

slightly divergent at the top. **Face** flush to slightly elevated, elliptic to slightly reniform; lobes  $\pm$  equal; opaque + translucent; smooth. **Margins** distinct but very irregular, with numerous fairly bold peninsular projections into the **windows** which are rarely open, usually partly occluded by islands and peninsulas. **Channels** translucent, narrow to broad, very irregular, often reduced to small spots (miniature windows) in the islands and margins, sometimes extending over onto the shoulders; these miniature windows often resemble, but must be distinguished from pellucid dots. **Islands** small to large, mostly very irregular in shape, with a filigree pattern produced by the miniature windows within them. **Markings** absent, or very rarely, a few vague brownish lines in the channels near the inner margins, but these visible only with a lens. **Pellucid dots** subcutaneous, few to many, scattered over both opaque and translucent areas, but mostly visible only with a lens.

**Colours:** Margins, peninsulas, islands, opaque beige or yellowish, greenish or pinkish grey. Windows/channels translucent grey-green. Pellucid dots deeper grey-green. Shoulders pale greenish or pinkish or yellowish grey.

**Size:** Small to medium, up to 36 x 27 mm, mostly about 28 x 18 mm. Number of heads up to 10, mostly 1-2.

**FLOWERS** yellow, medium to large, up to 45 mm  $\varnothing$ , mostly 25-35 mm  $\varnothing$ . **Seed capsules** mostly 6-merous (76%) or 5-merous (15%), otherwise (9%) mostly 7-merous. Profile boat-shaped, top flat to slightly convex, face broadly elliptic to elliptic, up to 10,0 x 8,5 mm, mostly about 7,5 x 7,0 mm.

**9.2 *Lithops gesineae* var. *annae* (De Boer) Cole (1956) (Y). Plate 4/5-6.**

**COLLECTED** by Herbert F.J. Erni in 1952, and again by Dr and Mrs A.L. Geyer in May 1956 (See Cole 1973a: 53, under \**Herbertii*); named for Mrs Anna E. Geyer-Joubert.

**DISTRIBUTION:** SWA/Namibia, at only two known localities, SW and SE of Helmeringhausen.

**DESCRIPTION:** Superficially similar in many respects to the type variety, but usually fairly easily distinguishable. **Profile** truncate, flat to slightly convex; fissure 6-12 mm deep, lobes conjunct, sometimes slightly divergent at the top. **Face** flush;  $\pm$  elliptic; lobes  $\pm$  equal; opaque + translucent; slightly rugose. **Margins** often indistinct or irregular with numerous small indentations. **Windows** usually occluded by numerous islands and peninsulas; therefore reduced to a number of very slightly impressed irregular **channels**, broad to narrow, and occasionally further reduced to a network of shallow furrows. **Islands** usually distinct, small to large, mostly irregular in shape. **Markings** sometimes absent, sometimes a network of fine lines in the channels, frequently obscure

and barely visible without a lens, but often a distinct line along the inner margin, and numerous lines tapering off digitately into the outer margins and occasionally even over onto the shoulders. **Pellucid dots** subcutaneous, usually numerous, scattered irregularly over the whole face, opaque and translucent areas alike, and often at the ends of the digitate markings in the margins.

**Colours:** Margins and islands, various shades of opaque pale greenish, yellowish, pinkish or brownish grey, the margins occasionally obscurely banded in a slightly deeper hue. Channels, various shades of translucent grey-green or brownish or reddish green. Markings orange-brown to reddish. Pellucid dots dark grey-green. Shoulders as for the margins, or a little lighter.

**Size:** Medium to large, up to 40 x 30 mm, mostly about 30 x 20 mm. Number of heads seldom more than 1, occasionally 2.

**Flowers** yellow, large, up to 48 mm  $\varnothing$ , mostly 30-40 mm  $\varnothing$ . **Seed capsules** mostly 6-merous (75%) or 5-merous (11%), the remainder (14%) mostly 7- or 8-merous. Profile boat-shaped, top flat to slightly convex; face broadly elliptic, up to 12,0 x 10,0 mm, mostly about 10,0 x 8,5 mm.

**10 *Lithops gracilidelineata* Dint. (1928) (Y).**

There are two varieties of this relatively easily identifiable species, var. *gracilidelineata* and var. *waldroniae*.

**10.1 *Lithops gracilidelineata* Dint. var. *gracilidelineata* (Y). Plate 5/1-3.**

**COLLECTED** by Ernst J. Rusch in August 1927. Latin *gracili-* "finely, slenderly", *delineata* "drawn, marked, lined".

**DISTRIBUTION:** SWA/Namibia, in a long narrow quadrilateral area bounded approximately by points about 60 km SE and 120 km E of Swakopmund in the S, Sesfontein in the NW and Outjo in the NE. Type locality between Uis and Nainais, SE of the Brandberg. The localities reported near Sesfontein and Outjo have not yet been confirmed.

**DESCRIPTION:** Relatively uniform. **Profile** truncate, usually somewhat convex, occasionally flat; fissure shallow, 4-7 mm deep, lobes conjunct. **Face** flush; round to mostly elliptic; lobes  $\pm$  equal; opaque; usually distinctly rugose, occasionally smooth. **Margins, windows, channels, islands**, absent or very obscure. **Markings** manifest as a coarse or fine network of distinct but very slender lines which may be superficial and then the face is smooth; or, typically, somewhat impressed and set in a system of irregularly interconnected **valleys**, so that the face is divided into a number of humps, therefore distinctly rugose. Sometimes the markings are reduced to a number of fine broken lines, dashes or dots, or, rarely, they may be completely absent.

**Colours:** Face usually fairly uniform pale greyish white, pearl grey, pale milky bluish, yellowish or pinkish; sometimes suffused or smudged with buff, beige or pinkish brown, especially around the margins and along the edges of the markings in the valleys; margins sometimes slightly lighter in colour than the rest of the face. Markings in the valleys dark grey-green, light brown or reddish. Shoulders as for the face, but may be slightly lighter or darker.

**Size:** Medium to very large, up to 50 x 38 mm, mostly about 35 x 25 mm. Number of heads up to 5 or more, but seldom more than 1.

**FLOWERS** yellow, medium to large, up to 45 mm Ø, mostly 25-35 mm Ø. **Seed capsules** 6-merous (51%) or 7-merous (31%), otherwise (18%) mostly 8- to 10-merous. Profile rotund to boat-shaped, top rather variable, ± flat to slightly concave or convex, quite often peaked; face round to broadly elliptic, up to 11,5 x 10,5 mm, mostly about 9,0 x 8,0 mm.

**10.2 *Lithops gracilidelineata* var. *waldroniae*** De Boer (1963) (Y). **Plate 5/4.**

**COLLECTED** by Mrs Molly M. Waldron of Walvis Bay in 1960, and named for her.

**DISTRIBUTION:** SWA/Namibia, at the southwestern end of the range of the species, i.e. to the E and SE of Swakopmund, and within about 80 km of the town. Type locality SE of Swakopmund, in the "Vogelfederberg".

**DESCRIPTION:** Essentially as for the type, but the valleys deeper, the reticulation of fine lines more deeply impressed and more extensively and more finely branched, the surface therefore more rugose.

**Colours:** Face greyish white, pinkish white or beige, the impressed lines brownish to reddish.

**Size:** Medium to large, up to 40 x 30 mm, mostly about 30 x 25 mm. Number of heads up to 4 or more, mostly 1-2.

**FLOWERS** yellow, very small to small, up to 20 mm Ø, mostly 12-16 mm Ø. **Seed capsules** mostly 6-merous (71%) or 7-merous (20%), the remainder (9%) mostly 8-merous. Profile boat-shaped, top usually flat, sometimes slightly convex; face broadly elliptic, up to 7,0 x 6,0 mm, mostly about 6,5 x 6,0 mm.

**GENERAL NOTE:** The distinction between var. *waldroniae* and the type is rather tenuous, being based essentially on the depth of the valleys and therefore on the degree of rugosity. However, the significantly smaller flowers and seed capsules do constitute a consistently discernible difference. On the other hand, there are colonies (e.g. C243) in the south-western part of the range, plants from which resemble var. *waldroniae* in appearance, but consistently produce intermediate-sized flowers and seed capsules.

**10.3 *Lithops gracilidelineata* var. *waldroniae*** De Boer cv. **Fritz's White Lady** (W).

This cultivar differs from the variety *waldroniae* only in having white flowers instead of yellow. It has appeared among plants raised from seed by E.E. Fritz.

**11 *Lithops herrei*** L. Bol. (1932) (Ywc).

Two varieties of this species have been classified, var. *herrei* and var. *geyeri* (Nel) De Boer & Boom. The latter occurs only to the south of the Orange River, in the Richtersveld (RSA), and until relatively recently it was believed that this was true of var. *herrei* also. However, in September 1978 it was collected by Ernst E. Fritz about 60 km SSW of Witputs.

**11.1 *Lithops herrei*** L. Bol. var. *herrei* (Ywc). **Plate 5/5-6.**

**COLLECTED** by Dr Hans Herre, Curator of the Botanical Garden, University of Stellenbosch, in October 1930, and named for him.

**DISTRIBUTION:** RSA, CP, in a narrow strip about 70 km long and no more than 10 km wide, along the Orange River from Alexander Bay to Sendelingsdrif; and in SWA/Namibia, so far known at only one locality some 25 km to the W of Sendelingsdrif. Type locality Swartwater, Richtersveld, CP.

**DESCRIPTION:** As in *Lithops optica* (Marl.) N.E. Br., there are two forms of this species, (a) the non-maculate, which occurs relatively near to the coast (within 30-40 km) and at low altitudes, and (b) the more opaque form, which occurs further inland and at somewhat higher altitudes. In intermediate localities (including the type locality), both forms are represented, so it would be inappropriate to treat them as varieties. The locality in SWA/Namibia is the furthest inland, and the highest, and the plants occurring there are the most opaque. **Profile** truncate to cordate, usually distinctly convex and often keeled; fissure 7-13 mm deep, lobes conjunct to divergent. **Face** flush to slightly elevated; slightly reniform; lobes unequal; translucent to opaque; smooth to very slightly rugose. **Margins** in the (a) form usually distinct but somewhat lacinated; in the (b) form, not clearly defined, very irregular, sometimes absent. **Windows** sometimes completely open with very few small islands, sometimes occluded by numerous small islands and peninsulas, sometimes absent, the face being almost completely opaque. **Channels** only in the (b) form, usually narrow and forming a very irregular fine lacework, often reduced to unconnected narrow strips or even further, to a number of isolated dots (miniature windows) in an opaque face. **Islands** in the (a) form, small and sparse, sometimes rather indistinct; in the (b) form, mostly fairly small, extremely irregular, so that the overall effect is rather lacy or cobwebby. **Markings** absent. **Pellucid dots** absent in the (a) form; occasionally