

Lithops dinteri Schwantes: A review, and a new variety

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II. CHARACTERISTICS AND DISTRIBUTION OF THE SPECIES

All four of the known varieties of *L. dinteri* Schwant., including the new one described here, occur in close proximity to the Orange River, i.e. within 30 km (about 20 miles) to the north or south, along the section where, between Onseepkans and the Richtersveld, it flows almost directly from east to west (see map p. 38). In this rectangular strip, about 60 km (roughly 40 miles) wide and 160 km (100 miles) long, the Orange River passes through some of the most arid, desolate and rugged mountain terrain to be found along its course. Only to the northwest and west, in the great horseshoe bend which arches over the Richtersveld and then curves out to the Atlantic Ocean, are there even less hospitable conditions.

At the southeastern end of this strip, near Pofadder, is the habitat of a closely related species, *L. dorotheae* Nel. Other yellow-flowering species occur to the north, south, east and west, and some of them, e.g. *L. bromfieldii* L. Bol., *L. fulviceps* (N.E. Br.) N.E. Br., *L. schwantesii* Dint., and *L. verruculosa* Nel, are also characterized by blood-red dots, spots, dashes and lines, yet there seems to be no other evidence of close affinity between the *L. dinteri*-*L. dorotheae* group and any of their neighbour species.

L. dinteri Schwant. was discovered in August 1926 by Mr Ernst Rusch, about 40 km (25 miles) SSE of Warmbad, S.W.A., and within 15 km (10 miles) of the Orange River. It has subsequently been reported at four or five places to the west of the type locality, and it is now known to extend as far as Goodhouse and beyond. All these localities are situated to the north of the Orange River.

L. dinteri Schwant. var. *dinteri* has facial diameters up to 25 × 18 mm, with slightly convex and therefore relatively flat top surfaces. Most specimens have clearly defined margins and large open windows, greyed-green in colour (RHS 194 A, B, C, 195 A, B, C, 197 B, C), but usually with a reddish suffusion. Only a few have some relatively small and rather nebulous islands composed of clusters of tiny buff-coloured dots. Within the windows are scattered a number of blood-red dots, usually 10—15, very rarely less than 5 or more than 20, on each lobe. These red dots are sometimes joined to form short dashes or they may be drawn out to a point at one end.

L. dinteri var. *brevis* (L. Bol.) Fearn was first collected by Mr [N. S.] Pillans in October 1931 and published by Mrs H. M. L. Bolus in 1932 as *Lithops brevis*. The type locality is given in the original publication (Bolus 1932) as "hills 5 miles S.E. of Viols Drift", which has been incorrectly transcribed in Jacobsen (1960 : 1223) as "hills 5 miles south-west of Viols Drift". This variety is now known to occur in several colonies to the southeast of Violsdrif, all of them south of the Orange River.

Whereas Mrs Bolus (1932) suggested a close relationship between *L. brevis* and *L. olivacea* L. Bol., Professor G. C. Nel (1946 : 57) firmly rejected this

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view and emphasized the strong resemblance between *L. brevis* and *L. dinteri*, remarking that further study of these two might reveal them to be identical. The relationship between *L. dinteri* Schwant. and *L. brevis* L. Bol. is quite obviously very close, and it is surprising indeed that Dr H. W. de Boer did not reduce the latter to varietal status when he carried out his revision of the genus in 1961. The new combination was published by Mr B. Fearn in 1970.

L. dinteri var. *brevis* is smaller than the nominate variety, with maximum facial measurements 21×14 mm. The top surfaces are slightly convex and relatively flat; the windows are large and open, usually dark greyed-green in colour (RHS 197 A, B, C), with clearly defined margins; and the red dots and dashes are few in number, rarely as many as five on each lobe and very often entirely absent.

L. dinteri var. *multipunctata* De Boer was collected by Mr Victor L. Pringle and Mr A. A. Roux in May 1963. The type locality is about 65 km (40 miles) southeast of Warmbad, S.W.A. (not southwest, as stated by De Boer), and less than 10 km (6 miles) from the Orange River. We have had a report of this variety occurring also on the southern side of the river, to the southwest of the type locality, but this has not yet been confirmed.

Whereas the other two varieties are, respectively, relatively uniform in appearance, *L. dinteri* var. *multipunctata* is extremely variable — much more so than is apparent from Dr de Boer's description and illustration. This is the largest variety, attaining facial diameters of 27×20 mm. The top surfaces vary from relatively flat to fairly strongly convex, with margins often ill-defined or even absent, and windows largely or sometimes completely closed in by rather ragged islands. On the faces are numerous red dots, dashes, and irregularly bifurcated lines, which, however, are not joined to form a network.

II. THE NEW VARIETY

The descriptive notes above are based on specimens collected in habitat, at or near the relevant type localities. To these three well-defined varieties of *L. dinteri* Schwant. we now add a fourth which was discovered on 18 August 1968 by Mr Frederik T. Herselman of Kimberley, C.P., who has provided us with a great deal of valuable information concerning the localities of this and various other colonies of *Lithops*. Because of incessant drought in the area we were not able to collect specimens for description until two years later.

Lithops dinteri var. *frederici* Cole, var. nov.

A varietate typica magnitudine minore (pro genere minima), superficiebus valde convexis, forma cordata corpusculorum, et fenestris deficientibus vel parvulis, differt.

Planta acaulis; corpuscula obconica, numero 1–5 variantia, plerumque 2 vel 3; folia aequalia vel sub-

aequalia; superficies glabra, valde convexa, 10–17 mm longa, 7–12 mm lata; fissura 3–7 mm profunda; fenestrae deficientes vel parvulae; superficies opaca et salmoneo-bubalina colore; in superficiebus puncta atrosanguinea, pauca vel multa, etiamque puncta pellucida veneta; flores aurei; capsulae quinqueloculares.

Type: Collected 3 July 1970, Cole 180 (PRE! holo, iso).

Habitat: Near Pella, Cape Province, on the flat top of a low hill; Soil: pH 7.9, colour RHS greyed-orange 165 C; Stone: residual rubble (gruss) of decomposed granite, including some quartz, feldspar and mica, predominant colours RHS yellow-white 158 D, C, orange-white 159 C, B, A, greyed-orange 165 C.

Facial Structure: Lobes equal to subequal; top surface of lobes more or less smooth and in most cases markedly convex; fissure usually narrow, occasionally gapping, and relatively deep, 3–7 mm.

Facial pattern: Margins usually absent, otherwise barely perceptible; windows usually absent, otherwise almost entirely closed in by clusters of minute buff-coloured dots (mostly visible only under magnification) which produce a cloudy or nebular effect; on the face a number of blue-green pellucid dots, sometimes few, sometimes numerous and flowing together to form small "pools"; on the face also a number of dull dark red dots (usually a dozen or more on each lobe), which are occasionally joined to form short dashes; the red dots often occur in the small blue-green "pools".

Colour of face: Opaque; usually RHS yellow-white 158 A, B, orange-white 159 A, B, C, greyed-yellow 161 C, D, greyed-yellow 162 D, occasionally greyed-yellow 160 C, D.

Flowers: Yellow; seed capsules 5-merous.

Number of heads: Usually 2 or 3, maximum 5.

Facial dimensions: 10×7 mm to 17×12 mm.

L. dinteri var. *frederici* is distinguished from the other varieties of this species by its smaller size, strongly convex top surface, and lack of window. This new variety is indeed the smallest in the genus, with smaller facial dimensions, on average and at maximum, than both *L. ruschiorum* var. *nelii* (Schwant.) De Boer et Boom, and *L. wernerii* Schwant. et Jacobs., which, hitherto, have been regarded as the smallest. In respect of the deep clefts, highly convex faces and cordate profiles, and even in basic colour, there is some similarity between *L. dinteri* var. *frederici* and *L. ruschiorum*, but there is no evidence whatever of direct relationship between these two taxa.

III. THE STATUS OF *L. MARTHAE* LOESCH ET TISCH.

It would be inappropriate to conclude this review without reference to the position of *L. marthae* Loesch et Tisch., which B. Fearn (1970) has classi-

fied as a variety of *L. dinteri* Schwant. Fearn offers neither reasons nor explanations for his new combinations, most of which, like the one under consideration here, are quite untenable (or, at best, of extremely doubtful validity) in the light of the evidence of material collected in habitat.

It is true, of course, that *L. marthae*, like *L. dinteri*, has yellow flowers; and that some specimens of *L. marthae* superficially resemble some specimens of *L. dinteri* var. *brevis*; but there the similarity ends. In all other respects, e.g. facial markings, flower and capsule structure, *L. marthae* manifests a clear relationship to *L. schwantesii* Dint. Furthermore, *L. marthae* is linked distributionally with *L. schwantesii*, of which it constitutes the most southerly extension and representative; whereas, to the best of our present knowledge, there is a gap of at least 160 km (100 miles) between *L. marthae* and the nearest representative of *L. dinteri*. *L. marthae* is therefore transferred here to varietal status under *L. schwantesii*:

Lithops schwantesii Dint. Südwestafrikanische Lithopsarten, 14. 1928.

Lithops schwantesii var. **marthae** (Loesch et Tisch.) Cole, *comb. nov.*

Lithops marthae Loesch et Tisch. Succulenta, 18 (5): 74—76. 1936.

Lithops marthae Loesch et Tisch. In H. Jacobsen, Succulent Plants, 201. 1935. Name without description.

Lithops inornata Dint. In H. Jacobsen, Succulent Plants, 198. 1935. Name without valid description.

Lithops dinteri Schwant. var. *marthae* (Loesch et Tisch.) Fearn. Cactus and Succulent Journal, 42 (2): 92. 1970.

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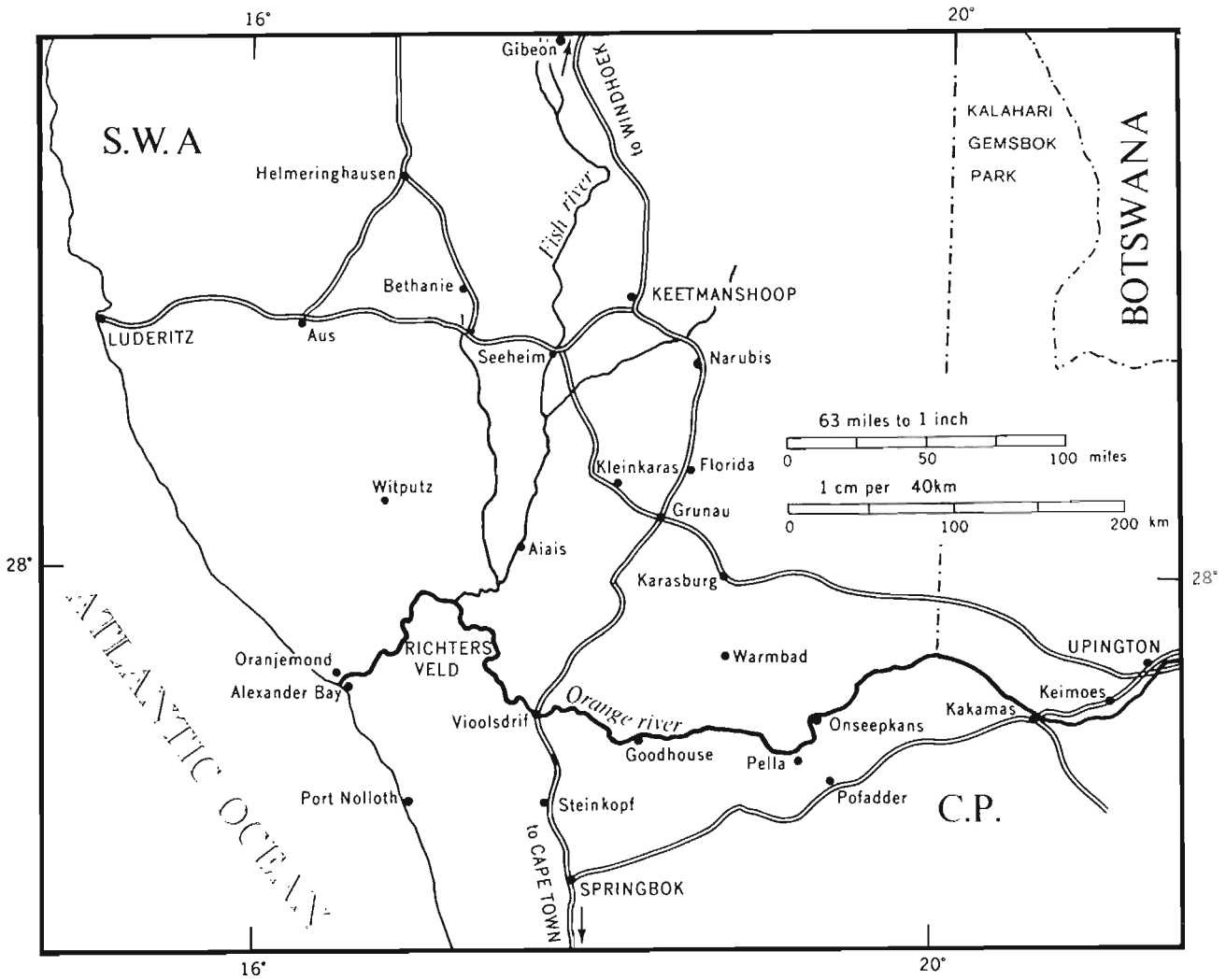
Plate 1. *Lithops dinteri* var. *frederici* Cole — a typical specimen with the characteristic colour and markings of this new variety.



Plate 2. *L. dinteri* var. *frederici* Cole — another typical specimen, but with gaping fissure between the lobes.



Plate 3. *L. dinteri* var. *frederici* Coje — a flowering specimen with unusually large translucent blue-green “pools”, almost forming a “window”.



Distribution area of *Lithops dinteri* Schwantes, *L. fossulifera* nom. nud., and *L. gulielmi* L. Bol. I am indebted to Miss J. G. Rouse and Mrs H. D. Marais, Cartography Section, Dept of Geography and Environmental Studies, University of the Witwatersrand, Johannesburg, for production of this map.