

## Chris Brickell's guidance on how taxonomy is carried out, particularly with regard to the the procedure for revisions resulting in new names (or amended names) of species, genera or particular groups of taxa.

(compiled by Evelyn Stevens and Chris Brickell (Dec 2010-Jan 2011) and then finally checked by Chris – arising out of several emails between the two of us on this topic for The Meconopsis Group committee)

### Who can do taxonomic plant research and then publish the results of that research?

The researcher does not have to be a "trained botanist" and it would be impractical to define "trained" even if this was required. Any individual or group of professional or amateur botanists who are studying the taxonomy of a genus or other taxon and wish to publish the results of the research is free to do so. It is essential, however, that the person/persons concerned follow the rules and recommendations laid down in the latest edition of the International Code of Botanical Nomenclature (ICBN) so that, if they are describing new taxa, these are both effectively and validly published. The latest edition of ICBN is the Vienna Code (2006) named for the place where the revision was discussed and agreed. Chapter IV, Sections 1 and 2 covers the rules governing Effective Publication and Valid Publication which are the cornerstones on which the valid publication of botanical names is based. Chris advises using a wet towel round the head before delving too deeply into this Chapter.

Basically to achieve effective and valid publication it is essential that the paper/article is published in a dated, printed and distributed journal, book or pamphlet so that it is then available for anyone interested to consult. Nowadays publication of scientific names in trade catalogues, non-scientific newspapers and seed exchange lists would not be considered to be effectively or validly published. Currently the use of the internet to "publish" new taxa would not be accepted as effective or valid publication as the information is basically ephemeral. In the future some means of using the internet for this purpose may be developed but not for quite some time I suspect. As examples, journals etc. where publication could be effectively and validly published are :- Curtis's Botanical Magazine (Kew), The Alpine Gardener (AGS Bulletin), The Rock Garden (SRGC), The Plantsman (was The New Plantsman), (RHS), Notes from the Royal Botanic Garden Edinburgh, Sibbaldia (RBGE), Hanburana (RHS), - many others, of course.

### Revisions of a genus, descriptions of new taxa and amendments to current nomenclature.

When a new taxon is proposed the description **must** include a Latin diagnosis of the taxon giving the salient characters by which it is separable from similar taxa. It is almost always accompanied by a detailed description of the taxon in a widely used language or in the native language of the author. Also the author **must** designate a type specimen, known as the **holotype** (although in some circumstances a lectotype or neotype may be used instead - not defined here) which is usually an herbarium specimen so that anyone, in the future, can refer to the original specimen(s) on which the name was based. That specimen should be deposited in a named herbarium for reference if at all possible. Again for a much fuller explanation the ICBN should be consulted – not, Chris fears, an easy read!

### Can the taxonomic decisions made by an author be questioned?

Yes, this occurs sometimes and when the names of well-known genera, species or other taxa are changed by someone who has studied the genus and amended the taxonomy, having re-evaluated previous work in the light of new knowledge from a wider range of material, then this is likely to be questioned - well-known to gardeners who dislike changing their labels, as does Chris on some occasions ! Clearly if an individual who is very knowledgeable about the genus concerned finds there are errors this should be expressed (gently) to the author and the points discussed with him/her.

Often, however, the publishing author may well be someone who is considered an authority on the genus/taxonomic group concerned and his/her taxonomic approach may well be generally accepted if it has been based on a detailed study of herbarium material, literature, and new information from population studies in the wild as well as living material in cultivation. He/she may also have examined photographic evidence which can be invaluable, particularly in this digital age if taken in the wild.

If an individual considers that the author of a taxonomic paper has reached incorrect conclusions or/and is factually wrong in some part of the paper then it would be appropriate for that person to publish an article/paper to that effect. Clearly the person rebutting points from the original paper (or part of the paper) must a.) be certain of his/her facts and be able to support his/her arguments with appropriate details and references if need be and b) should publish his/her alternative taxonomic opinion based on point a.). This article would not automatically supersede the original article - it would be considered as an

alternative view and would be judged, just as the first article, on its taxonomic credibility. It would be courteous, however, for the author of the alternative view to discuss this with the author of the initial article first rather than publish his/her view without doing so. It should be remembered also that (in spite of what some - not by any means all - DNA researchers may say) that taxonomy is not an exact science and that taxonomic rank ( e.g. subspecies vs. varietas vs. forma) is still a matter of opinion on how these categories or others - species, genera, families - should be defined.

Chris Brickell has never known a published taxonomic article to have been rescinded entirely. The author may, perhaps, in the light of further research - or indeed if errors have occurred - publish amendments in the next issue of the original publication or indeed in another publication. Alternatively, a person who disagrees with the taxonomic approach in the original paper is perfectly at liberty to publish a follow-up paper/article to support his/her own taxonomic arguments in relation to the particular group of plants concerned. This has long been the way in which plant classification has been developed - through taxonomic discussions and arguments (hopefully reasoned and amicable!) that result in a usable and reasonably stable system for gardeners and botanists to follow. Inevitably with new introductions and further research changes occur and will continue to do so, much though, from a horticultural viewpoint, we need stability

#### Peer review prior to publication, and choice of journal for publication

It is usual for an author to have consulted many colleagues during the research and when the editor of a journal has received copy he/she will normally send the paper to an assessor (sometimes several) who has taxonomic knowledge of the genus/group and ask for his/her independent assessment of the paper for publication in the journal concerned. The slight flaw in this system is that sometimes the chosen assessor will have been consulted already by the author but almost always the assessor will provide an independent view regardless of previous consultation and will send comments to the editor who then decides whether or not to accept/amend/reject the paper. As an example Chris has been asked to assess a few papers on *Colchicum* taxonomy submitted to the editor of "Notes from The Royal Botanic Garden Edinburgh" because of his involvement studying this genus.

In a few recent articles on *Meconopsis* taxonomy by Chris Grey-Wilson, some have been published in Kew's Botanical Magazine and others have appeared in the AGS Bulletin, the latter of which he was at the time also editor. Chris Brickell has checked a number of journals and has established that although the editor of a journal does not usually publish one of his/her articles in the journal they edit this is not a hard and fast rule by any means and quite often takes place. Chris Grey-Wilson's publishing of articles in the AGS Bulletin is based on his extensive research at the Natural History Museum, the RBGE herbarium and elsewhere, where a great deal of information and herbarium material is located. The reason for publishing in the AGS Bulletin is that the timescale from sending a paper to other journals to actual publication is often very long. As an example, to publish articles in the Kew Bulletin or "Notes from the Royal Botanic Garden Edinburgh" there is usually a gap of about 2 years between receipt and publication of a scientific paper. Understandably any author wants to have his article published as soon as possible and in this case the opportunity was there, subject to acceptance by other AGS personnel. In fact, Chris Grey-Wilson had his most recent papers peer reviewed by Chris Brickell and also by Dr Phillip Cribb from Kew whom he asked to be assessors. Chris Brickell says that in such an instance as this, it is desirable that an Editor should indicate that his own article has been subject to peer review, thereby avoiding criticism. Unfortunately this does not seem to have happened in these instances.

Having amended and then approved my (Evelyn's) write-up of what he told me of how taxonomy is carried out, Chris Brickell concludes by pointing out that all taxonomy is ongoing in the sense that there is very frequently new information with both pressed and living material, together with detailed digital images, becoming available, particularly with more and more people travelling to formerly closed areas, and this leads to reassessment of generic and specific limits in many plants, as is occurring with *Meconopsis*. One of the major problems in studying any genus is what weight to give individual botanical characters, or suites of characters, when making decisions on how to delimit the separation of the individual taxa. This has inevitably to be a matter of individual judgement when someone is preparing a monograph but is obviously open to question and discussion - of which there is currently undoubtedly much in the case of *Meconopsis*!