of Ladâkh and Bis-áhár, in the Himalayas, at an elevation of

17,000 feet above the level of the sea.

Strophalosia and Productus are placed in the synoptical table in a family distinct from that of Strophomenidæ, because from all the genera of the latter they are distinguished by the form of their ovarian spaces and the presence of spines. In the former character some of the Strophomenas (S. transversalis, S. oblonga, &c.) appear to approximate them; and in the latter they are assimilated to a certain extent by Chonetes.

XII.—Excursions in Upper Styria, 1842. By R. C. Alexander, M.D.*

On the 2nd of July I visited the romantic ravine between Arzberg and Gutenberg, and found Pyrola media, Saxifraga elatior (M. and K.), Aizoon, rotundifolia, Sedum dasyphyllum, Rhododendron hirsutum, Athamanta cretensis, Teucrium montanum, Scrophularia canina, Euonymus latifolius, Dianthus plumarius, Hieracium incisum, Mæhringia Ponæ, Peltaria alliacea, Arenaria laricifolia.

On the 7th of July I was on the Schöckel, a mountain above 5000 English feet high, near Gratz, and found Ranunculus alpestris and aconitifolius, Hieracium villosum, Botrychium lunaria, Saxifraga controversa, Soldanella alpina in fruit, Spergula saginoides, Anthemis tinctoria, but was prevented by heavy rain from

continuing on the mountain.

On the 15th of July I was on the Lantsch, and found Astragalus Cicer, Mæhringia heterophylla, Koch (diversifol. Doll.), Melica ciliata, Sambucus racemosa, Myagrum paniculatum, Sempervivum hirtum, Androsace lactea, Aronicum Clusii, Carex atrata and firma, Chrysanthemum corymbosum, Cotoneaster vulgaris, Centaurea montana, Cortusa Matthioli, Carduus personata, Dryas octopetala, Geum rivale, Gymnadenia conopsea var. minor, Lonicera nigra, Orchis globosa, Ribes alpinum, Sonchus alpinus, Silene acau-

than the length in the proportion of six to five. [The specimens examined are $1\frac{1}{2}$ in. wide and $1\frac{1}{4}$ in. long.] Upper valve convex, the convexity, which is greatest over the cardinal line, equal to one-third of the width of the shell: opposite valve concave, the concavity equal to half of the convexity of the upper valve. Umbone rounded, slightly prominent. Area: length equal to half the width of the shell, depth equal to one-sixth of its own length. Deltidium, the base one-third the length of its side. Spines of the dorsal valve adpressed, none exceeding a quarter of an inch in length, distant from each by a space equal to twice their diameter (which is the sixteenth of an inch in the largest spines): spines of the ventral valve (specimens imperfect in this particular).—Internal Characters (unknown). The formation to which this species belongs has not yet been ascertained: one of my specimens is associated with a Fenestella. It is from the crest of a pass near the boundary of Ladah and Bisahar at an elevation of 17,000 feet.

* Read before the Botanical Society of Edinburgh, April 9th, 1846.

lis, Thlaspi montanum, Thesium alpinum, Veratrum album, Pedicularis verticillata, Convallaria verticillata, Valeriana saxatilis, Draba aizoides, Gentiana acaulis, Lilium bulbiferum, Potentilla Clusiana, Helianthemum ælandicum, Primula integrifolia, and all

that I had found on the Schöckel.

At an inn at the foot of the mountain the people spoke a jargon that I had great difficulty in understanding, and they had as much I suppose in comprehending me. The innkeeper told me, begging my pardon, that I did not speak German very well, and should stay a month or two with him in the Breitenau to learn the language. I asked him if he did not think I had better opportunities in Gratz: Oh no, he said, they talk there according to

book, "nach der Schrift."

The Lantsch is one of the stations given in books for the rare Saxifraga hieracifolia on the authority of Vest, the late Professor. It has never been found there, the specimen in Vest's herbarium having been sent to him from the Carpathians by Zahlbruckner, and recognised by him here in Gratz. Whether Vest wished to have the credit of finding a rare plant, or from slovenliness had got the Carpathian specimen mixed with Styrian ones accidentally, I cannot say. He was the most untidy botanist ever known. His specimens were never pressed, but put as they were into bandboxes. Dr. Maly was commissioned after his death to examine the collection, and gives a most humorous account of it,—a blackberry stuck with a pin upon a leaf, &c. The Saxifraga in question has been found on the Reichart, but very sparingly.

My next excursion was over the alps to Leoben. On the way I found abundance of the *Mæhringia heterophylla*, but already out of blossom. It was first discovered by M. Zehentner about three years ago, and appears to be very common in ravines where the stone is clay-slate, both in Styria and Carinthia. *Phyteuma*

scorzonerifolium and some common subalpine plants.

From Leoben I made a very pleasant and remunerating excursion up the Reiting. It is tedious to give a mere catalogue of the plants collected on every separate mountain when there is nothing particularly interesting about any of them, and I shall therefore give a full list at the end. On this excursion, from incautiously drinking cold milk and cold water, I suffered for the rest of the summer from diarrhoa on all the alps that I attempted to ascend. I believe the milk is the chief cause of this complaint, and in Upper Styria there is nothing else to be got on the mountains. The next that I explored was the Grimming, a very difficult and dangerous one, consisting of a brittle limestone that splinters in the hand of the climber. During a hailstorm that overtook us great masses came rolling down the ravines. I found that day scarcely anything. On the Hoch Yolling, about 10,000

English feet high, I collected many interesting things: Eritrichium Hacquetii, Androsace alpina, Geum reptans, Sesleria disticha, Primula glutinosa, and others that grow at the snow line.

Having given a rather detailed account of excursions in the Windisch part of the province, it is fair here to describe one in Upper Styria. On the road towards the Grimming my fellowtraveller was a very intelligent mine-engineer from Hungary, who had been appointed to superintend some iron-works of a Styrian company and been in their service many years. By his recommendation I visited Schladming. The valley is for an alpine country extremely beautiful. To me alps have no great charms, but the outline of the mountains here is grand and striking. The path from Schladming leads for an English mile along a succession of fine waterfalls. The valley then divides, and I ascended the Unterthal. The protestant clergyman lent me a book descriptive of the district, in which these two dales, Oberthal and Unterthal, are raised into competition with the most beautiful parts of Tyrol. It was into these mountains that the protestants fled for refuge during the persecution under Ferdinand II., and half the population of Schladming and the whole of that of the Ramsau is of that persuasion. They are now tolerated. Nothing can be more striking than the difference between this protestant part and the rest of Styria. Here I found beautiful cattle, well-built houses two or three stories high, good fences and well-dressed people. I felt on entering the Ramsau as if I were come to a different kingdom. I had often heard the remark made of the Swiss cantons, but could not conceive it fully till I made this excursion.

The Yolling lies on the opposite side of Schladming. The guide told me I should find good night-quarters, and brought me to the hut where the dairymaid lives during the summer months, the Zennerinn.

The next morning we started at five, and were within an hour's walk of the summit, when the clouds approaching rendered it dangerous to proceed, and we descended by a different path into the Oberthal.

For the first time I had the opportunity of seeing pastoral life on an alp. The evening in July draws in there at about six o'clock, and the goats come home of their own accord. The cows and sheep must be driven home. It is extraordinary how these latter climb the precipices, the cows as well as the sheep. In Switzerland in the same situation there would probably have been a decent inn and accommodation for travellers as good as in towns. In Styria one must content oneself with admiring nature. One advantage of travelling here is the cheapness. I gave a shepherd boy who accompanied me about three hours a

ten-kreuzer piece, fourpence English, and he kissed my hand and said it was too much.

As a sample of what may be found on one of the higher mountains in this province, I give the catalogue of what I brought home from the Yolling:—

Aronicum Clusii and var. glaciale.

Azalea procumbens.

Aconitum Lycoctonum.

Napellus.

Avena sempervirens.

versicolor.

Androsace alpina. Arenaria austriaca.

Agrostis rupestris.

Aspidium Lonchitis.

Bartsia alpina.

Carex frigida.

curvula.

Centaurea Phrygia.

Cirsium heterophyllum. spinosissimum.

Chrysanthemum alpinum.

Cerastium ovatum, Hopp. Cardamine resedifolia.

alpina.

Campanula alpina.

pusilla.

barbata.

Cherleria sedoides.

Cineraria rivularis.

Eritrichium Hacquetii. Eriophorum capitatum.

Euphrasia salisburgensis.

Geum montanum.

reptans.

Gentiana punctata.

nivalis.

acaulis.

bavarica 3. imbricata, Schleich.

Gnaphalium fuscum.

Hedysarum obscurum.

Hutchinsia alpina.

Heracleum austriacum.

Linaria alpina.

Oxyria reniformis.

Polygonum viviparum.

Pedicularis incarnata.

asplenifolia.

recutita.

Phyteuma hemisphæricum. globularifolium.

Phleum alpinum.

Potentilla aurea.

clusiana.

Primula minima.

glutinosa.

Pinguicula alpina.

Ranunculus glacialis.

Rhododendron ferrugineum.

Rhodiola rosea.

Salix retusa.

Statice alpina.

Saxifraga muscoides.

androsacea.

stellaris.

stellalls

aspera. Aizoon.

aizoides.

oppositifolia.

notun difelia

rotundifolia.

Sempervivum montanum.

arachnoideum.

Silene acaulis.

Pumilio.

Sesleria disticha.

Soldanella pusilla.

Swertia perennis.

Senecio alpinus.

carniolicus.

Vaccinium uliginosum.

Valeriana celtica.

Veronica alpina.

My next excursion was to Klagenfurt, and thence up the Sultzbach mountain on the frontier of Styria and Carniola. Klagenfurt is situated on the Drave exactly as Gratz is on the Mur, in the midst of a tract of alluvial land, and has nearly the same flora. Arrived at Sultzbach, we quartered ourselves on the clergyman, who does not exactly keep an inn, but is very happy to see respectable travellers, and does not refuse a few florins as recompense. He is the only person in the place ex-

cept his housekeeper that understands German. The friend who accompanied me was too zealous a catholic to climb a mountain on Frauen Tag, and so I went up alone and found the beautiful Campanula Zoysii, Saxifraga squarrosa, Sieb., and Cirsium carniolicum, Scop. The latter was a new discovery for the flora of The rain compelled me to return long before reaching the top. Astrantia carniolica and Hieracium porrifolium are very abundant there. Next day was a grand dinner at the clergyman's, and two vicars from neighbouring mountain parishes came to assist at some solemnity and dined with us. Among other dainties was bear's meat. One of the two visitors was a young man much taken with botany. He told me I should do him a great favour if I could induce any friend to come and stay with him a whole summer. He has nobody but his clerk to speak to, knows all the mountains well, and would gladly accompany his visitor on all his rambles. I asked him if he would plague himself with a foreigner who could not speak much He said he would welcome anybody who came as a botanist. Sieber was several summers on that part of the range called the Loibl, and to judge from the herbaria of friends who have explored it, there are no mountains in Austria that would better repay the trouble of searching them.

Returning from Sultzbach by the magnificent Schwarzenbach

valley, I found Campanula thyrsoidea tolerably abundant.

Since my return to Gratz I have made one short trip to Feistritz, more as an afternoon's drive than an excursion, but found Helianthemum fumana and Mentha gentilis; and since then, in company with Dr. Maly, Falcaria Rivini, Galium boreale and parisiense.

The principal Plants collected in Styria, south of the Drave, in 1842, with a few from the neighbouring provinces.

Clematis erecta, L.

Vitalba, L.

Atragene alpina, L.

Thalictrum aquilegifolium, L. minus, L.

Anemone trifolia, L.

ranunculoides, L.

Adonis æstivalis, L. Ranunculus Thora, L.

auricomus, L. sceleratus, L.

Helleborus niger, L.

viridis, L.

atrorubens, W. K.
Isopyrum thalictroides, L.
Delphinium Consolida, L.

Aconitum Lycoctonum, L.

Actæa spicata, L.

Berberis vulgaris, L.
Epimedium alpinum, L.
Nymphæa alba, L.
Nuphar lutea, Sm.
Corydalis cava, Schw.
solida, Sm.

Nasturtium officinale, R. Br. palustre, DC.

sylvestre, R. B.

Barbarea vulgaris, R. B. Turritis glabra, L.

Arabis turrita, L.

alpina, L. arenosa, Scop.

Cardamine amara, L.	Althæa officinalis, L.
impatiens, L.	Hypericum humifusum, L.
trifolia, L.	Acer pseudo-platanus, L.
Dentaria trifolia, W. K.	Geranium phæum, L.
enneaphyllos, L.	sylvaticum, L.
pinnata, Lam.	Impatiens Noli-me-tangere, L.
bulbifera, L.	Staphylea pinnata, L.
Hesperis matronalis, L.	Euonymus latifolius, L.
Sisymbrium Sophia, L.	verrucosus, Jacq.
Erysimum pallens, Hall.	Rhamnus alpinus, L.
strictum, Wett.	Rhus Cotinus, L.
Alyssum montanum, L.?	Genista scariosa, Viv.
calycinum, L.	germanica, L.
Farsetia incana, R. B.	sagittalis, L.
Lunaria rediviva, L.	tinctoria, L., pubescens, Lang
Draba aizoides, L.	Cytisus alpinus, L.
Kernera saxatilis, Reich.	purpureus, L.
Camelina sativa, Cran.	prostratus, Scop.
Thlaspi perfoliatum, L.	hirsutus, L.
montanum, L.	capitatus, Jacq.
Biscutella lævigata, L.	nigricans, L.
Lepidium Draba, L.	Ononis hircina, Jacq.
Neslia paniculata, Desv.	Medicago carstiensis, Jacq.
77 77 77	Melilotus vulgaris, Willd.
Helianthemum celandicum, W_{\cdot} , ca-	Trifolium medium, L.
num.	alpestre, L.
Viola lactea, R. B.	rubens, L.
mirabilis, Jacq.	ochroleucum, L.
biflora, L.	arvense, L.
Parnassia palustris, L.	montanum, L.
Polygala comosa, Schk.	hybridum, L.
amara, L.	patens, Schreb.
Tunica Saxifraga, Scop.	Dorycnium herbaceum, Vill.
Dianthus Armeria, L.	Galega officinalis, L.
sylvestris, Wulf.	Coronilla coronata, Jacq.
plumarius, L.	varia, L.
carthusianorum, L.	Hippocrepis comosa, L.
barbatus, L.	Vicia grandiflora, Scop.
deltoides, L.	tenuifolia, Roth.
Saponaria officinalis, L.	oroboides, Wulf.
Silene nemoralis, W. K.	lathyroides, L.
nutans, L.	Lathyrus Aphaca, L.
gallica, L.	Nissolia, L.
rubella, Wulf.	tuberosus, L.
Saxifraga, L.	Orobus vernus, L.
quadrifida, <i>L</i> .	niger, L.
alpestris, Jacq.	luteus, L.
rupestris, L.	tuberosus, L.
Lychnis Viscaria, L.	and the same of the same
Arenaria rubra, L.	Prunus Padus, L.
Mœhringia muscosa, L.	Spiræa Aruncus, L.
Ponæ, Fenzl.	ulmifolia, L.
Stellaria nemorum, L.	filipendula, L.
Mœnchia mantica, K.	Fragaria elatior, Ehr.
Linum viscosum, L.	Potentilla rupestris, L.
flavum, L.	alba, L.
Malma Alaca I	2.17

Potentilla inclinata, Vill. Galium vernum, Scop. micrantha, Ram. rotundifolium, L. sylvaticum, L. argentea, L. aurea, L. Valeriana tripteris, L. saxatilis, L. opaca, L. Dipsacus laciniatus, L. caulescens, L. Scabiosa sylvatica, L. Aremonia agrimonioides, Neck. ochroleuca, L. Rosa gallica, L. alpina, L. Cacalia alpina, L. Alchemilla alpina, L. Homogyne sylvestris, Cass. Cratægus monogyna, Jacq. alpina, Cass. Pyrus Chamæmespilus, Lind. Petasites albus, Gärt. Aronia rotundifolia, Pers. Sorbus Aria, Cra. Bellidiastrum Michelii, Cass. torminalis, Cra. Erigeron canadensis, L. Aucuparia, L. Buphthalmum salicifolium, L. Inula hirta, L. Pulicaria dysenteria, L. Circæa alpina, L. Trapa natans, L. Chrysanthemum corymbosum, L. Pyrethrum macrophyllum, Willd. Hippuris vulgaris, L. Peplis Portula, L. Doronicum austriacum, Jacq. Arnica montana, L. Montia fontana, L. Herniaria glabra, L. Cineraria crispa, L. Sedum hispanicum, L. longifolia, Jacq. album, L. Senecio nemorensis, L. Fuchsii, Gmel. sexangulare, L. dasyphyllum, L. Cirsium pannonicum, Gaud. carniolicum, Scop. Saxifraga Aizoon, L. cristata, Vest. Erisithales, L. Carduus personata, L. squarrosa, Sieb. aizoides, L. nutans, L. Carlina acaulis, L. atrorubens, Bert. Centaurea Jacea, L. cuneifolia, L. nigrescens, Willd. bulbifera, L. variegata, Lam. rotundifolia, L. Lapsana fœtida, Willd. Chrysosplenium alternifolium. Leontodon incanus, Schrank. Hypochæris maculata, L. Dondia Epipactis, Spr. Taraxacum lividum, Wig. Astrantia major, L. Prenanthes purpurea, L. carniolica, Scop. Lactuca perennis, L. Eryngium campestre, L. Crepis præmorsa, Tausch. Carum Carui, L. Hieracium Auricula, L. Seseli glaucum, L. porrifolium, L. Athamanta cretensis, L. flexuosum, W. Kit. Peucedanum Oreoselinum, Mæn. Xanthium strumarium, L. Heracleum austriacum, L. Laserpitium latifolium, L. Phyteuma nigrum, Schm. spicatum, L. Siler, L. Scandix Pecten-Veneris, L. Campanula Zoysii. Chærophyllum hirsutum, L. pusilla, Hænke. patula, L. sibirica, L. Loranthus europæus, L. persicifolia, L. Sambucus racemosus, L.

Lonicera Xylosteum, L.

Asperula arvensis, L.

Caprifolium, L.

alpigena, L.

rapunculoides, L.

thyrsoidea, L.

Cervicaria, L.

barbata, L.

Prismatocarpus Speculum, L'Her. Lamium incisum, Willd. Vaccinium Vitis Idæa, L. maculatum, L. Galeobdolon luteum, Huds. Erica carnea, L. Stachys alpina, L. Rhododendron hirsutus, L. recta, L. Chamæcistus, L. Leonurus Cardiaca, L. Pyrola chlorantha, Swar. uniflora, L. Scutellaria hastifolia, L. Prunella grandiflora, L. secunda, L. alba, Pall. Monotropa Hypopitys. Ajuga genevensis, L. Fraxinus Ornus, L. Chamæpitys, L. Cynanchum vincetoxicum, R. Br. Teucrium Botrys, L. Vinca minor, L. Chamædrys, L. Menyanthes trifoliata, L. Utricularia vulgaris, L. Gentiana cruciata, L. Lysimachia punctata, L. asclepiadea, L. utriculosa, L. Primula Auricula, L. germanica, L. Cyclamen europæum, L. Globularia vulgaris, L. Cuscuta europæa, L. cordifolia, L. Epithymum, L. Epilinum, Weihe. Calamintha Nepeta, L. Echinospermum Lappula, L. Omphalodes verna, Mæn. Amaranthus Blitum, Sm. retroflexus, L. Symphytum tuberosum, L. Kochia scoparia, Schr. Cerinthe minor, L. Pulmonaria mollis, Wolf. Daphne Cneorum, L. Mezereon, L. officinalis, L. Lithospermum purp. cærul., L. Thesium alpinum, L. intermedium, Schrad. Myosotis sparsiflora, Mikan. Aristolochia pallida, W. K. Physalis Alkekengi, L. Clematitis, L. Scopolina atropoides, Schult. Verbascum Blattaria, L. Asarum europæum, L. Euphorbia dulcis, L. orientale, M. B. verrucosa, L. phlomoides, L. epithymoides, L. Scrophularia glandulosa, W. K. Esula, L. canina, L. vernalis, L. virgata, W. Kit. Gratiola officinalis, L. Mercurialis ovata, Hoppe. Parietaria erecta, M. K. Digitalis grandiflora, Lam. Quercus pubescens, Will. Antirrhinum majus, L. Orontium, L. Cerris, L. Orobanche Picridis, Schul. Ostrya vulgaris, Will. Veronica austriaca, Jacq. Juniperus nana, Will. acinifolia, L. Acorus Calamus, L. triphyllos, L. saxatilis, L. Arum maculatum, L. Orchis fusca, Jacq. urticifolia, L. latifolia, L. militaris, L. Pæderota Ageria, L. variegata, All. Rhinanthus Alectorolophus, L. globosa, L. Bartsia alpina, L. sambucina, L. Euphrasia salisburgensis, Funk. pallens, L. Salvia glutinosa, L. speciosa, Host. albida, Scop. pratensis, L. verticillata, L. hircina, Swartz. coriophora, L. Calamintha grandiflora, Mæn. Glecoma hirsuta, W. K. ustulata, L. Ophrys myodes, Sw. Lamium Orvula, L.

Ophrys arachnites, Hffm. aranifera, Huds. Epipogium Gmelini, Rich. Cephalanthera pallens, Rich. rubra, Rich.

Epipactis latifolia, Sw. Listera Nidus-avis, Hook. Corallorhiza innata, R. Br.

Crocus vernus, L.
Iris germanica, L.

graminea, L.
Leucojum æstivum, L.
Galanthus nivalis, L.
Convallaria verticillata, L.

polygonatum, L.
Maianthemum bifolium, DC.
Ruscus hypoglossum, L.
Tamus communis

Tamus communis, L. Lilium Martagon, L.

chalcedonicum, DC.
Erythronium Dens-canis, L.
Anthericum ramosum, L.

Hemerocallis flava, L.
Ornithogalum pyrenaicum, L.
umbellatum, L.

luteum, L.

Scilla bifolia, Ait.
Allium ursinum, L.
carinatum, Sm.
Muscari comosum, Mill.

Muscari racemosum, Mill. Veratrum album, L. Tofieldia calyculata, Wahl. Luzula albida, DC. Carex Davalliana, Sm.

brizoides, L.
montana, L.
alba, Scop.
pilosa, Scop.
humilis, Leys.
pendula, Good.
vesicaria, L.
hirta, L., sublævis.
Michelii, Host.

Panicum Crus-Galli, L. miliaceum.

Hierochloa australis, R. S. Phleum Michelii, All. Milium effusum, L. Sesleria cærulea, Ard. Melica nutans, L.

ciliata, L.
Poa bulbosa, L., vivipara.
Cynosurus echinatus, L.

Festuca sylvatica, Vill. Brachypodium sylvaticum, Bea.

Bromus secalinus, L.
Lolium speciosum, Str.
temulentum, L.

Struthiopteris germanica, L.

XIII.—The Birds of Calcutta, collected and described by CARL J. SUNDEVALL.

[The following memoir is contained in a small but valuable collection of scientific papers published at Lund in Sweden, under the title of 'Physiographiska Sällskapets Tidskrift.' One volume only has appeared, in 8vo, dated 1837–38, and, like the greater part of the scientific literature of Scandinavia, is almost wholly unknown in this country. As Prof. Sundevall's memoir on the Birds of Calcutta was likely to interest Anglo-Indian naturalists, I have long wished to get it translated; but as there is no Swedish and English Dictionary or Grammar to be procured in London, I was unable either to make the translation myself or to obtain one from others. By the kindness however of M. Bertram, a distinguished German and Scandinavian scholar residing in Oxford, I am now enabled to present a translation of this interesting memoir.—H. E. STRICKLAND.]

The scarcity of exact accounts of the ornithology of India may give some interest to the following notice of those birds which I myself saw and collected in the neighbourhood of Calcutta in the



Alexander, R. C. 1846. "XII.—Excursions in upper Styria, 1842." *The Annals and magazine of natural history; zoology, botany, and geology* 18, 94–102. https://doi.org/10.1080/037454809496571.

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DOI: https://doi.org/10.1080/037454809496571

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