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# The Royal Horticultural Society's Colour Chart: an everyday tool for use in the herbarium. Its past, present and future.

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## Introduction

Keeping with the 2009 conference theme of natural history collections, their past, present and future, I thought members may be interested to learn of the *Royal Horticultural Society's (RHS) Colour Chart*.

Colour is an important criterion in the description and identification of cultivated plant varieties (cultivars). In fact it is frequently the only distinguishing feature between one cultivar and another; it is therefore a significant diagnostic character. The *RHS Colour Chart* is a tool that horticulturalists can use to describe colour and it is, for horticulturalists, the standard reference for colour identifications. As J.H. Wanscher wrote in 1953, 'In horticulture there is a natural need for exact, but also simple colour descriptions'.[1] RHS staff, mainly in the Botany and Trials departments, use it for descriptions of plants, for example those that have been given RHS awards from RHS trials and RHS specialist plant committees, in particular those awarded the (Award of Garden Merit) AGM, plants widely available to the general public.

**Fig. 1.** *Horticultural Colour Chart* (1939) & *RHS Colour Chart, fifth edition* (2007) **©RHS Herbarium.**

Such descriptions are not only published in horticultural publications but importantly form part of the description that accompanies the herbarium specimen. Wells pointed out in 1966 that 'such useful and often necessary information is too often omitted'.[2] When consulting herbarium specimens living colour is invariably lost and it is the colour chart that forms a pivotal role in the descriptive label that accompanies the dried pressed plant. The colour chart is invaluable when describing a range of plants in the same colour range. For example lavenders, *Lavandula angustifoia* 'Elizabeth' is (88A) whilst *Lavandula angustifolia* 'Joan Head' is (83A).

The colour chart has evolved and endeavoured to put colour description on a more objective, scientific and systematic basis. It should be noted that, 'colour is a sensation, experienced subjectively by each individual'.[3] In fact the history of colour abounds in subjectivities.

**The past**

Colour charts have, as Paclt states, been around for centuries: the first record of a colour chart to describe plants and animals dates from 1686.[4] Whilst Brent Elliott, Historian to the RHS, pointed out in 1993, 'that the poverty of precise colour terms for use in describing plants led to the creation of colour charts for gardeners'.[5] Elliott observes that RHS trials were arranged by colour as far back as the 1860s, and that finding a method of describing whole trials filled with cultivars, all of the 'same' colour, was difficult.[6] With many thousands of words to describe colour, language was still not sufficient to definitively describe and identify each unique taxon. However, there appears to have been a lack of urgency on the part of the RHS when it came to the creation of a colour chart. It was only in 1905 that France produced the *Répertoire des Couleurs* published by the French Chrysanthemum Society, followed in 1908 by Klincksieck and Valette's *Code des Couleurs*. As Elliott notes the RHS acted as the distribution agent for the latter.[7]

Twenty years or so later these early and foreign-produced colour charts had become increasingly difficult to obtain and as Elliott noted the colours in these publications seemed to have deteriorated over the years.[8] The British Colour Council (BCC) produced a *Dictionary of Colour Standards* (1934) for use in the textile industry and it was this that prompted the RHS to approach the BCC with a view to using colour in a horticultural context. As Robert Wilson of the BCC declared, 'The need for standardized colour terms for horticultural use requires no emphasis, without them accurate description is impossible'.[9] It is this rationalisation of colour, a quest to establish a universal template of colour useful to the horticultural industry, which underpins the colour chart.

The first volume of the *Horticultural Colour Chart* (*HCC*) appeared in 1939, the second volume in 1941. (Fig.2) Since then all plants that have received awards from the RHS have colour chart references in their award descriptions. The aim of the *HCC*, as with all subsequent RHS colour charts, has been to provide a standard reference for the colours of flowers, fruits and leaves.

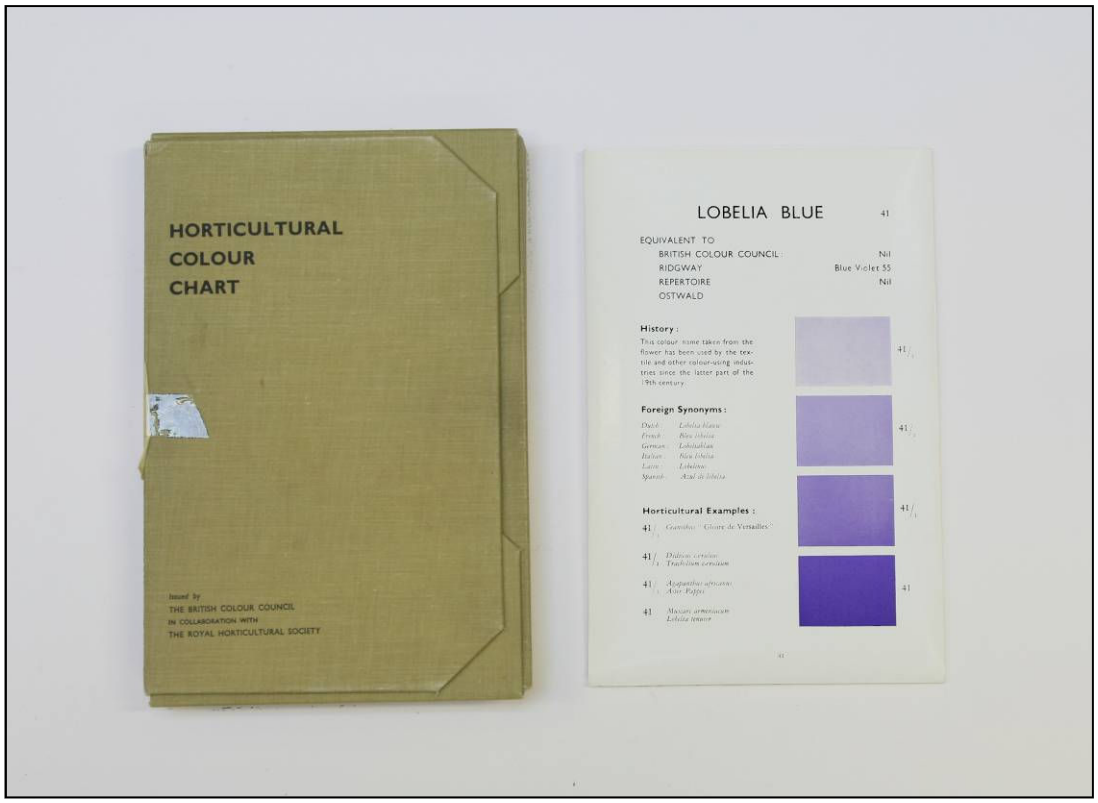


**Fig. 2.** *Horticultural Colour Chart* (1939) © **RHS Herbarium.**

The two volumes were issued on loose sheets in boxed cases and contained two hundred sheets, eight hundred colours in total, with each plate containing a single colour term in English, Latin and five other languages, with three hues attached to the lead colour. With the second volume 'complete … it is believed to fulfil the object … of providing a "colour guide to the garden"'[10] and was also a 'much desired standardization of colour description.'[11]

Sheets were paginated from 1 to 100. In the top right-hand corner a number in bold type referred to the position in the spectrum range of the hue shown on the sheet. The first sixty-four sheets were of full hues. The bottom colour on each sheet was the full hue and bore the full hue number with 1, 2 and 3 being graduated tints of the full hue. The remaining sheets in Volume One and all in Volume Two were lighter tints or darker shades or greyed hues of the full hues.[12] Each plate was headed with an evocatively descriptive name. Specific plants were attached to specific colours as being an example of an exact match. A history of the colour was also provided. For example, Victoria Violet 738 was described as 'a predominant colour of the Victorian era, especially in dress about 1868-1870', the horticultural example for Victoria Violet being *Rhynchoglossum zeylanica*. Doge Purple 732, on the other hand, was described as 'a colour name associated with the Republic of Venice during the Renaissance', the plant identified as an example being *Primula* 'Wanda'. But whilst each sheet of colours had cultivated plants given as examples, Bunyard explained that 'the chart is not a dictionary of flower colours, but a guide for matching and description'.[13] It was hoped that the *HCC* 'would ensure acceptance of standard descriptions of colour for all plants so that anyone reading the reference would carry away a fairly clear picture of the colour'.[14]

By 1964 supplies of the *HCC* were low. A committee led by Sir George Taylor, Director of RBG Kew, concluded after assessing the available colour charts, that they were inadequate for horticultural purposes and that a new chart needed to be published.[15] The colours also did not seem to keep pace with the brilliance of the colours of the new cultivars being produced![16] Shortcomings with the *HCC* had also been noted: the specific names for each sheet were felt to be unsuitable or cumbersome for a horticultural context; the colour names were not only too many but deemed to be incomprehensible to non-artists. The numbering system was complicated. The *HCC* was printed by a half-tone screen process and this often resulted in many colours being practically the same and indistinguishable from one another. For example, I have difficulty distinguishing between Rose madder 23/3, Tyrian Rose 24/3, Rose Bengal 25/3 and Solferino Purple 26/3. An additional observation was that the green, yellow and bronze colours were lacking in the *HCC*.

A new *RHS Colour Chart* (*RHSCC*) was issued in 1966. Eight hundred and eight colour sample patches were produced to match plant colours, 'chiefly flowers'.[17] Instead of loose sheets, the new colour chart was arranged into four fans. These four fans were labelled one to four and consisted of broad colour groups: Yellow-Red, Red-Purple-Blue, Blue-Green and the greyed groups. The sheets were arranged in colour groups beginning with yellow, and progressing through the spectrum: yellow, orange, red, purple, violet, blue, green and back to yellow. Groups in between are formed by adding the name of the next colour in the sequence such as yellow, yellow-orange, orange, orange-red, red.[18] These simple colour groups with number codes suffixed with a letter from A to D replaced the poetic names of the *HCC*. As the user guide and subsequent user guides state: 'the group names are given for reference, and are not intended for use as colour names'.[19] Each leaf had four patches of colour in lessening degrees of intensity. Another innovation of the '66 chart was that the colours ran to the edge of the fan, making it easier to match the flower to a colour. Interestingly it was reported that 'there was some argument in favour of a hole in the middle of the colour patch so that it could be laid over the flower petal but the final decision was against this'.[20] Portholes or viewing holes were to appear twenty years later in the 1986 *RHSCC*. These viewing holes, through which part of the flower may be placed, give a far more accurate match, in my experience, than placing the material adjacent to the fan.[21]

A table of cross-references was included in the 1966 colour chart comparing the new chart with the *HCC*, the *British Colour Council Dictionary of Colour Standards*, the *Nickerson Color Fan* and the Commission Internationale de L'Eclairage (C.I.E.). For example, the colour 45D in the new chart was said to be the equivalent of Blood Red 820/2 in the HCC.[22] In 1984 the American Rhododendron Society produced *A Contribution Towards Standardization of Color Names in Horticulture* to co-ordinate references with other colour systems used, supplying a table of equivalents between the *RHS Colour Chart*, the *Munsell Colour Chart* and Universal Colour Language (UCL). Here the RHS Yellow Group 5A is described as brilliant greenish yellow according to UCL.[23]

Different printing processes have meant that it has not always been possible to match colours exactly from edition to edition. In 1986 the Society collaborated with the Flower Council of Holland on reprinting the chart. However some of the 1966 pigments could not be matched in that they were no longer commercially available. Some new patches sometimes showed a slight mismatch with their earlier equivalents. In the 2007 edition such replacements are indicated by a prefix N, thus N78 is a replacement for sheet 78. The prefix 'N' is also used to indicate the twelve new colours inserted between existing ones, such as N77 (Purple Group) and N137 (Green Group). NN has also been used in the whites: 155, N155, and NN155.

**The present**

The *RHS Mini Colour Chart* was published in 2005. (Fig. 3) It comprises one fan of sixty leaves, a total of two hundred and forty of the most used colours from the *RHSCC* selected by RHS Botany staff. It is also considerably cheaper, costing £25, than the full colour chart which may be purchased for £170. This mini colour chart was published in conjunction with the Flower Council of Holland, (an organisation which promotes the sale of cut flowers, houseplants and annual garden plants on behalf of Dutch wholesalers and breeders), with colours 'specifically chosen for use by the flower trade'.[24]


**Fig.3.** *RHS Mini Colour Chart* (2005) © **RHS Herbarium.**

An online Flower and Plant Bank can be consulted on the Flower Council's web site which shows the most traded cut flowers, pot plants and garden plants at the Dutch auction houses. The user is able to refine his selection by colour, RHS colour code, Latin name, common name and supply period.[25] When searching for flowers that are yellow (9A), *Chrysanthemum* (Indicum Group) 'Rivalry' and *Alstroemeria* 'Zalsamon' were returned. Surprisingly, the foliage offered has not been given colour chart references, the reason being that colour chart references are non-applicable![26]

Unlike the 1966 *RHSCC* where sub-committee members selected colours over twenty-six meetings, with representatives from Royal Botanic Gardens, Kew, the British Colour Council, Royal National Rose Society, the National Dahlia Society and RHS staff (the editor and two scientific staff), the 'committee' who

commented on and suggested improvements to the fifth edition of 2007 comprised entirely RHS botany staff who were regular, if not obsessive users of the colour chart.

The 2007 edition, being the fifth, (there was a fourth edition published in 2001) has twelve new colours and a total of eight hundred and ninety-two colours.

**Fig. 4.** *RHS Colour Chart,* fifth edition (2007) **© RHS Herbarium.**

The *RHSCC* is not without its critics. Recent studies, such as Griesbach and Austin, find the *RHSCC* lacking when compared with the one thousand five hundred and fifty colours of the Munsell Colour Chart.[27] Criticism also comes from Bob Brown who is dismissive of the *RHSCC*[28] but his arguments are squashed by Peter Barnes who sees Brown's criticisms or failings of the *RHSCC* as ones of use in uncontrolled conditions.[29]

It should be noted that the use of the *RHSCC* is not confined to the horticultural sphere: it has been used by Moorfields Eye Hospital, for eye colour, food and textile manufacturers and also a banana exporter. The chart has also been used to record the colour of a stock of love birds in a Nigerian breeding station![30] Even more bizarrely, a husband purchased a copy for his wife who was to use it when buying her clothes![31]

**The Future**

There is a trend towards on-line colour charting. The Azalea Society of America has produced an on-line version of the *RHSCC*, which gives 'approximations of the colors in the *RHSCC*, along with the corresponding Universal Color Language numbers and names'.[32] Niki Simpson, a botanical artist, discusses how she has implemented colour keys based on the *RHSCC* in her digital botanical art.[33] 'Paper colour charts are not yet obsolete, although they may become so at some point soon', warns Briony Fer.[34] Personally, I think the colour chart just improves with each edition.

**Conclusion**

In 2009 the *RHSCC* is used by herbarium staff and botanists to record colour in virtually all the plants that come into the herbarium, regardless of whether they have been given awards or not. Colour is an invaluable reference point which botanists can use to successfully identify plants. The *RHSCC* is, for example,


**Fig. 5.** The five editions of the *RHS Colour Chart* © **RHS Herbarium.**

used and recognised on an international platform by offices concerned with the legal protection of plants, notably those in Europe, America and Australia. It is also used by international cultivar registration authorities and is 'thus the key to thousands of published descriptions'.[35] An effective colour chart such as the *RHSCC* diminishes the dangers of subjectivity, and enables the user to provide an accurate record of colour to accompany a dried, pressed plant long after the living colour has been lost. The colour chart is an invaluable tool for all those involved in horticulture, be they amateur or professional.

**Acknowledgments:**
I would like to thank Dr Brent Elliott, Historian, RHS Lindley Library, for commenting on this paper and also to the NatSCA Bursary Committee for awarding me a bursary to attend the 2009 NatSCA conference in Leeds.

### A few guidance notes on using the *RHS Colour Chart*:

Try and use natural north light and endeavour to stick to the same area whenever you are using the *RHS Colour Chart*.

Open up the four fans and familiarise yourself with the range of colours available before attempting to match with the plant sample. This will give you a good feel for the range of colours. For example you will notice that not all the green are in Fan 3: some, the grey-green ones, are in Fan 4.

When using the fans place the particular part of the plant you attempting to colour chart under the porthole of the selected colour. This gives a far more accurate match, in my experience, than placing the material adjacent to the fan.

Do not worry if you are unable to find an exact match; instead, annotate the chosen reference colour, for example: *Aquilegia vulgaris* subsp. *stellata* 'Blue Fountain' buds greyed purple (mix of N92D-90A); *Geranium phaeum* 'Little Boy' flowers dark dusky purple (slightly redder than 79A).

Endeavour to add a colour before the colour chart number for example red (59A). It gives people not familiar with the coding an idea of the colour. RHS Botany staff often refer to *A contribution Toward Standardization of Color Names in Horticulture* by R.D. Huse & K.L. Kelly (The American Rhododendron Society, 1984).


**Fig. 6.** Using the *RHS Colour Chart* to describe *Eleagnus multiflora* **© RHS Herbarium.**

It is quite exhausting colour charting plants so do not attempt too many at once or you will become overwhelmed. Colour fatigue soon sets in.

Always note the edition of the colour chart you are using and put this at the end of your description.

Replace the fans in the box when finished with as the colours could fade if left out in the light.

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