

# Hybridisation in the genus *Lachenalia*

An historical review by Trevor S. Crosby, Department of Plant Sciences, University of Leeds (drawing by author)

THE WRITER HAS found no published record of naturally occurring hybrids of *Lachenalia*. However, in a personal communication referring to cultivated plants, especially those at Kirstenbosch, Miss W. F. Barker (1958) wrote that "most species of *Lachenalia* hybridise very easily and the bulbs growing here have become very mixed". That being so, one would have expected deliberate hybridisation to have played a big part in the development of a genus which has been cultivated for over two centuries and which has moreover achieved some limited popularity from time to time.

Certainly many hybrids have been raised, but as far as can be ascertained, only a very few of the 68 species so far described have been involved in attempts at breeding lachenalias and the first recorded hybrid did not appear until 1880, over a century after the first introduction of the genus to Europe.

Seed of this first hybrid was sown in 1877 by the Rev. John G. Nelson of Aldborough Rectory, Norwich, U.K. and the seedling first flowered three years later (*Gardener's Chronicle*, 1880). It was subsequently shown to the Royal Horticultural Society under the name of *L. Nelsoni* X and received their First Class Certificate. *L. luteola* was the female parent and *L. aurea* the male and since these two species are now generally considered to be varieties of *L. aloides* the seedling can no longer be regarded as an interspecific hybrid and cannot therefore bear a botanical hybrid epithet.

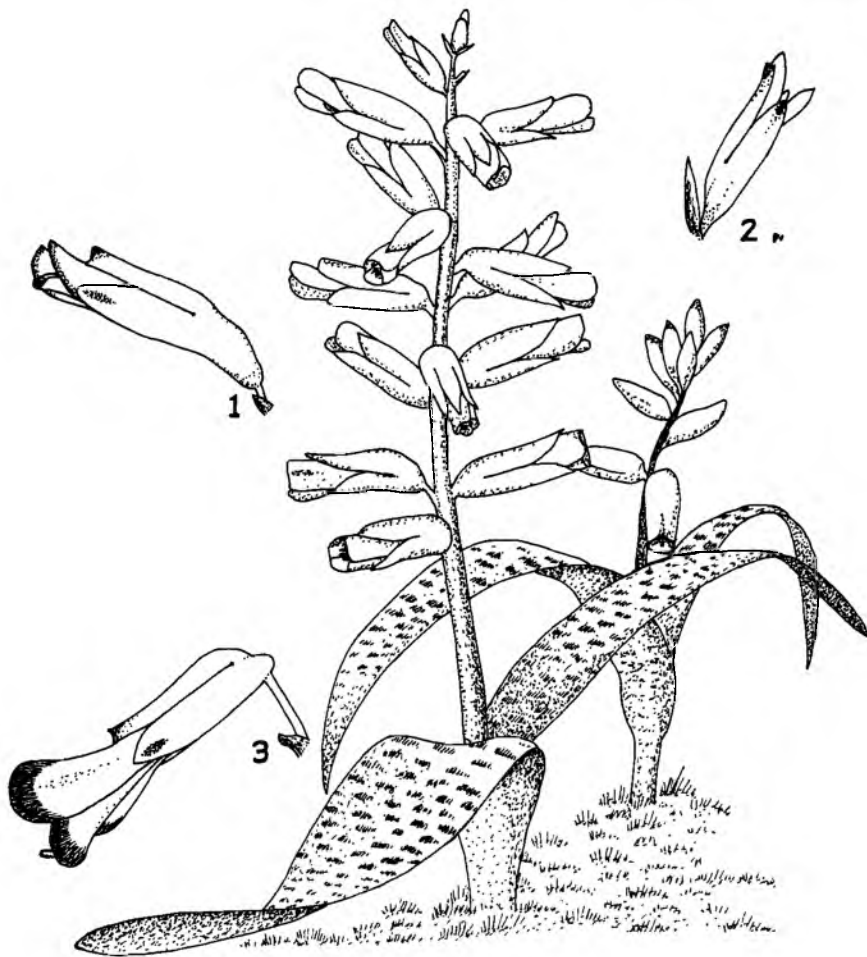
However, following the *International Code of Nomenclature of Cultivated Plants* the orthographically corrected epithet should be retained for the cultivar name and the correct designation of Nelson's plant is therefore *L. aloides* 'Nelsonii'. It is a remarkable fact that this first garden-raised lachenalia is one of the few still available today, almost a century later, and despite the tendency of some gardeners to propagate cultivars from seed, some ten stocks

received at Leeds from different sources all appeared to be exactly the same clone as that illustrated in colour in *Garten-Zeitung* (Berlin) as early as 1882.

The Rev. Nelson may also have raised the first genuine interspecific hybrid. He apparently raised the plant which gained a First Class Certificate as 'Aldborough Beauty' when exhibited by Barr to the Royal Horticultural Society in 1885. According to Moore (1891, 1905) this

## HYBRIDISATION

*Synonymy*: In view of the need to quote frequently from literature containing nomenclature which is no longer considered correct it seems sensible to avoid much tedious repetition by quoting the relevant synonymy at the outset, viz.: *L. aloides* (syn. *L. tricolor*); *L. aloides* v. *aurea* (syn. *L. aurea*, *L. tricolor* v. *aurea*); *L. aloides* v. *luteola* (syn. *L. luteola*); *L. aloides* v. *quadricolor* (syn. *L. quadricolor*); *L. bulbifera* (syn. *L. pendula*).



*Lachenalia x regeliana* Sprenger, redrawn from the original figure, together with: 1. flower of a hybrid of similar parentage raised at Leeds, 2. flower of *L. reflexa* – the female parent of the Leeds hybrid, and 3. flower of a *L. aloides* seedling – the male parent. Figs. 1-3 are shown natural size with the flowers in their normal pose. Readers will notice the author's preference in spelling *Aloides* with an umlaut. The modern form is *Aloides*

# HYBRIDISATION

plant was also known as *L. aureo-reflexa* Baker. Moore sent a plant to J. G. Baker at Kew which was mentioned in *Flora Capensis* under *L. reflexa* as a fine garden hybrid between this and *L. tricolor* v. *aurea*". Baker (1897) also recorded that Kew



M. C. BOTHA

*L. aloides* x *pendula*

had "received the same hybrid from Messrs. Dammann, of Naples, under the name of *L. regeliana*". There is a specimen at Kew labelled *L. aureo-reflexa* Hort. and also one labelled *L. Regeliana* dated 1893. Both appear to be genuine hybrids and resemble the present writer's own hybrids of similar parentage.

The name *L. Regeliana* was published by Sprenger (1891), together with a good description and a rather stylised but recognisable figure, but there is no indication as to whether this or the following plant originated with Sprenger; it is possible that Sprenger's plants came from Dammann or vice versa. At the same time Sprenger published the name *L. Comesii* for a cross between *L. reflexa* and what is now called *L. aloides* v. *quadricolor*, a hybrid which was apparently achieved after storage of

pollen in a dry bottle for one or two months. Again there is a good description and a figure.

The latter plant was presumably the same as that referred to by Baker (1897) as *L. Comesii* Hort. [sic] which "differs from *L. Nelsoni* by the outer segments being rather longer in proportion to the inner", although Baker listed it under *L. tricolor* in a manner which suggests hybridisation with *L. pendula*.

Hybridisation with this latter species could account for comparatively long outer segments but it is the length of the perianth tube which is critical. The present author's own hybrids between *L. aloides* and *L. reflexa* all inherit the long tube of the latter parent and, while this is not shown too well in the illustrations of the two hybrids described by Sprenger, the Kew specimens of *L. Regeliana* and *L. Comesii* do show this feature. All these hybrids also inherit somewhat ascending flowers from *L. reflexa*.

## A nomenclatural problem

In passing it should be noted that the epithet *aureo-reflexa* should, according to the *International Code of Botanical Nomenclature*, be regarded as a formula and not a true epithet but Sprenger's names *L. Regeliana* and *L. Comesii* give rise to a nomenclatural problem in that both are hybrids of *L. reflexa* with plants now considered to be varieties of the same species, i.e. *L. aloides*. They should therefore, according to the code, both have the same botanical hybrid epithet. Since both available epithets are of the same date either could be chosen but it seems sensible to adopt the one which appears first in the publication.

If such hybrids again came into commerce it would be desirable for them to have a hybrid epithet rather than a formula and it is therefore suggested that the name *L. x regeliana* be applied to any future hybrids between *L. reflexa* and *L. aloides*. Different seedlings could then be given different cultivar names attached to the hybrid epithet to distinguish them from cultivars of *L. aloides*.

Attempts were also made at the end of the 19th century to cross forms of *L. aloides* with *L. bulbifera*. It has been suggested that *L. Cami* was of that parentage. Although listed by *Index Kewensis Suppl. I* as a

horticultural form, Baker (1897) cites under *L. tricolor* "*L. Cami*, Hort. [sic] . . . which combines the bright yellow flowers of *L. aurea* with the habit of *L. pendula*" as the finest of "Several hybrids between *L. pendula* and the varieties of *L. tricolor* . . . in cultivation". However if one consults the original description (Reuthe, 1889) one finds *L. Cami* described as "Sehr schöne neue, durch Kreuzung zwischen *Lachenalia aurea* und wahrscheinlich *luteola maculata* hervorgebrachte Varietät", the latter plant being a form of *L. luteola* with blotched leaves. If Reuthe was correct *L. Cami* would be merely an intraspecific seedling of *L. aloides* since both *L. aurea* and *L. luteola* are, as we have seen, now considered varieties of that species. Moreover neither Moore (1891) nor Sprenger (1891) considered the plant to be the hybrid suggested by Baker.

The only specimen of *L. Cami* at Kew is one from Moore which was exhibited at the Royal Horticultural Society in 1891 and there is also a solitary specimen at the British Museum which was received from Glasnevin Botanic Gardens in 1888 while Moore was at Glasnevin. To the present writer neither specimen shows any sign of *L. bulbifera* parentage.

In the article already referred to above, Moore (1891) wrote "All the species and varieties of the group



M. C. BOTHA

*L. aloides* v. *aurea*

*Eulachenalia* intercross freely with each other, the exception being *L. pendula*, and only twice have I succeeded in crossing it"; but in the later article of his (1905), presumably referring to attempted hybridisation with forms of *L. aloïdes*, we read "For many years I have endeavoured to get red colour from *L. pendula* or from *L. rubida*, but hitherto not one seedling from these, crossed with other distinct species, has flowered ... [seed] has either failed to germinate or else the seedlings have shown no trace whatever of *L. pendula* or *L. rubida*, probably proving that the cross had not been effected". He did add that at that time he had some distinct seedlings of greater promise but since no reports of these have been found in the literature they may also be presumed to have been failures.

### New Zealand hybrid

Another claimed hybrid of *L. aloïdes* and *L. bulbifera* was *L. Pearsonii*. In the *New Zealand Gardener* (1949) one reads "It is not generally known that *L. Pearsonii* is a New Zealand raised hybrid, obtained by crossing *L. pendula* with *L. Nelsonii*. It was raised by Mr. Aldridge, a former Curator of Parks and Reserves in Auckland about 25 years ago". The description is too inadequate to substantiate or refute hybrid parentage but what there is makes it seem unlikely. The colour photograph on the cover of the magazine, which purports to be of *L. Pearsonii*, does not even agree with the meagre description in the text since it lacks the red border to the flowers. It appears to be merely a form of *L. aloïdes* close to *L. 'Nelsonii'*.

Five accessions bearing the name *L. Pearsonii* have been grown at Leeds and also one with the name *L. Piersonii*. All agree with the description referred to above but all are slightly different from each other so that it is impossible to say which, if any, is the correct plant; certainly none of them exhibits any of the characters of *L. bulbifera*.

It seems unlikely therefore that the cross between *L. aloïdes* and *L. bulbifera* has succeeded in the past. The plants claimed to be such hybrids were presumably selfs of *L. aloïdes* resulting after the failure of an attempted cross. Whatever the status of Mr. Aldridge's seedling the name appears to be a *nomen nudum*

and *L. pearsonii* is properly the name of a species recently transferred from *Scilla* to *Lachenalia* (Barker, 1969).

Another plant claimed to be an interspecific hybrid is *L. x Boundii*. This was given an Award of Merit when exhibited to the Royal Horticultural Society by Messrs. Bound of Redhill in 1925. It was described in the *Journal of the Royal Horticultural Society* (1926) as "An interesting cross said to be between *L. pendula* and *L. rubida*". The award was confirmed after trial at the Society's Wisley gardens in the season 1926-27, where it was compared with *L. pendula* and *L. pendula superba* and descriptions of all three were published in their journal for 1929.

There is nothing in these descriptions to suggest a hybrid origin for Bound's plant and a plant with the name *L. Boundii* which has been grown at Leeds confirms this opinion. One must therefore agree with Grey (1938) that the plant is no more than a form of what was then called *L. pendula*. The correct name of this plant should therefore be *L. bulbifera* 'Boundii'.

### Further attempts to cross

It seems that the Rev. J. Jacob (1920) tried unsuccessfully to cross three other species with *L. aloïdes*. We read "*L. glaucina* is one of the sweet scented species ... Its general appearance ... is similar to that of *orchioïdes* and *pallida*, which are likewise sweet scented ... like that of the Lily of the Valley or Yellow Genista ... Unfortunately they do not seem to cross with *tricolor* and *quadricolor* varieties, for if only scent could be introduced into such kinds as *Nelsonii* and 'Rosemary', the public verdict on the race would be quickly changed".

In the *Gardener's Chronicle* (1882) there is a record of plants referred to as "*Nelsoni aurea x rosea*" among a collection of *lachenalias* passing to Messrs. Barr and Sons from the late Rev. John Nelson. "*Nelsoni aurea*" is fairly certain to have been a seedling of *L. aloïdes* and may represent a backcross of the cultivar *L. aloïdes* 'Nelsonii' to one of its parents i.e. *L. aloïdes v. aurea*. However the crossing of such a seedling of *L. aloïdes* with *L. rosea*, while not beyond the realms of possibility, seems an unlikely event. Presumably the plants referred to were unflowered seedlings since one would

## BEQUESTS AND DONATIONS

Your Society acknowledges with gratitude the following bequests and donations:

1. Mr. W. H. Mercer: A bequest of R1 000 and his farm at Cato Ridge comprising a three bedroom house and 61,0819 hectares of land.
2. Mrs. G. A. Mars: A bequest of R1 000. Mrs. Mars joined the society in 1924 as an ordinary member and became a life member in 1968.
3. Miss F. M. Rohr: A donation of R50, R25 for Flora conservation and R25 for Veld and Flora.

As the terms of the wills of Mr. Mercer and Mrs. Mars were not specific, 80% of their bequests will be paid over to the National Botanic Gardens.

The Chairman of the Natal Branch reports that Mr. Mercer's farm has no species of special botanical significance growing on it and Council has accordingly accepted his recommendation that the property should be sold when a suitable price can be obtained. The farm adjoins the Cato Ridge golf course some 20 miles south of Pietermaritzburg on the National Road to Durban. Whilst the property is in the hands of Agents, any members who are interested in purchasing it or may be able to assist the Society in selling it are asked to get in touch with the Secretary or Francis Becker and Partners of Pietermaritzburg. If necessary the Society would be prepared to grant a bond to the purchaser.

have expected a cross of this nature to have received more detailed notice. In the absence of this one must assume that the seedlings proved not to be of the recorded parentage.

A similar doubt must attach to plants referred to in "Kew Notes" (*Gardener's Chronicle*, 1893) as "*Nelsoni x versicolor*". The latter name is a synonym of *L. unicolor* and it is even more unlikely that this species

# HYBRIDISATION

would have crossed with a seedling of *L. aloïdes*. Again in the absence of further evidence one cannot accept that the cross was successful.

It should also be noted that Batten and Bokelmann (1966) record under *L. algoensis* that "It has been cultivated and hybridised in England and Europe since 1870". However they clearly intended to refer to the genus rather than the species which was not recognised until 1910!


Although, as we have seen, Moore (1891) claimed that "All the species and varieties of the group *Eulachenia* intercross freely except *L. pendula*", the intercrossing species to which he was referring were doubtless plants like *L. aurea*, *L. luteola* and *L. quadricolor* etc. all of which are now regarded as varieties of *L. aloïdes*. There is no record of him having

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(concluded from p. 66)

text, Geoffrey and I travelled all over South Africa, collecting and photographing trees, and talking to botanists, foresters, farmers, gardeners, shepherds, ornithologists – everyone who could tell us something about a tree.

"It is impossible to work for long with botanists without a little of their enthusiasm rubbing off on one. Gradually botany began to wear a different face: it was no longer merely that I did not despise it – I began to bend a knee".

Mrs. Eve Jenkins is, fortunately for us, still young. With her capacity for hard work, her love of our indigenous flora and her talent to write we are looking forward to further contributions to botany from her and hope that the well-deserved honour bestowed on her in receiving the Bolus Medal may be an encouragement and an inducement to continue. 

successfully crossed either *L. bulbifera* or *L. rubida*.

It seems therefore that the majority of claims of interspecific hybridisation of lachenalias cannot be substantiated. However the raisers of *L. Regeliana*, *L. Comesii* and 'Aldborough Beauty' undoubtedly did succeed in crossing *L. reflexa* and *L. aloïdes* and the resultant progeny remain the only reliably authenticated interspecific hybrids so far reported in the literature.

While there has been only limited and for the most part unsuccessful attempts at interspecific hybridisation we can see from the pages of the *Journal of the Royal Horticultural Society* and the *Gardener's Chronicle* that there has clearly been much activity and success in the raising of garden varieties (cultivars) of *L. aloïdes* by intraspecific crosses. The names of over seventy cultivars have so far been recorded in the literature and of these some twenty-six received an award of some sort from the Royal Horticultural Society.

## Ecclesiastical pastime

It has already been noted that the Rev. Nelson was the first in the field but raising lachenalias seems to have been an ecclesiastical pastime. The Rev. Th. H. Marsh of Cawston Rectory, Norwich was close on the heels of his reverend colleague and the Rev. J. Jacob of Whitewell near Whitchurch carried on the tradition in the 1920's. Jacob's success can be measured by the fact that his plants took no fewer than sixteen of the R.H.S. awards.

F. W. Moore, later to become Sir F. W. Moore, of the Glasnevin Botanic Gardens, Dublin, has already been mentioned in connection with interspecific hybridisation and he too raised many cultivars of *L. aloïdes* at about the turn of the century. A few other people also raised lachenalias which were offered for sale by the trade and no doubt many gardeners tried their hand at raising seedlings for their own pleasure. Very few of the named cultivars survive today!


And so, after two centuries of cultivation, the surviving achievement of the horticulturalists in this genus of nearly seventy species is very small. There are probably less than half a dozen species at all commonly cultivated and of the small number of named selections few are still with

us. A larger number of seedling cultivars of *L. aloïdes* have been raised, again with few survivors, and only one interspecific hybrid which appears to be no longer in cultivation. One can understand the rather limited popularity of the genus in Europe where its species are not hardy and the present high cost of fuel severely limits the growing of greenhouse plants. It is less easy to understand the comparative neglect of the genus in its home country and other areas of similar climate.

While there are certainly problems to be faced in hybridising and developing the genus for horticultural purposes, different basic chromosome numbers and levels of polyploidy for instance, the opportunity undoubtedly exists and many of the plants are easy to grow and propagate. In experimental work at Leeds the present writer has succeeded in crossing *L. aloïdes* with *L. bulbifera*, *L. glaucina*, *L. reflexa* and *L. viridiflora*. He has also crossed *L. bulbifera* with *L. glaucina*, *L. rubida* and *L. viridiflora* while *L. reflexa* has further been crossed with *L. glaucina* and *L. viridiflora*. These, together with a few other hybrids involving species which have not yet been named, make over a dozen different hybrid combinations which have now been produced at Leeds. While several of these are of merely scientific interest others have produced novel plants with horticultural potential.

It is hoped to describe some of these plants, and the difficulties involved in producing them, in a later paper.

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## DROOM NOU VIR DIE SEWE MAER JARE!

DIE DROOGTE WAT vanjaar in Wes-Kaapland ondervind is, kan dalk meebring dat 'n projek waaraan daar geruime tyd reeds aandag gegee is, maar nog altyd op die lange baan geskuif word, nou prakties aangepak kan word.

Dit is die moontlikheid dat die sandafsetting in die oostelike gedeelte van die Kaapse vlakke as 'n reuse-wateropgaardam gebruik kan word.


Die Waternavorsingskommissie sê in een van sy jongste nuusberigte dat hierdie sandafsettings in staat is om 75 miljoen kubieke meter water op te berg. Afloopwater van die Eersterivier kan byvoorbeeld in hierdie sandafsettings opgeberg word juis met die oog op gebruik in droë jare soos nou ondervind is.

Navorsing deur die Departement van Siviele Ingenieurswese aan die Universiteit van Stellenbosch, onder kontrak met die Waternavorsingskommissie, het aan die lig gebring dat die gemiddelde jaarlikse afloop van die Eersterivier en sy belangrikste sytak, die Kuilsrivier, na raming 80 miljoen kubieke meter per jaar beloop waarvan 30 miljoen kubieke meter moontlik teen 1990 vir infiltrasie in die sand beskikbaar sal wees.

Hierdie water sal later onttrek kan word vir nuttige gebruik, en volgens die nuusmededeling, sal aanbevelings oor 'n watervoorsieningskema in die finale stadium van die projek gedoen word.

Die Kommissie wys daarop dat die afloopwater wat vir die opgaardeleindes beskikbaar is, oorskotwater is uit die rivier wat nie in konvensionele damme opgegaan of uitgekeer word nie.

In hierdie stadium lyk dit of die bergingskapasiteit van die sandafsetting voldoende is om die gemiddelde afloop oor 2 tot 3 jaar op te berg.

Ondersoek word nog gedoen, maar soos Josef van ouds het ons hier met 'n droom te doen wat dalk spoedig bewaarheid kan word en bewaarheid sal moet word voor die Sewe Maer Jare kom!—G.K. 



*Johannesburg Botanic Garden*

## A new exhibition ground for the wild flowers of South Africa

by Sima Eliovson

UNTIL RECENTLY THE HIGHLY populated area of Johannesburg and the Witwatersrand has had no large garden where wild flowers may be studied seriously, except for the municipal garden at the Wilds in Johannesburg, which is, perhaps too hilly to be of practical use for the older citizens who may visit it.

At last, however, a new window for displaying South Africa's flora has been opened to the public in the form of the new Johannesburg Botanic Garden, situated in Emmarentia, Johannesburg. It will be possible here to study South Africa's vast flora in ever-increasing numbers, as the collections grow, without any of the cost being borne either by Kirstenbosch or by the Botanical Society of South Africa.

As one of the aims of the Botanical Society of South Africa is to do all it can to promote the cultivation of South Africa's flora and to interest the public in it, it is suggested that the Botanical Society should become actively interested in the growth of the Johannesburg Botanic Garden. Both the Society as a whole and its individual members in particular

could support and encourage the growth of the Johannesburg Botanic Garden by joining the Johannesburg Botanic Garden Society, which is doing all it can for the Botanic Garden.

The Johannesburg Botanic Garden is in its infancy and few people yet know of its existence, although it was opened officially on February 5, 1972, after the decision was taken in February 1969 to establish the garden. It is situated about 5 km from the city centre and covers an area of about 125 hectares, almost double that of the cultivated portion of Kirstenbosch.

Although this is an International Botanic Garden, primarily intended to display the tremendous variety of plants from all over the world that can be grown in the ideal climate of Johannesburg, there is no doubt that the vast flora of South Africa will be given prominence here. The plantings are being set out in several ways – in family groups, as well as geographical and ecological groups. This means that any family or genus which is represented by species in other countries besides South Africa,