

the first lecture titled "*Xeronema*" our Rarest Lily.

The War years followed and Lucy continued her pollen studies. And in 1943 she married Captain (later Major) S. Watson Smith and moved permanently to the United States. However she visited New Zealand regularly over subsequent years, and wrote regularly to botanical friends. In the Newsletter of 1944 Marguerite Crookes wrote of Lucy's departure expressing disappointment that war conditions made the usual farewells impossible: one sentence strikes a particular chord 'We shall not forget her, and we are sure she will not forget us.' I think it can be said this prediction was borne out. Over the years Lucy provided generous financial support to the Society, and we established the Lucy Cranwell Fund to support botanical field work by students at Auckland University. For many years she was Patron of our Society. Lucy was awarded many botanical honours over the years including an Honorary DSc from Auckland University, but it was Lucy's ability to encourage others about botany that is in many ways her lasting legacy. As Ewen wrote in his obituary in the New Zealand Journal of Botany 'Lucy is remembered affectionately for her strong personality, love of New Zealand and the outdoors, and as an energetic and pioneering botanist with a readiness to share her knowledge.' In a small way the Lucy Cranwell Lecture series continues this tradition of sharing knowledge.

The evening's lecturer Dr Brian Molloy joined the Dept of Agriculture in 1956, but transferred to

Botany Division of DSIR early on in his career. He transferred briefly to Landcare Research when the DSIR was dis-established, and he retired in a formal sense in 1995.

Brian has diverse botanical interests. As an ecologist he has been interested in the history of vegetation - especially of the eastern South Island - where he has studied in particular the charcoal and macrofossils that resulted from widespread burning. As a taxonomist, he has taken a particular interest in the orchids and conifers. Brian has been very active in applying his skills to conservation problems, especially but by no means exclusively since his retirement. He was an elected Director of the Queen Elizabeth II Trust for 9 years (the maximum term allowed), and is now their representative with responsibility for the South Island High Country. Even from Auckland, we are aware that there are major management issues around the High Country - and Brian has been able to draw on his considerable knowledge and negotiation skills to ensure quality outcomes for conservation. For many years he has guided the management of Riccarton Bush, that small but very important forest remnant in the middle of Christchurch, and he serves on various Christchurch City Council environmental committees. Brian is also been interested in the management of rare plants, especially orchids. In 1995 Brian was awarded the Charles Fleming Award of the Royal Society of New Zealand, recognising his achievements in protection and management of the environment.

Brian Molloy's talk will appear in the next ABS Journal



A Study in Mauve: the use of some colour names in "Flora of New Zealand IV" - and a glossary

Rhys Gardner

Introduction

The plant descriptions of Flora NZ IV (Webb, Sykes & Garnock-Jones 1988) excel in their comparability, that is, if the size or shape or colour of some structure is noted for a species then almost always the corresponding information is given for all the other species treated in the genus. The objective character of the descriptions is in this way strengthened. Considering the many geographic origins of our weeds, and the amount of literature and specimens that would have to have been checked, we can see that achieving this uniformity must have been a giant task.

It occurred to me though that some subjectivity might still remain, in the actual judgements of colour, and in particular, the colours in the red-violet part of the spectrum. For example, what exactly is mauve, and how does it differ from

magenta, amethyst, lilac or lavender? Stearn's "Botanical Latin" (1973) has an invaluable account of colour terms but not, alas, any reproduction of the colours themselves. The Royal Horticultural Colour Chart (Wilson 1938) is not generally available, and its modern equivalent, the charts of the American firm of Munsell, are extremely expensive. Perhaps because of cost and copyright requirements, none of the big and otherwise authoritative gardening books — with the exception of Graf's "Exotica" (1963) — offer even the simplest of colour charts.

I looked through Flora NZ IV family by family, noting instances of the mention of red to violet colours, to analyze whether the three authors — Colin, Bill and Phil — favoured particular colour names. I am not saying that their use of any of these might be inaccurate but do suggest that "psychological tendencies" could be at work.

The frequency by author of these Flora IV colour names — lavender, lilac, magenta, mauve and violet, and the more prosaic but less definite reddish purple, purple and bluish purple (these three combined), is (accompanying table):

Table: Frequency of shades of mauve by authors of Flora IV

	lavender	lilac	violet	mauve	magenta	combined
Bill	1	2	9	63	5	69
Colin	2	8	5	13	3	52
Phil	0	1	4	4	1	43

Clearly, Bill has a marked affinity for mauve, while Colin inclines towards lilac as well; Phil stands as quite the least flamboyant of the trio.

Colours

The account of colour in botany by Stearn (1973) is based on a review by Jackson (1899) and on the charts and other information in a notable paper by mycologist H. A. Dade (1949). The latter author referred back to a late 19th C. book "Chromotaxia" by the Italian mycologist and scholar P. A. Saccardo of Padua; that work treats 48 standard colours and their Latin names. According to Dade it is desirable to preserve Saccardo's "classical" usage, but he amended some unsatisfactory terms, sometimes because of variability in Saccardo's three editions, and sometimes because of departure from usual English usage.

In his charts and glossary Dade set out the relationship of Saccardo's terms in the framework of a scheme by the British firm of Ridgway, which was for a long time involved in producing standard colours for scientific and other purposes. The visible spectrum is divided into 11 hue-groups: red, scarlet, orange, yellow, yellow-green, green, blue-green, green-blue, blue, violet, purple. Each has of course numerous distinct hues (pure colours) within them. Unlike botanical names for genera, but like those for families, the Latin names for these hue-groups are plural, viz., Rubri, Miniati, Aurantiaci, Flavi, Chlorini, Virides, Veneti, Cyanei, Lazulini, Violacei, Purpurei. The central or typical hue in each of these groups takes the singular (Ruber, Miniatus etc); for economy these typical hues are used to stand for the entire hue-group.

I have not seen "Chromotaxia", but have been able to use the Auckland Museum copy of a delightful production referenced by Stearn (1973), that of Oberthür & Dauthenay (1905). In this Saccardo's usage is affirmed in a series of 365 4-tone colour swatches. Much information can be found here concerning the colours of old cultivars (particularly of chrysanthemums) and, sometimes, of other things historical, like the shades of French soldiers' trousers. Unfortunately, a number of the swatches, especially those with blue in them, have faded badly, as can be seen by comparing them with the

flowers they are said to exist in.

In what follows I provide a glossary for colour-names in the red to violet and orange to yellow regions. I hope it might sometimes be useful at least

in helping one understand the meaning of numerous common specific epithets. No responsibility is undertaken for any improper use of it, such as the selection of colours for home-decorating, whether in Classical Style or not. The disclaimer of Stearn (1973) should also be heeded: "Whenever possible, living material should be matched ... by at least two people — women in general have a more finely trained colour sense than men".

Glossary

A number of accessory terms need noting. A 'tint' is a mixture of a 'hue' (the pure colour) with white, that is, a diluted hue, and a 'shade' is a mixture of a hue with black. All other colors are 'greyed' or 'broken' colours, that is, hues mixed with various degrees of grey (cf. the episode in Vance (1980), in which the disgraced offworld innkeeper Tintle of "Tintle's Shade" is chastized and "broken").

In common experience the names of hues are used for closely adjacent broken colours and weakly tinted or shaded ones. The word 'tone' refers to any variant of a hue (tinted, shaded or broken). A 'deep' tone contains a large proportion of black, and a 'high' tone, relatively little. Numerous qualifying terms, concerning things like texture or the viewer's likely emotional response, may be added to enliven, as it were, the colour name — words like 'glowing', 'pure', etc. Especially Dade (1949) should be consulted for his List II: Words Indicating Purity, Tone and Quality of Surface.

Nearly all of the following is taken from Dade (1949) or Stearn (1973), two essays of exceptional learning and lucidity. *Luce luceo aliena*.

() enclose terms that in Dade's opinion are unsuitable for use in botanical descriptions. Words beginning with a capital letter are hue-group terms proposed by Dade.

(amethysteus, amethystinus). The colour of amethysts is variable, ranging from purple to violet.

Armeniacus, apricot-colour. Lightly greyed orange-scarlet.

Atropurpureus. As commonly used in botanical descriptions, dark purple; the use to mean a shade more in the region of crimson (Saccardo) should be

avoided; the confusion has come about because of the finding by scholars that *Purpureus* of the Romans corresponds nearly to the modern idea of crimson.

Aurantiacus, orange. The chief hue between scarlet and yellow. This colour endures in wrecker's yards on the sturdy Japanese cars of the early '70s.

Badius, bay, reddish brown, burnt sienna. A deep shade of *Miniatus*; similar to chestnut, and, like other terms originally used to describe horses, rather broad.

Bubalinus, buff. Said to have originally been the colour of oxen, whatever that means. Dade accepts the word in the sense of light shades of greyed orange and yellow, that is, a pale brown. Saccardo's equivalence of buff with fulvous is not common English usage. Syn. *chamois*.

Castaneus, chestnut. Deep shades of slightly greyed *Miniatus*, somewhat redder than *Badius* (Oberthür & Dauth.)

(chermesinus), carmine, cochineal, crimson. Because of the confusion caused by the changing conceptions of purple, this and other words derived from natural-dye names have been used for anything between *Purpureus* and *Miniatus*. Crimson is used by Ridgway for a darkened *Ruber*; I suspect that general usage might displace this position somewhat towards *Purpureus*.

cinnabarinus, vermilion. A slightly greyed hue on the border between *Ruber* and *Miniatus*, just within the former. Saccardo has it as a synonym of his *Ruber* (the scarlet or *Miniatus* of the present list).

cinnamomeus, cinnamon. A pale tawny colour. Dade says this is a moderately greyed *Aurantiacus*, but apparently in error since on his chart it is more yellowish, being aligned with *Luteus*.

corallinus, coral. Lightly greyed tones of *Miniatus* and (in part) of *Ruber*.

croceus, saffron. Tints of *Aurantiacus*.

cruentus, blood-red. *Sanguineus* (the *Purpureus* of Saccardo).

Ferrugineus, rusty. Shades of lightly greyed *Miniatus*; syn. *Rubiginosus*.

Fulvus, fulvous, tawny. Yellowish-brown, shades of lightly greyed *Aurantiacus*. The colour of lions, foxes and deer. Near synonyms are *camelinus*, *cervinus*, *helvus*, *leochromus*, *leoninus*, *vaccinus*, *vulpinus*.

Fuscus, fuscous. Very dark blackish brown, shades of the very heavily greyed series of *Ruber*, *Miniatus* and *Aurantiacus*. It is wrong to use this as if it meant very dark in general; it has a definite sense of brownness, and cannot be used with cool hues such as *Violaceus* and *Cyaneus*.

(helvenaceus, helvus). Pale reddish, the dingy colour of grapes or oxen; syn. *vaccinus*.

(hepaticus), liver-colored. Stearn says this is dull brown with a little yellow.

Hinnuleus, fawn. Heavily greyed *Aurantiacus*.

Incarnatus, flesh colored. Pale tints of the lightly greyed series of *Miniatus* and, in part, of *Ruber*; aff. *Roseus* and *Persicinus*. Syn. *russus*.

Isabellinus "Said to be the colour of the Archduchess Isabella's under-clothing after she had worn it continuously for three years during the siege of Ostend; this term is thus suggestive enough, but quite indefinite; it has, however, been used for a long time to describe a peculiar colour, related to *Melleus* ... a shade of moderately greyed *Luteus*" (Dade). Stearn describes it as a dirtier tint of *Armeniacus*. Only once have I seen the word used, in Stevens' revision of *Calophyllum* in Papuasias, as "sabelline".

janthinus, jodes, jodinus *Violaceus*.

Latericius, lateritious. Dark brick red, a deep shade of greyed *Miniatus*; cf. *Testaceus* but darker.

Lavendulus, lavender. Tints of lightly and moderately greyed *Violaceus*; syn. *violaceus* in the ancient sense.

Lilacinus, lilac. Tints of lightly and moderately greyed *Purpureus*. The colour of actual lilac flowers covers a range of blues, violets and purples, but here *Lilacinus* is restricted to those at the purple end of the range, while related colours at the violet end are distinguished as *Lavendulus*.

magenta. A brilliant bluish red; colour of the flowers of *Hebe speciosa* (Moore & Irwin, 1978); syn. beetroot red. (See next entry.)

Malvaceus, malvinus, mauve. Tints of *Purpureus*, the bright purplish tints of *Malva* flowers. The word is a recent one in English, deriving from the French name for mallow plants. In France it was applied in the middle of the nineteenth century to the first of the many colours to be produced by the new aniline dye chemistry. Mauve became a very fashionable colour following its discovery in 1856 by the 18 year old English chemist William Perkin, and was known in Britain as "Perkin's Purple" (Storey 1978). The wide use of the French-derived name was because the patent Perkin filed in France for his "aniline purple" was, for some technical reason, invalid, and the novelty was seized upon by the French silk-dyers of Lyons, who were greatly experienced in large-scale chemical manufacture, the firm of Poirrier of St Denis then naming their product after the mallow flower.

The colour of the second-invented aniline dye is that we call magenta. It was named in the mid-19th century, again by the French, after the Italian town

where the French and the Sardinians had just obtained a victory over the Austrians in the Second Italian War. According to McLaren (1985), magenta was even more successful commercially than mauve (though perhaps not in Austria), for two reasons. The shade it gave to cloth appealed to the world of fashion more than the duller and bluer mauve — indeed the house of Schiaparelli promoted it as 'shocking pink'. Also, the reaction yield of magenta was very much greater than that of mauve. One cannot suppress a patriotic glow on learning that William Perkin recognized magenta's value immediately and began to make it using a method of his own which avoided infringing the French patent.

Miniatus, scarlet. Hue between spectrum red (Ruber) and orange (Aurantiacus).

morus. The so-called "black" colour of ripe fruit of mulberry, blackberry etc. Syn. *Violaceo-niger*.

Murinus, mouse grey. Heavily-greyled *Aurantiacus*, that is, grey with a touch of red.

Persicinus, peach colour. Tints of *Miniatus* and high tints of *Aurantiacus*.

phoeniceus, Phoenician purple. Pure lively red, a mixture of carmine and scarlet (Stearn); the colour of some of the ancient dyes produced by species of the mollusc *Murex*. Syn. *punicus*.

Purpureus, purple. Derived from the Greek name for the group of *Murex* molluscs from which the famous Tyrian purple dye was obtained. According to McLaren (1986), different species gave colours ranging from brownish red to deep blue, with the most attractive shade coming from a two-bath process (cf. the Biblical mention of 'double-dyed' cloth).

The secrets of manufacturing Tyrian purple were

lost when the Arabs destroyed the Phoenician dye-works in A.D. 638. On their rediscovery the dyes from two *Murex* species were seen to accord not with our modern conception of purple but rather more nearly with crimson (Stearn 1973: 237).

Roseus, rosy. Tints of *Ruber*.

Ruber, pure red. Hue between *Purpureus* and *Miniatus*; included in *Rubri* are the colours anciently called purple, carmine, cinnabarinus and vermilion; of these, carmine (and crimson) are shaded near to pure red (*Ruber*) while vermilion approaches *Miniatus* (scarlet).

(**rufus**, rufous). Colour of greyed reddish human hair; greyed *Aurantiacus*.

Salmoneus, salmon-pink. Tints of the lightly-greyled series of *Aurantiacus* and *Miniatus*.

Sanguineus, blood colour. Slightly blued shades of *Ruber* (*Atropurpureus* sensu Saccardo, since *purpureus* originally meant crimson). Syn. *cruentus*, *haematinus*.

Testaceus. Colour of brick or tiles, moderately greyed *Miniatus*; lighter than *Latericius*.

Umbrinus, umber. Deep shades of *Aurantiacus* and *Luteus*, or of those hues lightly greyed.

(**ustulatus**). Colour of charred wood, some kind of dark brown.

Vinosus, vinous. Colour of wines and wine-stains, moderately greyed *Ruber* and *Miniatus*.

Violaceus, violet. In ancient times applied to the rather pale colour of the local wild violet, and shown thus by Saccardo, but in current usage applied to the hues near spectrum violet.

References

- Dade, H. A. 1949: Colour terminology in Biology. Mycological Paper no. 6 Commonwealth Mycological Institute, Kew.
Graf, A. B. 1963: *Exotica* 3. Roehrs, New Jersey.
Jackson, B. D. 1899: A review of the Latin terms used in botany to denote colour. *Journal of Botany* (London) 37: 97-106.
McLaren, K. 1986: The colour science of dyes and pigments. 2nd edn. Adam Hilger, Bristol.
moore, L. B. & Irwin, J. B. 1978: *The Oxford Book of New Zealand Plants*. O.U. P., Wellington.
Oberthür, R. & Dauthenay, H. 1905: *Répertoire de Couleurs*. Société Française des Chrysanthémistes, Paris.
Stearn, W. 1973: *Botanical Latin*. 2nd edn. David & Charles, Newton Abbot.
Storey, J. 1978: *The Thames and Hudson Manual of Dyes and Fibres*.
Vance, J. 1980: *The Face*. Hodder & Stoughton.
Webb, C. J., Sykes, W. R. & Garnock-Jones, P.J. 1988: *Flora of New Zealand*. Vol. IV. Botany Division DSIR, Lincoln.

