

flower and seed capsule structure, is quite different from *L. vallis-mariae* but is clearly allied to its very close neighbour, *L. pseudotruncatella* var. *dendritica*. It is note-worthy that, to the best of our present knowledge, there is a gap of some 100 km between var. *groendrayensis* and the nearest colonies of *L. vallis-mariae* known to us.

15.7 *Lithops pseudotruncatella* var. *riehmerae* Cole (1986) (Y). Plate 9/5-6.

This variety has for nearly thirty years been incorrectly known as *Lithops edithae* N.E. Br. or *L. pseudotruncatella* var. *edithae* (N.E. Br.) De Boer & Boom (See Cole 1984a). It is now described for the first time (see p. 45), and named for the late Mrs Edith Riehmer.

COLLECTED by Wilhelm Triebner, presumably on 22 July 1934, and again by D.T. & N.A. Cole on 7 January 1968.

DISTRIBUTION: SWA/Namibia, in a small area to the SE of Windhoek. Type locality Rietfontein.

DESCRIPTION: Closely related to the type variety, and differing therefrom mainly in its generally smaller size, pale grey colour and less extensive markings. **Profile** truncate, flat to slightly convex; fissure shallow, 3-5 mm deep, lobes conjunct. **Face** flush; mostly slightly reniform; lobes \pm unequal; opaque to obscurely translucent; smooth to very slightly rugose. **Margins** mostly obscure and irregular. **Windows** occasionally barely discernible as obscurely translucent, but the **face** usually opaque. **Channels** absent or manifest only as extremely shallow furrows accommodating the markings. **Islands** absent or manifest only as relatively regular opaque areas surrounded by furrows and markings. **Markings**, a number of branched lines, often forming a connected network, but not nearly as extensive nor as ramose as in the type variety; sometimes rather sparse and indistinct. **Pellucid dots** numerous, scattered irregularly over the whole face, sometimes flowing together to produce an obscure semblance of a window, otherwise often concentrated along the markings to produce a semblance of channels.

Colours: Face, margins, islands, usually opaque pale grey, faintly tinted with blue, green, yellow or pink, the margins sometimes obscurely banded in a slightly lighter colour. Windows occasionally barely discernible as obscurely translucent greenish, bluish or yellowish grey. Markings dull brown, greenish brown, orange-brown or red-brown. Pellucid dots dull greenish or bluish grey. Shoulders as for the face, or somewhat paler.

Size: Small to medium, up to 33 x 22 mm, mostly about 25 x 18 mm. Number of heads up to 4, mostly 2.

FLOWERS yellow, small to large, up to 40 mm \varnothing , mostly 20-30 mm \varnothing . **Seed capsules** usually 6-merous (80%), otherwise (20%) mostly 7-merous. Profile \pm rotund, top slightly convex to slightly peaked, occa-

sionally flat; face round to broadly elliptic, up to 8,5 x 7,0 mm, mostly about 7,3 x 6,5 mm.

15.8 *Lithops pseudotruncatella* var. *volkii* Schwant. ex De Boer & Boom (1961) (Y). Plate 11/2.

COLLECTED in 1953 by H.J.W. (Willy) Giess, Curator of the SWA Herbarium in Windhoek, and, at his request, named for Professor Dr Otto-Heinrich Volk of Würzburg, West Germany.

DISTRIBUTION: SWA/Namibia, at only one known locality, SSE of Windhoek. Type locality near Bergland Station.

DESCRIPTION: Very distinctive, and differing in a number of respects from the type variety. **Profile** truncate, sometimes slightly cordate, flat to slightly convex; fissure shallow, 4-8 mm deep, lobes conjunct. **Face** flush; mostly slightly reniform; lobes \pm unequal; opaque; smooth to very slightly rugose. **Margins, windows, channels** absent or very obscure. **Islands** manifest as opaque areas surrounded by markings, usually relatively regular in shape. **Markings** sometimes absent, usually a faint network of very slightly impressed branched lines, sometimes reduced to a number of short lines, hooks and/or dots, often indistinct and barely discernible. **Pellucid dots** mostly absent, otherwise sparse, very obscure and barely visible without a lens.

Colours: Face presenting a somewhat glossy polished marble-like appearance; opaque milky bluish white, sometimes faintly tinged with pink, the margins occasionally very obscurely banded in a slightly paler tint. Markings pale pinkish, brownish or bluish grey, often very obscure and barely discernible. Pellucid dots very indistinct bluish grey. Shoulders as for the face, or slightly paler.

Size: Medium to large, up to 38 x 26 mm, mostly about 30 x 20 mm. Number of heads up to 4, mostly 2.

FLOWERS yellow, medium to large, up to 38 mm \varnothing , mostly 20-30 mm \varnothing . **Seed capsules** 6-merous (57%), or 7-merous (32%), otherwise (11%) mostly 8-merous. Profile rotund, top flat to peaked; face round to broadly elliptic, up to 10,0 x 10,0 mm, mostly about 8,5 x 7,8 mm.

16 *Lithops ruschiorum* (Dint. & Schwant.) N.E. Br. (1925) (Y).

Two varieties are recognized in this very distinctive and easily identifiable species, var. *ruschiorum* and var. *lineata* (Nel) Cole.

16.1 *Lithops ruschiorum* (Dint. & Schwant.) N.E. Br. var. *ruschiorum* (Y). Plate 12/3-5.

COLLECTED by Ernst J. Rusch in 1923, and named for the Rusch family.

DISTRIBUTION: SWA/Namibia, in a long narrow strip extending northwestwards for 300 to 400 km or

more along the coast from Swakopmund, and up to about 75 km inland. Type locality near Khan Copper Mine, NE of Swakopmund.

DESCRIPTION: Although it varies considerably in size and in the presence or absence of facial markings, this variety has a characteristic combination of colour and shape. **Profile** cordate, usually very distinctly convex; fissure deep, 10-15 mm, lobes conjunct but sometimes slightly divergent at the top. **Face** elevated; elliptic to slightly reniform; lobes usually \pm unequal; opaque; smooth to slightly rugose. **Margins, windows, channels, islands,** absent; instead, a broken network of slightly impressed furrows. **Markings** often completely absent, otherwise a number of short lines, dashes or dots set in the furrows, the dots pitted; occasionally the lines may be sufficiently long and numerous to constitute a coarse broken network.

Colours: Face opaque, mostly greyish white or cream, sometimes yellowish or pinkish white. Markings dull red, red-brown or blood-red. Shoulders as for the face, or very slightly lighter.

Size: Small to large, up to 38 x 27 mm, mostly about 25 x 20 mm. Number of heads up to 30 or more, mostly 2-5.

FLOWERS yellow, small to medium, up to 30 mm \varnothing , mostly 20-25 mm \varnothing , often with long pedicels. **Seed capsules** usually 5-merous (81%), otherwise mostly 6-merous (15%), the remaining few (4%) 4- or 7-merous. Profile boat-shaped, top \pm flat, occasionally slightly peaked; face broadly elliptic, up to 9,0 x 7,0 mm, mostly about 6,5 x 5,0 mm.

GENERAL NOTE: The form published as *Lithops nelii* Schwant. (Plate 12/5) is generally smaller, more uniformly grey-white in colour, and mostly unmarked, but it cannot be consistently distinguished from the type. When well watered it grows to the same size as the type.

16.2 *Lithops ruschiorum* var. *lineata* (Nel) Cole (1946) (Y). Plate 12/6.

COLLECTED by J.C.M. Els, Town Clerk of the Municipality of Strand, C.P., in 1945 or earlier. Latin *lineata* "having (fine) lines".

DISTRIBUTION: SWA/Namibia, extending north-westwards for 120 km or more along the coast from Rocky Point (19° S latitude), and up to about 60 km inland. It is possible that this variety extends to the Angolan border and even further north. Its southern limit and boundary with var. *ruschiorum* is not known with any certainty. The type locality indicated by Nel, "40 miles north of Walfisch Bay", is obviously incorrect.

DESCRIPTION: Differs from the type variety in colour and in form of markings, and also has significantly smaller flowers and seed capsules, but in all other morphological respects essentially the same. **Profile** cordate, fissure 8-12 mm, lobes conjunct.

Markings usually a coarse network of very fine lines and dots, very slightly impressed, often with a distinct line along the inner margin; this network is occasionally reduced to a number of broken lines, dashes and dots.

Colours: Face and sides opaque pale orangey, pinkish, yellowish or greenish grey. Markings very fine orange, orange-brown or reddish lines and dots. Shoulders as for the face or slightly lighter.

Size: As for the type, or a little smaller at maximum.

FLOWERS yellow, small, up to 25 mm \varnothing , mostly 16-20 mm \varnothing . **Seed capsules** usually 5-merous (88%), otherwise (12%) 4-, 6- or 7-merous. Profile boat-shaped, top flat to slightly peaked; face elliptic, up to 6,0 x 4,0 mm, mostly about 5,0 x 4,0 mm.

17. *Lithops schwantesii* Dint. (1928) (Y).

We recognize five varieties within this rather variable and widely distributed species, namely var. *schwantesii*, var. *gebseri* De Boer, var. *marthae* (Loesch. & Tisch.) Cole, var. *rugosa* (Dint.) De Boer & Boom and var. *urikosensis* (Dint.) De Boer & Boom.

17.1 *Lithops schwantesii* Dint. var. *schwantesii* (Y). Plate 13/1-4.

COLLECTED by Ernst J. Rusch in August 1926, and named for Professor M.H. Gustav Schwantes who contributed so much to the study of *Lithops* and other Mesembryanthemaceae.

DISTRIBUTION: SWA/Namibia, in a large north-south strip about 80 km wide, north of 27° S latitude and west of 17° E longitude, tapering off northwards to a point about 100 km W of Maltahöhe, and with a major concentration to the SW, W and NNW of Helmeringhausen. Type locality Barbi, W of Helmeringhausen.

DESCRIPTION: Very variable. **Profile** truncate, flat to slightly convex; fissure 4-8 mm deep, lobes conjunct. **Face** flush; mostly \pm reniform; lobes \pm unequal; opaque to translucent; smooth to rugose. **Margins** usually rather irregular with indentations and peninsular projections into the window area; sometimes obscure, but often prominently banded. **Windows** occasionally absent, when the face is almost entirely opaque; sometimes completely open, but usually occluded by a number of indistinct islands and peninsular projections, thus reduced to irregular **channels**, usually fairly broad, occasionally very narrow and little more than slightly impressed furrows accommodating the markings. **Islands** few to many, usually indistinct and not well defined. **Markings** rarely absent, usually manifest as a number of dots, hooks and branched lines which may be linked into a coarse network, sometimes very bold and prominent. **Pellucid dots** rarely absent; usually subcutaneous, few to many, scattered irregularly over the whole face, opaque and