

CONRAD GESSNER AND *PINGUICULA*—A NEARLY FORGOTTEN ASPECT OF THE PRE-LINNEAN HISTORY OF LENTIBULARIACEAE AND *PINGUICULA* L.

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Conrad Gessner (1516-1565), born in and citizen of Zürich (Switzerland), physician by profession, famous philologist, “father of the bibliography,” and one of the most important scientists in natural history in the sixteenth century (Fischer, 1966), seems to be the first who introduced the butterwort under the modern name *Pinguicula* into botany (Casper, 1962, 1966).

Specialists know that Gessner planned an extensive “*Historia plantarum*” in the same format as his “*Historia animalium*” (1551-1558). In his “*De Hortis Germaniae*” (1561) he wrote, enchanted by enthusiasm and delight, that he would create a work on the whole world of plants in natural order. In the last five years of his life he was engaged intensively on this subject, collected and exchanged relevant material, cultivated plants, and was in correspondence with many botanists (Steiger, 1968). An inspired mountaineer, he went whenever possible on mountain or alpine excursions to study the landscape, animals and especially plants.



Figure 1: Copy of the facsimile of *Scutellaria galericulata* L. and *Utricularia australis* R. Brown. —Reproduced with permission of the University Library of Erlangen (Germany), Department of Manuscripts.

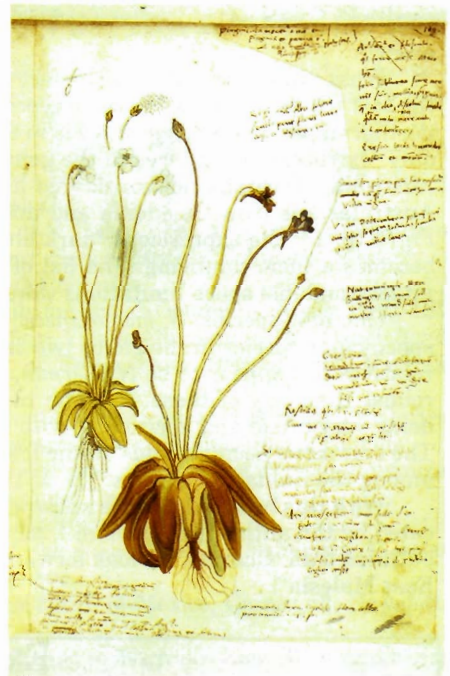


Figure 2: Copy of the facsimile of *Pinguicula vulgaris* L. and *Pinguicula alpina* L. —Reproduced with permission of the University Library of Erlangen (Germany), Department of Manuscripts.

Unfortunately Gessner did not complete his “*Historia plantarum*” in his lifetime. About 200 years passed before Schmidel (1754-1771) published an incomplete set of Gessner’s work, relying upon the “*fragmenta relictā*.” Later, Milt (1929, 1936) discovered volumes in the University Library of Erlangen (Bavaria), which were believed lost—these contained about 1,500 original paintings with annotations, many of which were written by Gessner himself. In 1991, Zoller and Steinmann finished the complete edition (“*Gesamtausgabe*”) of “*Conradi Gessneri Historia Plantarum*” in two volumes containing the reproduction which included sixteen facsimiles and 838 reduced coloured watercolours of the manuscript.

But what about the names *Lentibulariaceae* and *Pinguicula*? Conrad Gessner is the originator of both.

The name of the family *Lentibulariaceae* is derived from the Latin (*lens* = lentil and *bulla* = bladder) and first appears as “*Lentibullia, vel Lentibullaria*” on Gessner’s annotation on his original painting of *Utricularia australis* R. Brown (see Figures 1, 3; from University Library of Erlangen, Ms 2386, fol. 206b; copy: Zentralbibliothek Zürich Ms Z VIII 394a No 222 (sub *Utricularia neglecta* Lehm.); Steiger, 1968: 50/51; Zoller & Steinmann, 1991: 82/83 (erroneously printed “85”), Taf. 7, fol. 206 verso). The proposed name faded away as a denomination of the species perhaps because of the incompleteness of Gessner’s “*Historia plantarum*”, although it persists in slightly corrupted form as the name of the whole plant family (Casper, 1974). The interpretations given by Wittstein (1856: 509, erroneously from lat. “*lens*” and “*tubulum*”) and Genaust (1996: 332, erroneously from lat. “*lentibulum*”) are insufficient or incorrect.

It should be mentioned that the figure of *Utricularia australis* is the best one ever

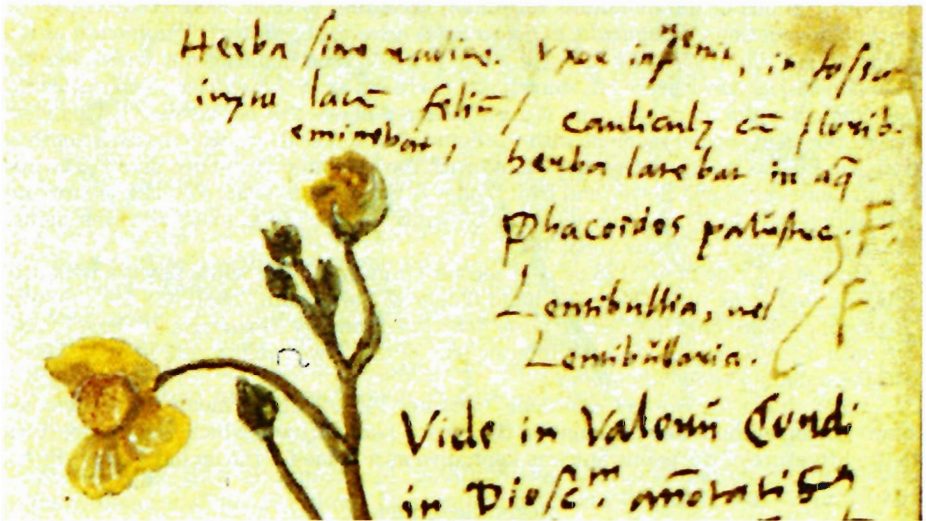


Figure 3: Detail from the upper right corner of Figure 1. Note the phrases “*Lentibullia*” and “*Lentibullaria*”.

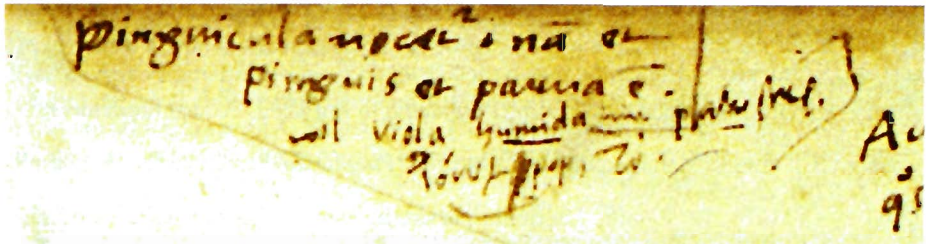


Figure 4: Detail from the upper right corner of Figure 2. Note the phrase “*Pinguicula vocit[ur], na [am] et pinguis et parva e [est]*”.

published. The carnivorous water plant was collected by Gessner's wife in the ditches flowing to the Katzenssee near Zürich.

The name of the genus *Pinguicula* is derived from the Latin (*pinguis, e = fat*), as Gessner wrote on his original watercolour (see Figures 2, 4; from University Library of Erlangen Ms 2386, fol. 128; Fischer 1966: 100, Fig. 26; Zoller & Steinmann, 1991: 47, fol. 128 recto): "*Pinguicula vocit' [ur], na [am] et pinguis et parva e[est]*" ("named *Pinguicula* because it is as fat as small").

On August 20-21, 1555 (and also, later in 1556) he ascended Mount Fractus ("Mons Fractus" in Latin, or "Fraktenmunt" in Swiss German, because of its two summits; the Swiss now refer to the mountain using the name Pilatus). Mount Fractus was a landmark mountain for Lucerne (a "Hausberg"), and as was customary he sought permission from the local authorities to climb it. He obtained the "*venia montem Fractum ascendendi*" ("permission to go on the Fraktenmunt") from the mayor of the city, Nikolaus von Meggen. Accompanied by three friends, the stone-cutter Petrus Figul, the pharmacologist Petrus Boutin, and the glass-painter Johannes Thoma(nn) he reached the summit and passed the night in a haystack. Soon after, in September 1555, he published a booklet in Zürich—the so-called "Lunarien"—under the title "*De raris et admirandis herbis, quae sive quod noctu luceant, sive alias ob causas Lunariae nominantur...*" ("Of rare and admirable plants, which might either shine at night or may be called lunaries for other reasons...") with the attachment "*...Descriptio Montis Fracti sive Pilati, ut vulgo nominat juxta Lucernam in Helvetia.*"

In this "Description of the Fraktenmunt or Pilatus, as it is called, near Lucerne in Switzerland" he listed on pages 63-66 all the alpine plants known to him and gave the first descriptions of the mountain vegetation according to their zonal occurrences. On page 63 he mentions "*Pinguicula, ut ficto a nobis nomine appellatur*" ("*Pinguicula* as it is called with a name given by us"). He wrote it had a blue non-fragrant flower like the March violet, its leaves were fat, smooth and nerveless as in "*Lingulaea vel ophioglossus*" (i.e. *Ophioglossum vulgatum*) and it grew in damp places ("*in palustribus*"). This short description is in good agreement with the figure mentioned above, which seems not to be from the Pilatus nor from Gessner's hand with the exception of the two detail drawings of an inflorescence and flower and fruit (Zoller & Steinmann, 1991: 47). The picture and description portray *Pinguicula vulgaris* L., which in the pre-Linnean era was named *Pinguicula Gesneri* (Clusius 1583: 361).

On the left side of fol. 128 verso a second *Pinguicula* with white flowers is figured which is said to be from Gessner's hand (Zoller & Steinmann, 1991: 47). He remarks: "*Repi[eri] etiã [am] albo flore semel: parte floris lutea intus, et hirsuta, etc.*" ("Once I found one with a white flower, with the interior part of the flower yellow and hairy"). This is without a doubt *Pinguicula alpina* L.

Later, in his "*De Hortis Germaniae*" (Gessner 1561: 272b) he mentioned *Pinguicula* again adding without any explanation the second name *Liparis* which soon disappeared in the literature of the genus but was kept alive as a name for the orchid *Liparis* Rich.

Acknowledgement

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LITERATURE REVIEWS

Meimberg, H., Wistuba, A., Dittrich, P. & Heubl, G. 2001, Molecular Phylogeny of Nepenthaceae Based on Cladistic Analysis of Plastid trnK Intron Sequence Data. *Plant Biol.* 3: 164-175.

Based on genetic data, the monophyly of Nepenthaceae is demonstrated. *Nepenthes pervillei* (Seychelles) and *N. distillatoria* (Sri Lanka) appear to be the most basal species (they form sister clades to the rest of the genus). The next basalmost branch is formed by the pair *N. masoalensis*/*N. madagascariensis* (both Madagascar), and within the remaining genus *N. khasiana* (northeast India) is the first branch. Thus the hypothesis is supported that the five "western" species are the most primitive within the genus. Most of the remaining species form clades that indicate close affinities between species that occupy overlapping or neighbouring ranges. This possibly hints at comparatively recent sympatric speciation or at ongoing hybridization and introgression in this apparently more derived part of the genus.

Zamudio Ruiz, S. & Studnicka, M. 2000, Nueva Especie Gipsicola de *Pinguicula* (Lentibulariaceae) del Estado de Oaxaca, Mexico. *Acta Bot. Mex.* 53: 67-74. (A New Gypsicolous Species of *Pinguicula* (Lentibulariaceae) from the State of Oaxaca, Mexico; in Spanish)

Pinguicula medusina is the name validated here of what has been known as "*Pinguicula alfredae*" (an illegitimate name never published with a formal description) in cultivation for decades. So far the plant is known in the wild only at its type locality. Several differences between this and the closely related, widespread and quite variable *P. heterophylla* are given (flowers smaller and narrower, upper corolla lobes less reflexed, lower corolla lobes narrower and more truncate, corolla paler, flowering time and winter rosette formation later, fewer leaves in *P. medusina*). A quite generalized picture of *P. heterophylla* is thus drawn, and it is open to debate if the given characteristics reliably separate two distinct species throughout the wide geographical range (and the considerable morphological range) of *P. heterophylla* s. lat.