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The Ecklon & Zeyher collection at the Compton Herbarium with special reference to the species of *Silene* (Caryophyllaceae).

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The preliminary work for a revision of the South African species of the genus *Silene* necessarily involved a careful study of Ecklon & Zeyher material, which is of great importance for the nomenclature of this group: 4 types are based on their material, those of *Silene mundiana* Eckl. & Zeyh., *S. thunbergiana* Eckl. & Zeyh. ex Sonder in Harvey & Sonder, *S. primuliflora* Eckl. & Zeyh. and *S. bellidioides* Sonder in Harvey & Sonder.

One of the authors (B) was given the opportunity to study the Ecklon & Zeyher collection at the Compton Herbarium (NBG), Kirstenbosch, South Africa. The existence of this set is not generally known. Thus, considering the taxonomic and nomenclatural significance of the Ecklon & Zeyher collections, this was a welcome opportunity to evaluate the completeness and state of preservation of this set and to establish its usefulness for nomenclatural purposes.

Identification of the specimens:

No 250. *Silene clandestina* Jacq.

Two sheets: Zwartkopsrivier, sandy locations.

Identification: *Silene clandestina* Jacq.

No 251. *Silene constantia* Eckl. & Zeyh. = *S. crassifolia* β *angustifolia* Bartl.,
Linnaea 7: 623.18.

Two sheets: one wrongly identified as *Silene gallica*; the other with the paragraph of the Enumeratio attached as a label.

Identification: both belong to a new species described under the name of *Silene dewinteri* (Bocquet, 1977).

Note: *S. dewinteri* is an annual species similar to *S. clandestina* but with bigger calyces: a sand-dune ecotype with very thick leaves, very fleshy calyx-nerve and a spreading habit. Even though this plant is frequent on the coastal dunes around Cape Town it has been very rarely collected. It was usually mistaken for a poor specimen of *S. crassifolia*.

No 252. *Silene mundiana* Eckl. & Zeyh.

One sheet with a label in Pappe's handwriting: "Inter frutices ad Paardekop prope Plettenbay. leg. Mund. ex herb. Mundii".

Identification: it is an isotype of *Silene mundiana* which we select as lectotype. (Tab. 1).

Note: we recognize this species as good even though it has never been collected again!

No 253. *Silene thunbergiana* Eckl. & Zeyh. ex Sonder in Harvey & Sonder.

Three sheets containing four specimens: a) "4748 . . . steinige lehmige Stelle am Löwenstaart"¹ (Signal Hill); b) "Steinige Stellen der 2. Höhe am Tafelberge und Löwenberge"², probably collected by Ecklon on the slopes of the Tafelberg; c) a very good specimen: "legi in monte Leonis. aug. 1832"¹; d) a somewhat atypical specimen: "In monte Leonis. sept."¹.

Identification: all these specimens are *Silene thunbergiana*. Specimen b, the only one with the original number of the Enumeratio, is an isotype which we select as lectotype. (Tab. 2).

Note: we accept it as a good species. We found it again on the slopes of Lion's Head in October 1975 (B). Curiously, Ecklon & Zeyher failed to give a diagnosis for the plant whose name was validly published by Sonder in Harvey and Sonder (1894).

No 254. *Silene primulaeflora* Eckl. & Zeyh.

One sheet with only the printed paragraph from the Enumeratio as label.

Identification: *Silene primuliflora* Eckl. & Zeyh., an isotype which we select as lectotype. (Tab. 3).

Note: *S. primuliflora* is easily distinguished from *S. crassifolia*: its flowers are bigger, between 21 and 22 mm on average, and the carpophore (thecophore) reaches 11–12 mm. The capsule is longer than the calyx, protruding by about 2 mm. The plant is hirsute, but less so than *S. crassifolia*: *Silene primuliflora* var. *ciliata* Sonder, which occurs east of Port Elizabeth up to Durban, has entirely glabrous leaves with ciliate margins.

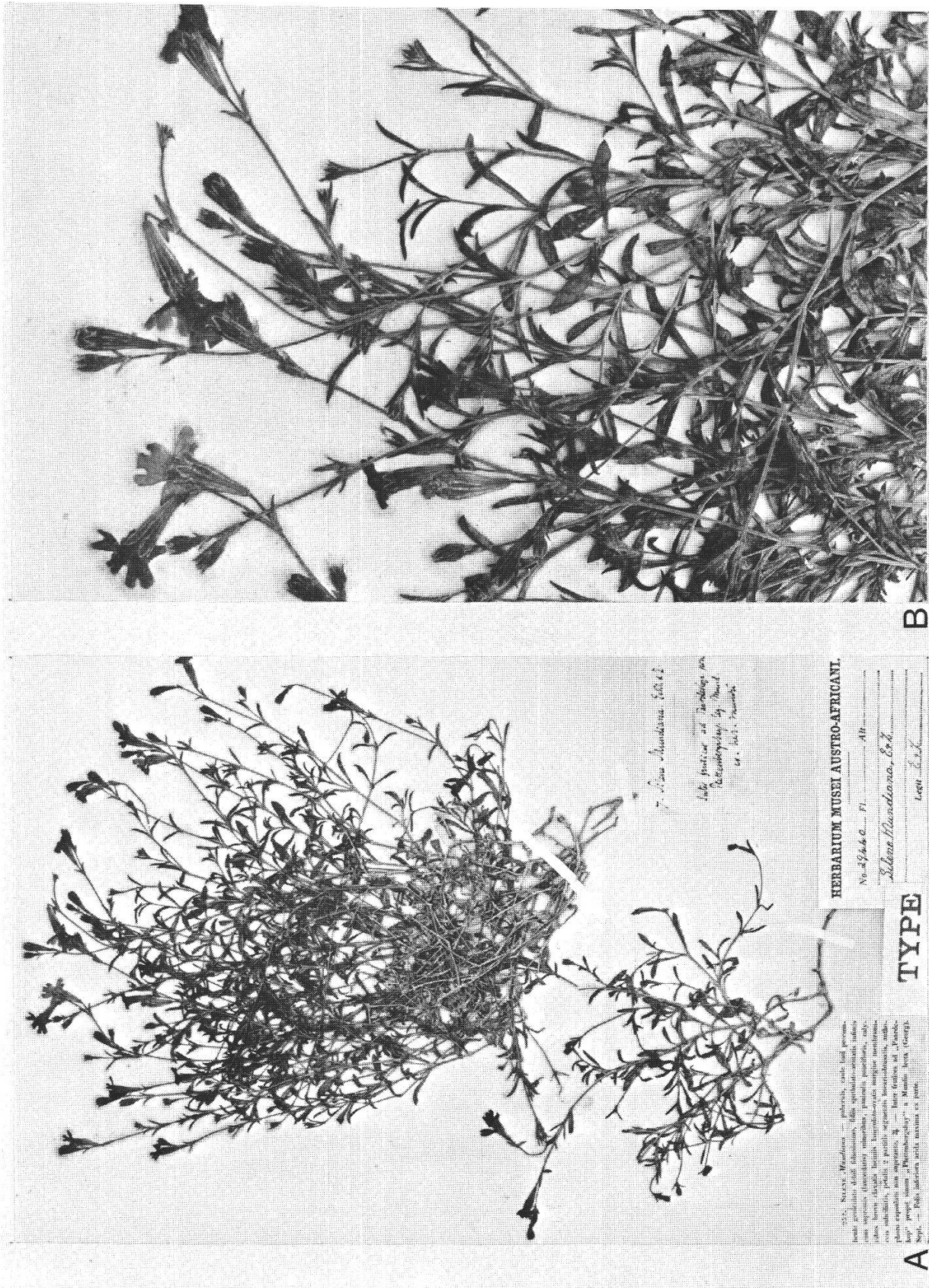
No 255. *Silene crassifolia* L.

One sheet with a handwritten label: "In den Dünen bei Riedvalley [Cap] November"².

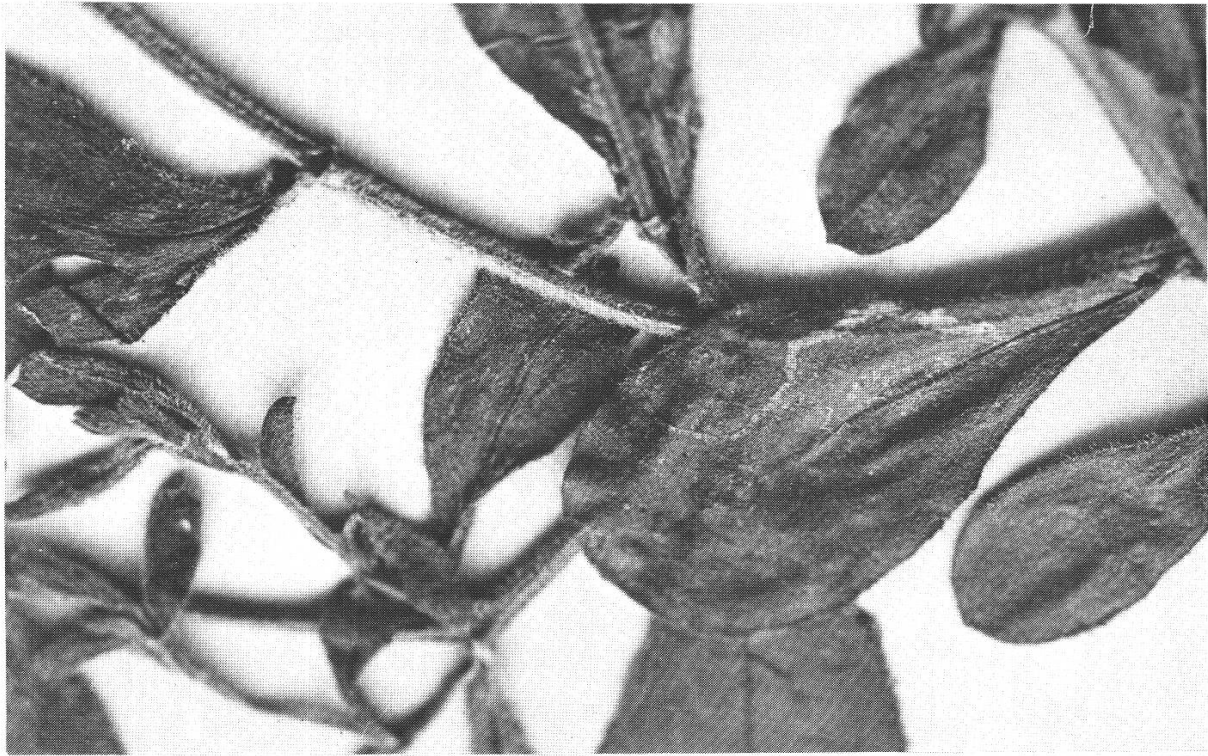
Identification: a representative specimen of *Silene crassifolia*, collected in the sand-dunes around Table View on the shores of Table Bay.

¹ Zeyher's handwriting

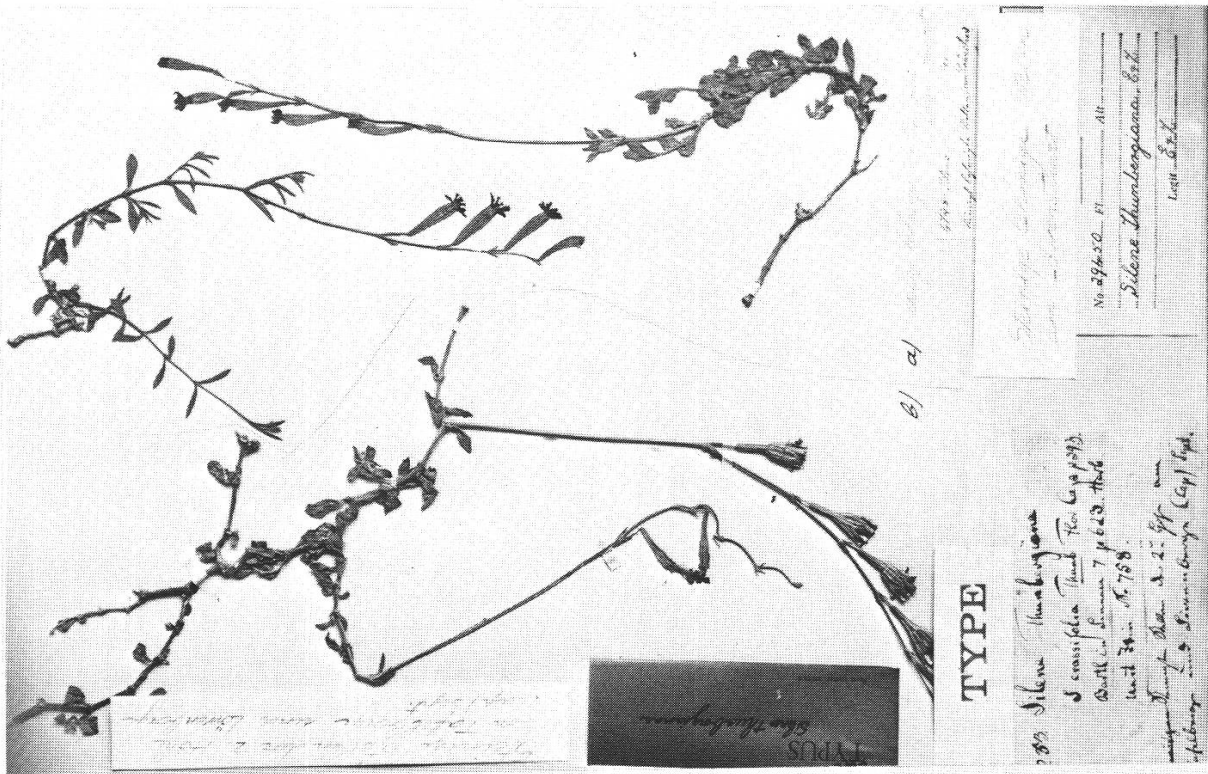
² Ecklon's handwriting



Tab. 1:
Silene mundiana Eckl. & Zeyh.; A. Lectotypus NBG 29440; B. Part of the inflorescence.



B



A

Tab. 2:
Silene thunbergiana Eckl. & Zeyh. ex Sonder in Harvey & Sonder;
 A. Lectotypus NBG 29450b (plant on the left); B. Vegetative part (NBG 14304: Zeyher 11).

No 256. *Silene cernua* Thunberg

Three sheets with labels in Pappe's handwriting.

Identification: *Silene burchellii* Otth in DC. var. *angustifolia* Sonder, collected in the region of Blouberg, north of Cape Town, and near Caledon.

Note: the true *Silene cernua* Thunb. is an annual species and is considered to be a heterotypic synonym of *Silene clandestina* Jacq.

No 257. *Silene pilosellaefolia* Cham. & Schlecht.

Three sheets with handwritten labels: "Auf Sandhügeln am Ufer des Zwartkopsrivier. Septbr." and "Steinige und sandige Stellen im Bette des Zwartkopsriviers. Blüht September und October."¹

Identification: These are also *Silene burchellii* var. *angustifolia*, with two specimens of *Silene clandestina* mixed in the lot.

Note: the type of *Silene pilosellifolia* is unknown to us: the holotype in Berlin was destroyed. It is possible that an isotype still exists in Leningrad where Chamisso had to deposit the official set of plants from his collecting-expedition round the world, since the latter had been financed by the Count of Romanzoff (Mac Owan and Bolus, 1882). We suspect the name to be a heterotypic synonym for *Silene eckloniana* Sonder. In this case the name *S. pilosellifolia* would have priority.

No 258. *Silene gallica* L.

Three sheets, correctly identified.

No 259. *Silene capensis* Otth in DC.

Two sheets, labelled in Pappe's handwriting: "In arenosis ad Bergrivier".

Identification: *Silene capensis*.

Note: *S. capensis* can be recognized by its erect habitus, its long carpophores (8–12 mm) and elongated calyces (29–35 mm).

No 260. *Silene noctiflora* L.

Three collections on four sheets; the label of one of the specimens corresponds exactly to the appropriate paragraph of the Enumeratio: "Zwischen Gebüsch der 3. Höhe oben auf dem Wasserfalle auf der östlichen Seite des Tafelberges"¹.

Identification: *Silene undulata* Ait.

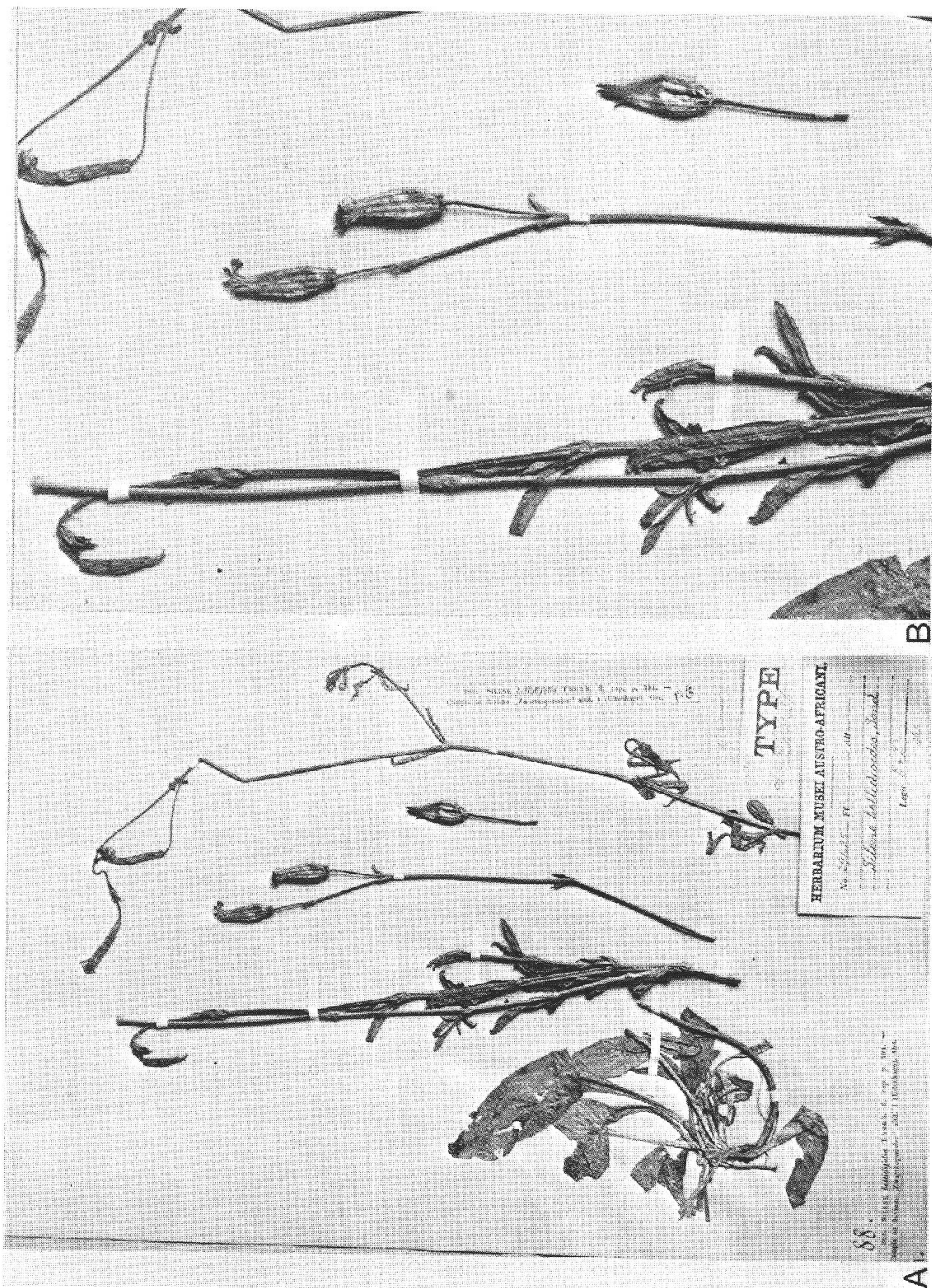
Note: *S. noctiflora* is a European species not unlike *S. undulata* which is indigenous to the western Cape province.

No 261. *Silene bellidifolia* Thunberg

Two sheets from one collection with the paragraph from the Enumeratio attached as label.

Identification: isotypes of *Silene bellidioides* Sonder ex Harvey & Sonder. Probably in the process of mounting a specimen of *Silene burchellii* var. *angustifolia* was added by mistake. (Tab. 4).

Note: from Thunberg's herbarium it is obvious that Thunberg did not intend to describe a new species: he identified a Cape specimen as *Silene bellidifolia* Jacq. Formally, however, he described a new species, though its name is not valid since it is



Tab. 4:
Silene bellidioides Sonder; A. Isotypus NBG 29435 (on the left; the plant on the extreme right is *S. burchelli* var. *angustifolia*); B. Part of the inflorescence.

a later homonym to *Silene bellidifolia* Jacq. This is why Sonder slightly altered the name and described the plant as *Silene bellidioides* in Flora Capensis. The names bellidifolia and bellidioides are quite descriptive, referring to the conspicuous rosettes of leaves, both fertile and infertile, that are developed by the plant. It is considered a good species.

We are still trying to locate the holotype of *S. bellidioides*. According to Flora Capensis it ought to be amongst the Ecklon & Zeyher material which was once incorporated into Sonder's herbarium. After Sonder's death in 1881 Reichenbach the younger acquired his herbarium and brought it to Vienna, from where Gandoger bought the African collection at the turn of the century (Gandoger, 1901 and 1913; Charbonnel, 1927; Stafleu, 1967). However, we have checked the material from the Gandoger-herbarium in Lyon and even though one of the plants is accompanied by a handwritten label which could be Sonder's, the unmounted specimens are *Silene undulata* (Zeyher 1964) and *Silene burchellii* var. *angustifolia* (E. & Z. 261, printed label) respectively. As they do not agree with Sonder's original description at all we refuse to accept them as genuine, even more so as Gandoger's reliability has been questioned before (Rothmaler, 1962). It is thought that some of Sonder's South-African material is in Melbourne with the rest of his herbarium, so the holotype of *S. bellidioides* could possibly be there.

No 262. *Silene ornata* Ait.

One sheet, from Caledon.

Identification: *Silene undulata* Ait.

Note: *S. ornata* is similar to *S. undulata* but is a rare plant occurring between Blouberg and Saldanha bay, where it has recently been collected by one of the authors (B). It has very short carpophores and dark red flowers. We consider it a good species.

The original labels of Zeyher are actual collector's labels giving an exact locality. The big, often mimeographed labels in Ecklon's handwriting, on the contrary, seem to have been written for separate distribution of the several specimens from each number and usually cite several localities. They are a literal translation from the Latin text. It would be wrong to consider them to be an original German version of the text of the Enumeratio.

Historical aspects

Christian Friedrich Ecklon, who was born in 1795 in Denmark, came to Cape Town in 1823 as an apothecary's assistant. A keen botanical collector, he soon dropped his original profession and began to earn a living by selling plants.

Carl Ludwig Philipp Zeyher, a German born in 1799, joined W.W. Sieber in his travels to collect natural history specimens. He arrived at the Cape in 1822. However, the business connection with Sieber was not a success and Zeyher soon started collecting for himself, selling with moderate success through an uncle in Germany.

Tab. 5:

Samples of labels in the handwriting of: A. Ecklon; B. Pappé; C. Zeyher; D. Zeyher. ►

TYPE

233 *Silene thunbergiana*

S. crassifolia Thunb. Flor. Cap. p. 593.
Bartl. in Linnaea 7 p. 623. Herb.
unt. 30 in No. 758.

juvencula Thunb. in 2. Gyp. am
All. Papenburg in 2. Saanen-Garten (Cap) Sept.

7. *Silene mundiana*. Eckl. & Z.

Silene frutescens ad Taardershoop. prope
Petersbarybay. leg. Murr.
ex. herb. Murr.

B

240. *Silene pilosellae-folia*. Z.
Cham. & Schlegel

Manilla in Japan
in herb. ad Swart-Koppriver.

Sept. ad Septemb. & Octob.

Dist. Netherhage.

1964. *Silene pilosellae-folia*. Z. Cham. & Schlegel

7-8 Gyps.

Sept. in Japan am Sept. ad Sept.
Koppriver.

Sept.

D

In 1829 Ecklon and Zeyher joined forces, building up a well organized, efficient collecting partnership: whilst Zeyher went to the Olifants River, Cedarberg range, Clanwilliam, Namaqualand, the Kamiesberge and the Orange River Valley, Ecklon searched the area north of Algoa Bay. Later Zeyher accompanied him to Tulbagh and the Winterhoekberge.

Together the two set out on an expedition to the eastern frontier which lasted nearly two years and took the following route: Cape Town – Hottentots Hollandberge – Houhoek – Caledon – Cape Agulhas – Swellendam – Gourits River – Swartberg – George – Knysna – Langkloof – Uitenhage – Algoa Bay – Somerset district – Koonap River – Kat River – Katberg above Balfour – Kei River. (Mac Owan, 1887).

In 1832 Ecklon took their joint collections (several herbaria ranging from 500 to 3000 species) to Hamburg with the intention to prepare a catalogue, the "Enumeratio", and to sell the specimens (Karsten, 1968). A copy of his printed letter, listing their excursions and offering the collections for sale, has been preserved e.g. at Geneva. In it he states: "Les espèces y contenues [in the Enumeratio] monteront environ à 7 ou 8 mille Numéros: mais comme la collection rapportée contient un grand nombre d'uniques, et comme la plus grande partie des plantes publiées déjà auparavant par „l'association de voyages Wurtembergeoise“ n'ont point été recueillies de nouveau, les plus grands herbiers se composeront d'environ trois mille espèces . . . Le soussigné prend la liberté de vous demander, Monsieur, si vous êtes enclin à prendre un ou plusieurs de ces herbiers . . .". Hence it follows that, contrary to what has been reported in the literature (van der Schijff, 1968; Mac Owan, 1887), he had not just five herbaria of 3000, 2000, 1500, 1000 and 500 species respectively for sale, but several of each size, which also accounts for the wide distribution of Ecklon & Zeyher material amongst the herbaria of the world (Lanjouw and Stafleu, 1957).

The Enumeratio was apparently written in a great hurry to prevent Meyer from getting priority by publishing his comments on Drège's collections first (Mac Owan, 1887). Marshall (1937), who investigated the exact dates of publication, assures that this was achieved, even if e.g. in the case of the Leguminosae only by a few weeks (Steenis-Krusemann and Stearn, 1954).

However, the Enumeratio was never finished and it is believed, according to close acquaintances of Ecklon's, that a fire in the warehouse where the specimens were stored destroyed the whole remaining collection (Mac Owan, 1887). There is no mention of this misfortune in Seemann's biographical note, for which he claims to have got the information from the two botanists themselves (Seemann, 1857), but Ecklon's financial difficulties and the loss of zeal after his return to the Cape in 1838 rather support the theory of some disaster having befallen him.

He never really achieved anything anymore and needed the support of his friends to survive. He died in 1868, seventy-three years old.

After Ecklon's departure for Europe Zeyher continued to go on expeditions and to collect and sell plants. But commercial interest in South African plants had faded and Zeyher finally was forced to sell his whole private herbarium to Dr. Pappe who, however, gladly allowed him to continue to work with it (Mac Owan, 1887). Intermittently Zeyher found some kind of employment (Seemann, 1852), but he often had to rely on the help of his friends. He died in 1858 of small-pox.

The herbarium Zeyher sold to Dr. Pappe included his private set from the joint collections with Ecklon (Harvey and Sonder, 1894). After Pappe's death in 1862 it became government property. When, in 1864, Dr. Harvey was preparing his *Flora Capensis* he used the collection and also selected and mounted a set of types. Unfortunately he died before he could finish this task and the specimens were returned to the Cape (Mac Owan, 1887). For nearly twenty years the collection was neglected and suffered some damage through insects and damp, until, in 1881, Mac Owan was appointed Curator and took care that these valuable specimens were properly stored (Anonymous, 1895).

Conclusions

1. The Ecklon & Zeyher-set deposited at the Compton Herbarium is very complete and in quite a good state of preservation.
2. It consists of a special selection made by Zeyher for himself and is therefore carefully chosen.
3. Pappe apparently had to complete the labelling. He did this partly in his own handwriting, partly by attaching the appropriate paragraph from the *Enumeratio*. It was conscientious work and the degree of reliability with Pappe is high.
4. Some time later the plants were mounted on sheets of paper. This technical operation was not very carefully controlled and some mistakes occurred. However, with a good knowledge of the group in question, this can usually be put straight without difficulties.
5. It seems fair to assume that Zeyher's private set of Ecklon & Zeyher plants was the second best collection. As the original set was taken to Europe by Ecklon and was probably destroyed in a fire, the Compton Herbarium set is likely to be the best one available now.
6. We suggest that for nomenclatural purposes, particularly the selection of lectotypes, this collection be used in place of the missing original one.

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Summary

Zeyher's personal collection, which is deposited at the Compton Herbarium (NBG, Kirstenbosch, Cape Province) has been studied with a view to identification of the names used by Ecklon and Zeyher in their "Enumeratio". The collection is still remarkably complete and in a good state of preservation. The *Silene* species are discussed as an example to illustrate the nomenclatural value of the collection and it is suggested that, with no original herbarium of Ecklon and Zeyher available, this collection be used for the selection of lectotypes for the species described in the "Enumeratio". The types of *Silene mundiana* Eckl. & Zeyh., *S. thunbergiana* Eckl. & Zeyh. ex Sonder in Harvey & Sonder, *S. primuliflora* Eckl. & Zeyh. and *S. bellidioides* Sonder are cited and shown in photographs. A short historical review is given.

Résumé

Il est procédé à l'identification des noms employés par Ecklon et Zeyher dans l'„Enumeratio“. A cet effet, la collection personnelle de Zeyher a été utilisée. Elle est déposée au Compton Herbarium (NBG, Kirstenbosch, Cape Province); elle est aujourd'hui encore très complète et dans un bon état de conservation. La présente étude permet une évaluation de la valeur nomenclaturale de cette collection; il est proposé d'y choisir, en l'absence d'un herbier original d'Ecklon et Zeyher, les lectotypes des espèces décrites dans l'„Enumeratio“. Les types des *Silene mundiana* Eckl. & Zeyh., *S. thunbergiana* Eckl. & Zeyh. ex Sonder in Harvey & Sonder, *S. primuliflora* Eckl. & Zeyh. et *S. bellidioides* Sonder sont cités et illustrés. Une courte notice historique est présentée.

Zusammenfassung

Anhand der persönlichen Sammlung Zeyhers, die im Compton Herbarium (NBG, Kirstenbosch, Kap-Provinz, Südafrika) deponiert ist, wurden die von Ecklon und Zeyher in der „Enumeratio“ verwendeten Namen identifiziert. Die Sammlung ist noch heute praktisch vollständig und in gutem Zustand. Am Beispiel der *Silene*-Arten wird ihr nomenklatorischer Wert aufgezeigt und es wird vorgeschlagen, dass mangels eines Original-Herbars von Ecklon und Zeyher diese Sammlung für die Wahl von Lectotypen der in der „Enumeratio“ beschriebenen Arten verwendet werden soll. Die Typen von *Silene mundiana* Eckl. & Zeyh., *S. thunbergiana* Eckl. & Zeyh. ex Sonder in Harvey & Sonder, *S. primuliflora* Eckl. & Zeyh. und *S. bellidioides* Sonder werden zitiert und abgebildet. Ein kurzer historischer Abriss wird präsentiert.

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