The Use of Linnean Specific Names.

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While attempting to revise in some measure the nomenclature of Babington's 'Manual of British Botany' in connection with a posthumous edition of that work, we have been much impressed with the great diversity in practice among botanists, both here and abroad, in dealing with the Linnean specific names, and we have therefore thought it desirable to bring before the Society some considerations as to the different methods adopted, with a view to a discussion as to which is the least open to objection.

It seems necessary to arrive at something like an agreement as regards the use of the Linnean names, before we can make any certain progress in the direction of a stable system of nomenclature, and a termination of the present diversity of opinion, resulting as it does in the continual changing of the names of familiar plants, which all feel to be so inconvenient.

The Linnean specific names fall roughly into three groups:—

(1) Those applied to distinct species, fairly well understood in Linnæus's time, and still generally accepted.

(2) Those which are now considered to include two or more species combined by Linnæus owing to either
   - (*a*) the imperfect knowledge of the plants at the time; or,
   - (*b*) the different ideas then and now as to the extent of species.

(3) Those about which there is more or less doubt as to the proper application, owing to
   - (*a*) the descriptions being imperfect;
   - (*b*) the synonymy (often more important than the description) being contradictory; or
   - (*c*) the confusion arising from changes made by Linnæus himself after the first publication.

With regard to the first group, "Those applied to distinct species, fairly well understood in Linnæus's time," nothing need be said, except to point out that they are liable at a future time, through advance in our knowledge of the plants, to fall into the second group. As an instance of this, we may mention the

Common Eyebright (*Euphrasia officinalis*), which up to quite recently has been regarded as a single species, but, in Mr. Townsend's recent Monograph, 13 species are discriminated from this country alone.

With regard to the second group, "Those which are now considered to include two or more species combined by Linnæus," the methods adopted are:—

(*a*) To discard the Linnean names altogether, or to employ them for sectional or mother species only, adopting more recent names, originated to represent, more or less exactly, the species as at present constituted.

(*b*) To retain the names for one or other of the segregate species.

The arguments in favour of the first alternative, that of rejecting the names, appear at first sight very forcible. Its advocates contend that to employ a Linnean name to denote a part only of the Linnean species, is a wrong use of words, and is making Linnæus say what he did not mean, that the provision in the "Laws of botanical nomenclature" for adding "*pro parte*," "*ex parte*," or the like, after the authority, to show that it is not intended to denote the whole of the original species, is really no safeguard against this misrepresentation; experience showing that although such explanations may be added in Monographs and other works on a large scale, in the more ordinary use of names, such as for labelling and cataloguing, the explanations would be dropped, besides which, such additions to the authority are undesirable, both as lengthening the reference and introducing an ambiguity. It is also contended that by retaining the names for segregates, the same name at different dates represents altogether different values, and that confusion is likely to arise therefrom.

In favour of the second alternative, that of retaining the name for one or other of the segregate species, it is urged that it is, broadly speaking, the plan generally adopted, that it conduces to greater stability in nomenclature, and that it avoids a considerable and continuous increase in the number of names.

If the limits of the systematic knowledge of plants were reached, it might perhaps be desirable to use the names given to the species by the first authors who thoroughly understood the limits of each of them; but so far from this being the state of things, species are continually being split up, and to carry the

rejection plan to its only logical conclusion, each time one of these splits takes place, the residue of the species should also be re-named, as the old inclusive name will no longer be applicable. The common Bur-reeds of our ditches afford a good example. In the 'Species Plantarum' (1753), Linnæus recognized but the one species, which he named *Sparganium erectum*, with a var. *β*, the *Sparganium non ramosum* of C. Bauhin. In 1778, Hudson split up Linnæus's *S. erectum* into two species, using the name *ramosum* for the type, and *simplex* for Linnæus's var. *β*. In 1885, more than a century later, Mr. Beeby discriminated *S. neglectum* as a species. This last is considered by some botanists to be a variety of *ramosum*, and there is, we think, no reasonable doubt that it formed a part of Hudson's species. Now to carry out the rejection theory, Mr. Beeby, who, by the way, is an advocate of that view, ought to have re-named the other portion of *S. ramosum*, for it is quite clear, from the strictly logical position, that *ramosum* minus *neglectum* cannot be equal to *ramosum*. We should then have two new names instead of one. Then there is L. M. Neuman's variety *microcarpum* of *ramosum*. Who shall say that some botanist will not separate this also as a species? and then we must have another name for *ramosum* minus *neglectum* and *microcarpum*. This is a comparatively simple instance of the consequences of the rejection plan.

The objection that by the retention plan the same name has two or more different values at different dates, is to our thinking more apparent than real, for anyone studying the botanical works of past times must make himself acquainted with the history of the species concerned, whether they bear the same or different names.

Taking the arguments on both sides into consideration, we think the balance is in favour of the plan of retaining the names for one or other of the segregate species; but there are possibly a very few exceptions, e. g., *Rubus fruticosus*, of which, according to most recent ideas, there are 100 species in Britain alone. If we accept this conclusion, the next question is, to which of the segregate species should the name be applied? and here again there is difference of opinion. Where the segregate species are already distinguished as varieties by Linnæus, there will probably be little doubt that his specific name should be applied to the type or var. *α*, but this rule would dispose of comparatively few cases. Some botanists have

applied the Linnean name to the segregate species represented in Linnæus's herbarium, but this view we do not think should be adopted. To regard the specimens in Linnæus's herbarium as the types of his species, in the same manner as those of other authors, to our thinking is to display an entire misconception of his unique position in this matter. Most of Linnæus's species are unlike those of later authors, in that they do not represent plants discovered or discriminated by Linnæus, but plants already more or less identified, which he has formulated as species under binominal names; and the specimens which happen to bear the names, often incorrectly, in his herbarium afford but little evidence of what was intended, as against that to be gathered from the synonymy quoted and from contemporary works.

Some authors have applied the names to the segregates most commonly found in Sweden; but this view is to our thinking wrong, as Linnæus botanized in other countries than his own, besides which, as we have pointed out, most of his species are the outcome of the accumulated knowledge of earlier botanists.

Another plan, and the one which seems to us the most satisfactory, is to apply the Linnean name to that segregate which, from being the most distinct, and usually also the most widely distributed, of those considered to be included in Linnæus's species, may fairly be accepted as his type. Where there is no segregate which stands out from the rest in this manner, we think the best course is to retain the name for the residue of the species after the other segregates have been carved out of it by subsequent authors; but in applying this principle, it should, we think, be quite clear that such subsequently named species were discriminated by their authors from the residue, and were not merely synonymous names, originated through a misconception as to Linnæus's species.

As regards the third group, "Those names about which there is more or less doubt as to the proper application," the two courses pursued are:—

(*a*) To discard them altogether in favour of later names, as to the application of which there is less doubt or no doubt at all.

(*b*) To retain them for the species for which, from the balance of evidence, there is a reasonable probability that they were intended.

The obvious argument in favour of discarding these more or less doubtful names, is that in scientific matters the nearest approach to accuracy should be aimed at, and that it is therefore better to use a name which, from being accompanied by a full and accurate description, or a satisfactory illustration, is known to belong to the species, rather than one about which there is a doubt.

On the other side it is urged that a large number of the earlier post-Linnean descriptions, and many of the more modern ones too, are open to the same objection as are those of Linnæus, being of themselves insufficient for identification. What we now consider essential characters were often altogether omitted, and variable characters of no import made much of. It would be equally necessary to discard these, while to do so would involve the changing of an immense number of names. Moreover, in the case of most of the more or less doubtful Linnean names, if all the evidence is examined closely, a very strong presumption can be arrived at as to the plants that were intended.

We are of opinion that it is the better course to retain the names when, although the descriptions are imperfect and of themselves inadequate, there are reasonable grounds for inferring that they belong to certain plants.

The following are a few specimen cases in which Linnæus's names, coming under Group 3, have been set aside or, to our thinking, wrongly used :—

1. Hypericum quadrangulum. Linnæus describes this as *Hypericum floribus trigynis, caule quadrato herbaceo*, and cites *Hypericum Ascyron dictum, caule quadrangulo* of J. Bauhin. For many years the name was used in this country to denote our common four-angled St. John's Wort, a good distinct species, with very conspicuous angles to the stem, occurring almost all over Europe. Koch, Fries, Sir Joseph Hooker, and others, however, have used the Linnean name for the much less distinct and less widely-distributed species, which was known as *H. dubium*, Leers, a plant which it is true also has a four-angled stem, but the angles are much less strongly marked and are distinctly unequal, and its general aspect is much more that of our common perforate St. John's Wort, *H. perforatum*, Linn. Syme, on the other hand, altogether rejects the name on the ground of ambiguity. We quote his words as a good example of this view :—

"There can be no doubt that Linnæus under his Hypericum "quadrangulum included both H. dubium (Leers) and H. tetra-"pterum (Fries); and as botanists are pretty equally divided in "their opinion as to which of these two ought to receive the "name 'quadrangulum,' it is much better to abandon an "appellation which really belongs to neither exclusively, when "the two plants have distinctive names of their own. In the "Linnean Herbarium, H. quadrangulum is represented by a "specimen of each of the two species; and that being the case, "it is of no use trying to determine to which of the two he first "gave the name quadrangulum, or which is the common Swedish "plant; there is evidence to show that he considered the "species extensive enough to include both." (Eng. Bot. ed. 3, vol. ii. p. 153.)

Now to our thinking Smith and the other earlier modern British botanists were right in applying the Linnean name to the distinct widely-distributed conspicuously four-angled plant; and Koch, Fries, and the rest are wrong in using it for the less distinct, obscurely four-angled plant, and Syme and his party are also wrong in rejecting it on the ground of ambiguity. There is not the least doubt that Linnæus knew the more distinct plant, for there is a specimen in his herbarium; it is not likely he meant the less distinct plant exclusively, and the fact that there is a specimen of the latter also in his herbarium under the name, is no proof that he meant to include it.

2. Rosa Eglanteria. This is an instance of a Linnean name having been incorrectly applied, or rejected, through alterations in the specific characters introduced in a subsequent publication. The plant referred to in 'Species Plantarum,' 1753, p. 491, was, as pointed out by Woods in this Society's Transactions, xii. (1818) p. 208, clearly the Sweet Briar. In the second edition of 'Species Plantarum,' however, Linnæus introduced characters of *R. lutea*, and some authors have applied the name to that species, but the majority of writers in recent years have discarded it altogether.

3. Epilobium tetragonum. The description of this in 'Species Plantarum,' 1753, p. 348, reads "*Epilobium foliis lanceolato-linearibus denticulatis imis oppositis caule tetragono. Sauv. Monsp.* 75." Tabernæmontanus's plate (Ic. 854) which is cited does not agree with the description; the specimen in Linnæus's herbarium is *E. roseum*, Schreb., and in the second