

P. 257.

"Horsetails, Ferns, and Club Mosses."

During the whole of my visit to the East, I noticed very few ferns—*Pteris longifolia* at Beyrout and the Nahr el Kelb, and *Adiantum capillus venèris* at Beyrout, and also at Mount Sipylus, Asia Minor; *Equisetum arvense*, common horsetail; also at the Nahr el Kelb. The common bracken (*Pteris aquilina*) I noticed near the reputed tomb of S. Luke at Ephesus, for the first time since quitting England.

P. 260.

"*Sisymbrium officinale*, three species of *Sinapis* and *Anagallis arvensis* are recorded.

I gathered *Sisymbrium Iris* from off the tomb of St. George at Damascus a species of *Sinapis* at the fountain of Calirrhoe, Athens, and *Anagallis arvensis*, blue pimpernel, at the seashore, Jaffa.

P. 262.

"*Papaver Rhæas*."—Probably the same as *Papaver Syriacum*, which I found by the shore at Jaffa, and at the village of Mezi, Damascus. It is somewhat larger than our field poppy, and has more black in the centre.

P. 263.

"*Chrysanthemum segetum*."—Our corn marigold, abundant on plain of Jericho.

"*Gladiolus Illyricus*."—Common in neighbourhood of Beyrout, Alexandria, towards Issus.

"*Asphodelus microcarpus*."—I found both *Asphodelus albus* and *lutens* at Ephesus; ditto *ramosus* on Areiopagus, and *Lycabettus*, Athens.

"*Calycotome villosa*."—Between Jaffa and Latroon.

"*Elæagnus hortensis*."—Pass of Daphne and Bay of Eleusis, also on line of rail between Smyrna and Ephesus—Lisifa tree.

"*Amygdalus orientalis*."—*Amygdalus*, on plain of Litany.

P. 266.

"*Marrubium faucidens*."—Found species of *marrubium* in valley of Jehoshaphat.

P. 267.

"*Ferula meifolia*."—I find this plant in my list from Philadelphia and Ephesus, as *Ferala tingitana*.

P. 268.

"*Clematis vitalba*."—In Corfu.

"*Adonis autumnalis*."—Pheasant's eye, very common and widely distributed in Palestine, Aeldama, Nicopolis, Yalo; also in Syria, Baalbek, and Kankab. The orange variety known as *dentata* is far scarcer than *autumnalis* at Kankab in Syria, and at Fountain of Elisha, plain of Jericho.

P. 269.

"*Glaucium luteum*."—By river Meles, near Smyrna, and at Sumium, Attica.

"*Fumaria parviflora*."—The *Lumaria micrantha*, probably; the same plant grows luxuriantly in the cactus hedges of the orange groves of Jaffa.

P. 270.

"*Reseda lutea*."—I find "*reseda alba*" recorded in my list as occurring generally in island of Malta, and on St. John's Church, Ephesus.

P. 270.

"*Linum pubescens*."—Between Jaffa and Latroon.

"*Geranium tuberosum*."—Protestant Cemetery, Damascus; also at Abana and Pharpar.

"*Peganum harmala*."—Acropolis.

"*Rhus cotinus*."—Decellia.

"*Rhus coriaria*."—Alexandretta towards Issus.

P. 272.

"*Spartium junceum*."—Corfu.

"*Trifolium purpureum*."—Between Yâsur and Jaffa.

"*Lotus gebelia*."—Jaffa and road to Beyrout.

A great many species of *Trifolium* are recorded on p. 20. These probably include two species which occur in my list under other names, viz., *T. tomentosum*, Jaffa, and *T. clypeatum*, between Latroon and Jerusalem.

P. 20 and p. 21 also contain a great many species of *Astragalus*. The name *Aleppicus* is not mentioned here. I find *Astragalus aleppicus* recorded from plain of Litany.

P. 273.

"*Onobrychis cadmea*."—On hillside above Baalbek.

"*Vicia sericoarpa*."—Between Jaffa and Jerusalem.

"*Vicia cracca*."—Jaffa; road to Beyrout.

"*Lathyrus amœna*."—Between Jaffa and Latroon.

"*Cercis siliquastrum*."—Judas tree. Alexandretta, towards Issus; near Stadium, Ephesus.

P. 274.

"*Punica granatum*."—Pomegranate. Jaffa, Calvary, Tripoli, Bay of Eleusis, &c.

P. 275.

"*Astedia squamata*."—Tomb of Maccabees, Nicopolis, Yâlo.

P. 276.

"*Asperula arvensis*."—Plain of Litany.

P. 278.

"*Scorzonera papposa*."—I found the *Scorzonera* fairly plentiful on the commencement of the ascent from Jericho.

"*Campanula Trachelium*."—I found a *Campanula* very nearly allied to *C. Trachelium* at three places in Asia Minor—Mount Sipylus, Mount Pagus, and Ephesus.

"*Styrax officinale*."—Mount Prion, Ephesus.

"*Jasminum fruticans*."—Philadelphia, Ephesus, and Mount Sipylus. I have got their species named "*fruticosum*."

"*Anchusa Italica*."—Jaffa and road to Beyrout.

"*Alkanna megalocarpa*."—*Alkanna orientalis* from ruins of Baalbek.

P. 279.

"*Echium Italicum*."—I have a species of *Echium* from Mount Pagus.

"*Onosma frutescens*."—Nahr el Kelb.

"*Hyoscyamus aureus*."—Bethany, Jaffa, &c.

P. 280.

"*Salvia Horminum*."—Between Latroon and Jaffa.

P. 281.

"*Phlomis viscosa*."—Nahr el Kelb.

P. 282.

"*Quercus Ilex*."—Alexandretta, towards Issus.

P. 283.

"*Orchis Anatolica*."—Deceleia.

"*Iris Sisyrrhinchium*."—Between Jaffa and Jerusalem, generally distributed.

"*Tulipa Oculus Solis*."—Shtora.

"*Muscari comosum*."—Beyrout.

"*Muscari racemosum*."—Hobah and Baalbek.

"*Ornithogalum umbellatum*."—Hobah and Shtora.

P. 285.

"*Raphanus sativus*."—I found a species of *Raphanus* at Munychia.

P. 286.

"*Vinea Libanotica*."—Vinea herbacea, Plain of Litany.

P. 291.

"*Cistus salviaefolius*."—Sweet Waters, and between Jerusalem and Jaffa.

"*Pisum formosum*."—Deceleia.

P. 292.

"*Asparagus Palestinus*."—" *Asparagus Lownei*."—Asparagus. Banks of Jordan.

P. 293.

"*Populus Euphratica*."—Banks of Jordan.

"*Cleome trinervia*."—Shore of Dead Sea.

"*Solanum coagulans*."—Fountain of Elisha.

"*Nitraria tridentata*."—Fountain of Elisha.

"*Statice pruinosa*."—Plains of Jericho.

P. 295.

"*Lamium Aleppicum*."—*Lamium maculatum*. Kolomeli.

P. 297.

"*Papaver somniferum*."—Opium poppy. Philadelphia and Sardis.

"*Cactus Ficus-Indica*."—Jaffa, Jerusalem.

"*Pride of India*."—Beyrout. *Melia arederach*.

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## APPENDIX A.

### ON FLINT ARROW HEADS OF DELICATE STRUCTURE.

BY THE RIGHT HON. SIR C. MURRAY, K.C.B.

AT one of the Institute's meetings\* Mr. E. Charlesworth, F.G.S., expressed much curiosity to understand how some flint arrow heads of very light and delicate form "could have been used in war or in the chase without being broken."

I will offer a few remarks which may throw some light upon this:—In the year 1835—fifty years ago—I spent the summer in the great Prairies of the Far West with the Pàrir tribe of N. American Indians, hunting the Bison (usually miscalled the Buffalo) in the region lying between the Upper Missouri and the head waters of the Arkansas,—a region then a thousand miles west of any white man's settlement. Living constantly with them, I had, of course, abundant opportunities for observing not only all their domestic habits, but also all their preparations for war and the chase. Leaving other matters, probably more interesting, aside, I will proceed at once to the special subject of the present observations, namely, their *arrow-heads*. These were mostly, if not all, made of iron, (though some tribes still make them of flint,) those intended for the chase are of an elongated oval shape *without a barb*, like those of Figures 1 and 10 in the Journal diagrams, and they are firmly tied on to the arrow by threads made from bison-sinew. Those intended for war are equally fine and sharp, but they have a barb at the base and are very *slightly* tied on with thread of the same sinew, so that when it strikes an enemy and an attempt is made to draw it out, the arrow-head remains embedded in the body, and makes a

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\* Vol. xvii., page 263.

horrible and often incurable wound. Now as the North American Indians have devised this method of torturing an enemy, is it not very possible that the same device may have occurred to the pre-historic savages in Belgium, and that those fine and delicate flint arrow-heads were *meant* to break and splinter in the wound that they had made.

I may add what perhaps will surprise the reader, that in Bison hunting the bow and arrow is a far more effective implement than rifle or pistol; but he must remember that the chase is generally followed at full gallop, and a Bison unless struck on the spine or in the heart, will run for miles with several balls in him; but when struck by an arrow eight or ten inches deep in his body, every movement that he makes gives him so much pain that he stands still, bleeding inwardly, and the Indian returns and kills him at leisure.



## APPENDIX B.

### ANCIENT HUMAN FOOTPRINTS IN NICARAGUA.

At a meeting of this Institute (*see page 146,*) reference was made to some ancient human footprints in Nicaragua, and an early copy of Dr. D. G. Brinton's investigations in regard thereto (as laid before the American Philosophical Society) was read. Since then, the discoverer, Mr. Earl Flint, demurring to the conclusions of Dr. D. G. Brinton, has sent the Victoria Institute a statement of his objections, as they appear in the *American Antiquarian* for 1888. The following is a reprint of the first three paragraphs, which specially bear upon the point at issue:—

“As adverse sentence has been pronounced before the American Philosophical Society, by my friend Dr. D. G. Brinton, on the antiquity of footprints found in a quarry near Lake Managua, and other locations, which was due to a misunderstanding of my letter, leading him to associate *surviving* eocene shells from another locality and eocene sand, on which the Tufas containing the footprints lie, permit me to reply.”

“An imprint was sent him, and one to Prof. Baird, and the sand on which they lay was sent separate to both parties; the bag of shells contained a slip, stating, ‘shells from Lake Giloa, or Jiloa, whose entire beach is made up of them,’ which is six miles north-east of quarry, and considered as belonging to same horizon. This collateral evidence would aid in placing the geological age of the Tufas; as the shells were a new species, and with many others abundant near the old caves, on the southwest slope of the volcanic range, were covered with similar types spread over our northern Territories.”

“Of those here, not four per cent. are existing species. The ‘*scarphaca*’ is not represented among living forms. The same remark applies to many others included in those sent to the National Museum in 1878, private Nos. 187 to 289, still undetermined, but older than those found in the ‘shell heaps’ along the coast range, which was re-peopled long after; even these contain old

shells, among them the 'calistar,' are abundant, and though not passing beyond the cretaceous formation, are common among those found in the Territories, while those found near the caves are much older and pertain to the eocene-tertiary merging into the miocene; there is no doubt that the cave dwellers used them as food, at the same time made the inscriptions of the sea monsters with uncommon accuracy, and some in relief. I was unable to copy one correctly without the aid of instruments, while their authors lying face upwards chiseled them in rock."

"In conclusion, for the fifth time, I try to make myself understood when I say that man's works were buried here in eocene times; that the first volcanic eruption containing the footprints lies on sand and other formations of that epoch, while his works are in close proximity with eocene shell beds and were buried together."

Since the record of its Meeting of November, 1887, the transactions of the American Philosophical Society have contained no further allusion to the subject; the *American Antiquarian* for March, 1889, however, inserts the following remarks upon the "*Age of the Nicaragua Footprints*":—

"The subject of the Nicaragua footprints has been discussed during the past year. Dr. Earl Flint was the first discoverer. He maintains that the footprints belonged to the eocene strata. Dr. D. G. Brinton, on the contrary, taking by Dr. Earl Flint's own testimony, makes out that they did not belong to the eocene, but were of a much more recent date. He submitted the shells which were found in the yellow sand to Prof. Angello Heilprin for examination. He thinks that the deposit is more nearly post-pliocene than eocene. The leaves which were discovered in the new look of the shells, are cited as proofs of volcanic forces, which at a modern date covered the human tracks. Another proof more conclusive to Dr. Brinton's mind is that the footprints indicate the use of sandals or moccasins. As to the genuineness of the footprints the wood-cut\* kindly furnished to us by Dr. Brinton will illustrate the point. Several specimens have been sent to the United States. Four of them are in the Peabody Museum. One of these has an appearance as

\* *Victoria Institute Transactions*, p. 146, ante.

if a sandal had been used; the others are impressions of the bare foot. The specimen sent to Dr. Brinton contains the impression of a left foot. The apparent length of the foot was eight inches, though the total length of the impression was nine and a quarter inches, the breadth at the heel three inches, toes four and a half inches. The greatest depth of the impression is two inches, being at the ball of the foot, the weight having evidently been thrown forward as in vigorous walking. The place at which these footprints were discovered is in Nicaragua, a region which is subject to earthquakes and where volcanic eruptions were formerly numerous. Some of them were on the slope of the Sierra de Managua, near the town of San Rafael. The present specimen was taken from a quarry near the town of Managua, 300 feet from Lake Managua.

“The volcano Tizcapa is about two and a half miles from the shore of this lake, and in ancient times its molten streams found their way into the waters of the lake. Its eruptions were irregular and evidently long periods of quiescence intervened, periods long enough for the tufa beds to become covered with vegetation. The impressions are found on the first or lowest tufa beds.” Dr. Flint says that the rock-bound shores of this and other lakes are covered with inscriptions of which no tradition can be obtained. Seven well-marked beds of tufa are penetrated; next a deposit of clay, the soil of other times, containing plants, trees, leaves, then four more deposits, including pumice, sand-drift, tufa black sand, volcanic sand, fossil leaves, etc., and then come the footprints.

One point of inquiry would be as to the certainty of Dr. Flint's divisions of the strata. On this there is great opportunity for imagination to work, and it will require very close observation on the part of skilled geologists and naturalists to decide upon the number of deposits and the age of each. The subject is at arm's length at present. Dr. Flint is the only observer on the spot, but the professors in the university at Harvard, Philadelphia, and the gentlemen in the National Museum at Washington have only the few stone slabs which have been forwarded to them to judge from. An argument for exceeding antiquity has been made from the relative length of the big toe and the second toe, but the specimen sent to Dr. Brinton gives no such impression; it is quite a modern-looking foot. There is no doubt of these being genuine human footprints; but the use of sandals would certainly contradict the idea of very great age. A race which wears shoes can not be assigned to the early stages of human culture.”

## APPENDIX C.

### CAVE DEPOSITS.

At a recent meeting of the Institute, the statement was made that the bones of animals found in caves were "washed in or carried there by beasts of prey," and a member (Mr. J. Stalkartt) remarked at the time that their presence in caves was not usually due to being *carried in* by beasts of prey. Since then, Mr. Stalkartt, writing from India, gives instances in which bears had come down from the hills to his estate and killed and eaten cattle upon the spot; and in doing so he refers to the following notes of a paper read in 1888, before the Bombay Natural History Society.

Mr. Inverarity, a noted *shikari* discussed the habits of the tiger, and especially the mode in which it kills and eats its prey. Some have thought that the tiger seizes by the throat, others by the nape of the neck from above. Mr. Inverarity has examined scores of slain animals with special reference to this point, and in every case but one the throat was seized from below. The exception was an old boar, who had been seized by the back of the neck from above. One of a single file of villagers who was once seized by the nape of the neck by a man-eater, but saved by his companions, and had no idea when he recovered his senses what had happened. Whether dislocation of the neck takes place is doubtful. The tame hunting leopards always kill by pressure on the windpipe, without breaking the skin; possibly the tiger kills in the same way. It is only by accident, if at all, that tigers in killing sever any important vein or artery, and no blood to speak of flows from the throat wounds. Very large and powerful animals like the bull, buffalo, and bison, if attacked at all, are in the first instance attacked from the rear with a view to disabling them. Having killed, the tiger almost invariably begins eating a hind-quarter, consuming one or probably both. Sometimes he leaves the stomach and intestines as they are; sometimes he will remove them to one side, making a neat parcel of them. A tiger and tigress together will finish an ordinary sized animal at one meal, leaving only the head. In this case it is probable that the second

begins at the fore-quarter. Animals are never eaten where they are killed, but are always dragged a short distance. They are not lifted clear of the ground, but dragged. Having gorged himself, the tiger sometimes lies close by his prey, but if it is hot weather and there are hills in the neighbourhood, he will go a long distance off before resting for the day. He prefers to lie in a cool cave or in a breeze on the hill-side, than in the close hot jungle. He returns next night and finishes what is left, but he never eats a second time on the same spot, but drags the remains of the prey forty or fifty yards off. Sportsmen coming on a half-devoured animal and desiring to catch the tiger, tie the prey to a tree. The tiger takes about two hours' steady eating to finish the fourquarters of a bullock. Mr. Inverarity sat over a small tigress one night who ate for ten minutes, then went away for twenty, probably to drink, and on her return ate steadily for two and a quarter hours. He did not fire, as he could not see her. Tigers are cannibals; they will make their meals off each other. They are supposed to kill once in five or six days, and no doubt the tiger, after a heavy feed, does not care to hunt much for a few days; but a tiger kills whenever he can. They have been known to kill on fourteen consecutive nights. Mr. Inverarity believes that animals killed by tigers suffer little beyond the panic of a few seconds. The shock produces a stupor and dreaminess in which there is no sense of pain or feeling of terror. The powerful stroke of the fore paw of the tiger is a fiction; he clutches with his claws as one might with the fingers, but does not strike a blow. Tigers wander immense distances at night, and, as they like easy going, they go on roads and paths. They do not like to move during the heat of the day, as the hot ground burns their pads and makes them raw. They can on occasion climb trees. In Salsette one climbed after a certain Pandoo, but could not reach him and retired. Pandoo, thinking the coast clear, got down and ran towards home, but on the way was caught by the tiger and killed. The inquest report stated "that Pandoo died of the tiger eating him; there was no other cause of death. Nothing was left except some fingers, which probably belonged to the right or left hand."