

A Brief History of the Genus *Lithops* and *Lithops turbiniformis* (Haw.) N.E.Brown As of 19 September 2014

The genus **Lithops** is part of the family **Aizoaceae** and of the subfamily **Ruschioideae**, one of 5 such subfamilies of the family **Aizoaceae**.

The genus name **Lithops** was first described by Nicholas Edward Brown (1849-1934) in 1922. He was a herbarium botanist and taxonomist in England. The **Lithops** name comes from the Greek *lithos* which means 'stone' and *ops* which means 'appearance' or 'a face'. They look like 'Living Stones', a common name we like to use for them. (The word **Lithops** is used as both singular and plural form.)

Each **Lithops** has one pair of leaves with a fissure in between where a solitary flower is produced. In habitat the tops of the leaves are either at ground level often wedged between stones or slightly buried, especially during a dry period. The tops of the leaves appear to be either flat or somewhat raised and more or less rough looking as if cut off short with a translucent window or window-like spots. The size across the two leaves at the apex is generally $\frac{3}{4}$ to $1\frac{1}{2}$ " in diameter. It's a mimicry plant in habitat with surrounding stones of similar size and shape until it flowers. The Flower color varies from yellow to white to bronze to pink.

The natural habitat of **Lithops** is in the dry regions of southern Africa—from the Cape and Transvaal Province regions of the Republic of South Africa into much of the western coast to central and southern parts of Namibia.

The **Aizoaceae** family of plants is well represented by a great variety of plants (mostly leaf succulent plants) in the drier parts of South Africa and Namibia, and are referred to in general as 'vygies', an African name which pertains to their fig-like young fruits. These 'vygies' were formerly grouped together under the genus name **Mesembryanthemum** described in 1753 by Carolus Linnaeus (1707–1778), the father of our binomial system on naming plants. (The word 'Mesembryanthemum' was first used in 1689 by Jacob Breyne (1637–1697), a Polish naturalist and artist with an interest in botany.)

An Englishman, William John Burchell (1781–1863), was the first to bring to the scientific world the discovery of a **Lithops** plant in 1811; found near the town of Pierska in the northern Cape Province of South Africa. He mentioned in his travel log that he was surprised when he picked up what looked like an unusual pebble and found it to be a plant instead. In color and appearance it looked like the stones between which it was growing. He recognized it as a new species of the large tribe **Mesembryanthemum**. It is believed that he collected this unusual plant but a herbarium specimen has never been found.

Mr Burchell was an ethnographer, geologist, meteorologist, cartographer, botanist, zoologist and artist who explored and collected plants in South Africa from 1811 to 1815. He sent over 40,000 botanical specimens and some 500 drawings to England during this time.

Mr Burchell gave this new, unusually small, ground level succulent plant the name **Mesembryanthemum turbiniforme** and it was published in the first of two volumes of his book 'Travels in the Interior of Southern Africa' in 1822. However, unknown to Burchell at the time, an English gardener by the name of Adrian Hardy Haworth (1768–1833) preceded Burchell in adopting the same name to describe the plant in 1821, using Burchell's 1812 drawing of the plant as the basis for his description. Therefore, Haworth is credited with the technical naming of this plant.

It took almost a century before **Mesembryanthemum turbiniforme** and other like plants were transferred into a genus of their own by NE Brown in 1922 who gave this plant the name **Lithops turbiniformis**. It appears that due to the researches of Mr Brown in England and Martin Heinrich Gustav Schwantes (1881–1960) in Germany in the 1920s, the genus **Mesembryanthemum** was split up into about 140 different genera, including the genus **Lithops**.

Without a herbarium specimen and with only Mr Burchell's drawing of the plant there have been a number of disagreement over the years by various taxonomists concerning this plant. There was a need to relocate the plant again in habitat.

A number of explorers over the years have looked for *Lithops turbiniformis* in habitat using Burchell's original location instructions. According to Mr Brown it appears that Illyde Buller Pole Evans (1879–1968) may have come closest to finding a like plant near the town of Pierska in 1918. However, there are taxonomists that disagree that what Mr Pole Evans found was the same plant in Burchell's drawing in 1812. The mystery continues to this day.

Some taxonomists have placed the species *Lithops turbiniformis* into synonymy under *L. hookeri* (*L. aucampiae?*).

It might be helpful for you to know that the naming of plants is governed by rules of the 'International Code of Botanical Nomenclature' (ICBN) consisting of at least a generic name, e.g., **Mesembryanthemum**, and a specific epithet name, e.g., **turbiniforme**. This becomes the basic binomial species name which is highlighted in italics, heavy type and/or underlined—followed by the author name (or abbreviated name) in normal Roman type, e.g.,

Mesembryanthemum turbiniforme Haw.

Note that author's name, Haworth, is abbreviated and is shown after the species name as the 'Author Citation'. Many 'Author Citations' are in abbreviated form with a period shown after the abbreviation—following a database of names and associated basic bibliographical details of all seed plants from the International Plant Names Index (IPNI).

One of the rules set out by C Linnaeus is to keep the 'species' as the basic unit of classification. So, when it was decided by NE Brown to split out a group of plants from the genus **Mesembryanthemum** he was able to keep the basic specific epithet name by only changing the generic name to:

Lithops turbiniformis (Haw.) N.E. Brown

The original author name is shown in parenthesis with the current author following.

REFERENCES:

Cole, Dr Desmond Thorne: *Lithops*, Flowering Stones (1988).

Hammer, Steven Allen: *Lithops*, Treasures of the Veld (1999).

Hartmann, Dr Heidrun [Heidi] Elsbeth Klara: *Aizoaceae F-Z* {Illustrated Handbook of Succulent Plants} (Editor 2001).

Herre, Adolph Gottlieb Julius [**Hans**]: *The Genera of the Mesembryanthemaceae* (1979).

Jaarsveld, Dr Ernst Jacobus van & Villiers Pienaar, Uys de: *Vygies, Gems of the Veld* (2000).

Nel, Gert Cornelius: *Lithops* (1946).

Staples, Charles Jimmy: *A Historical Record of Authors of Cactus & Succulent "Plant Names" & "Books" for the Amateur Hobbyist* (2013).