References


A NEW TERM, THE SCHIZOTYPE, AND THE CONCEPT
OF IMPLICIT TYPIFICATION

Richard P. Korf and Joanne K. Rogers (Ithaca, New York)

Few nomenclatural acts have greater potential consequences than the designation of types. The typification of genera frequently involves widespread name changes, but when wisely applied may achieve stability in nomenclature. Similar implications of typification are felt at all taxonomic levels.

It is our contention that two distinct means of typification should be recognized: explicit typification in which an author states unequivocally that a particular taxon (or specimen) is to be considered the type of a higher taxon, and implicit typification in which an author makes no such statement, but rather by his taxonomic actions clearly indicates that one and only one taxon (or specimen) of those eligible must be the nomenclatural type of the higher taxon.

Implicit typification is already accepted by botanists in the case, for example, of a genus which at the time it was erected contained a single species. This species is the monotype, and even though the author may have said nothing about that species being the generic type, botanists are surely agreed that the monotype is, in fact, the (implicit) holotype of the genus (cfr. Lanjouw, et al. 1961: Guide for the Determination of Types, Section 1).

When, however, a taxon was erected (i) in which more than one element was included, and (ii) in which the original author failed to designate one of these as the holotype, all of the original elements have the status of syntypes until such time as one of them is chosen as the lectotype.1) This choice is normally an explicit designation on the part of a later author, who thus permanently (except as provided in the Code) fixes the name to one element, the lectotype.

There is, however, the possibility for implicit typification of a pre-existing, un-typified taxon which is not provided for in the International Code. This implicit

1) The single exception to this statement is the situation in which an author designates two or more specimens as the type; it does not concern the arguments advanced here.
type arises by taxonomic splitting of such a taxon under certain rigorously defined conditions. We propose the term schizotype for such an implicit lectotype. It is formed when an emending author (i) treats in a single publication all of the syntypes of a taxon, (ii) retains in the taxon only one of the eligible syntypes, and (iii) specifically excludes each and every one of the other syntypes. Only if all three criteria are met can schizotypification have occurred.

Another kind of explicit type is the neotype, selected when all of the original holotypic, isotypic, syntypic, isosynthetic and paratypic material is lacking. There would seem to be no circumstance in which a neotype could be proposed implicitly. The following chart indicates the equivalent terms for the major classes of nomenclatural types, explicit and implicit:

<table>
<thead>
<tr>
<th>Explicit</th>
<th>Implicit</th>
</tr>
</thead>
<tbody>
<tr>
<td>holotype</td>
<td>monotype</td>
</tr>
<tr>
<td>lectotype</td>
<td>schizotype</td>
</tr>
<tr>
<td>neotype</td>
<td>—</td>
</tr>
</tbody>
</table>

The Residue Method vs. Schizotypification

It is critical that botanists make a distinction between the "residue method" of choosing a type and the act of schizotypification. In the residue method, we are urged by the Guide for the Determination of Types to select a lectotype for a taxon from among those syntypes which have not been transferred out of the taxon by later workers. (Once a lectotype has been designated, the residue method ceases to apply. There is no provision in the Code for overthrowing a lectotypic designation merely because application of the residue method might have resulted in a different element being chosen as the lectotype.)

Example I can serve to show the distinction between application of the residue method and the process of schizotypification.

Example 1

Action 1: Author I erects genus A with 3 species, Ax I, Ay I, and Az I.
Action 2: Author II erects genus B, based on Ax; its monotype is Bx (I) II.
Action 3: Author III transfers Ay to (new or old) genus C, as Cy (I) III.
Action 4: Botanist IV applies the residue method and concludes that Az should be the lectotype of A. He either (i) fails to publish his conclusion, or (ii) does so after action 5.
Action 5: Author V accepts genus A for one species, Ax, and treats Ay and Az (in the same paper) in another genus or genera, e.g., Cy (I) III and Cz (I) V, or Cy (I) III and Dz (I) V.

Following action 3, if no person has yet designated a lectotype for genus A (and for our example we stipulate that neither II or III indicated a choice of type for A), the residue method should (today) be applied by a worker. Botanist IV did so, and was automatically led to Az as the logical candidate for the lectotype of A, since it alone had never been transferred out of the genus. But, in our example, he failed to designate this lectotype, or delayed doing so until after a fifth action had occurred. The taxonomic treatment of action 5 was of nomenclatural importance as an act of
schizotypification, since V clearly selected only one of the three eligible (syntypic) species to be associated with A, and specifically excluded all (both) other eligible syntypes by placing them in genera other than A.

Considering genus A, action 5 differs significantly from actions 2 and 3. Though both authors II and III made taxonomic decisions, they did not explicitly or implicitly make a decision about which one species must be permanently associated with generic name A. They only indicated that in their view the species Ax, Ay, and Az do not all belong in the same genus, without further defining the concept of genus A. Author V, on the contrary, clearly chose a single element to be associated with A, or in other words implicitly chose a lectotype (schizotype) by his taxonomic actions. There can never be any doubt as to the intention of Author V. Schizotypification, though implicit, is as unequivocal as explicit lectotypification. The taxonomic and nomenclatural implications of implicit types must be identical with those of explicit types of the same rank.

Example I provides another insight. Clearly genus B, after schizotypification of A (action 5), becomes an obligate synonym of A, since both genera have Ax as their type species. This may offend the sensibilities of some botanists, who might argue that action 2 does, in a sense, imply something about: the type of A (i.e., that it should not be Ax!). The truth is that if action 5 had been explicit lectotypification of A with Ax, we would have been bound by the decision; likewise we are bound by the decision in implicit schizotypification.

Of course schizotypes, like lectotypes, may be overthrown if it can be shown that there exists an earlier typification or that the selected type does not agree with the protologue of the higher taxon, etc., as already provided in the Code. Schizotypes are, in fact, only a special class of lectotypes, as monotypes are a special class of holotypes. They should probably be clearly designated as schizotypes in monographic works, since their status is not as immediately apparent as is that of a monotype, recognizable by mere inspection.

The Schizotype and the Problem of “pro parte”

As the concept of the schizotype developed in our thinking, we attempted to apply it in our as yet incomplete nomenclatural and taxonomic survey of the genera of the Pezizales. One of the situations which has arisen in more than one instance involves genera erected on two (syntypic) species. When a later author takes up such a generic name pro parte, it seemed to us at first to represent an act of schizotypification. (When there are only two original elements, and one is associated with a revised taxon in a manner clearly indicated as “in part only,” is this not an ideal case of exclusion of all original elements but one, and thus schizotypification?) We have had to retreat from this position, however, for one must be extremely careful in any implicit typification not to make an author say more or less than he has actually stated. Example II is a factual case in point, of which some nomenclatural aspects have been discussed elsewhere (Korf, 1953; Le Gal, 1958).

Example II

Action 1: Fuckel (1870) erected the genus Plectania with 2 syntypes: P. coccinea and P. melastoma, listed in that order. Both species “fit” the generic diagnosis.

Action 2: Saccardo (1884) used the name Peziza subg. Plectania, indicating it was
based on "Plectania Fuck. ex. p.," and mentioned only one species, *P. melastoma*. In this paper Saccardo did not mention *P. coccinea*.

**Action 3:** Karsten (1885) recognized the genus "Plectania Fckl. pr. p.," mentioning only a third species. He did not treat *P. melastoma* in this publication, but specifically excluded *P. coccinea* from the revised *Plectania*, placing that species in *Peziza*, with the indicated synonymy "Peziza Dill. = Plectania Fckl. pr. p. (P. coccinea)."

**Action 4:** Saccardo (1889) accepted *Plectania* Fckl. at full generic rank, and included *P. melastoma* and 7 other species. In the same volume he recognized the genus *Sarcoscypha*, and included *P. coccinea* among the species listed there.

**Action 5:** Seaver (1927) designated *P. coccinea* as the [lecto]type of *Plectania*.

**Action 6:** Clements and Shear (1931) listed *P. melastoma* as the [lecto]type of *Plectania*.

There can be no doubt that action 4 represents schizotypification, since in 1889 Saccardo concerned himself with all (both) of the syntypes, and allowed only one to remain in the genus. The temptation is to say that he had done the same in 1884 (action 2), when he indicated his use of the Fuckel name was only *pro parte*. The reason we have refused to accept action 2 as schizotypification is that we have no proof of what Saccardo meant by "ex.p." Did he mean *Plectania* Fckl. as it was conceived in 1870, or *Plectania* Fckl. as possibly enlarged by species added in the period 1870—1884? (Whether or not actual transfers to the genus occurred in that period is beside the point; they may have been added in Saccardo's mind.) We cannot *know* in what sense Saccardo held "Plectania Fckl. sensu lato" in 1884; hence we cannot know what species might have been included in "Plectania Fuck. ex. p." It is conceivable that even *P. coccinea* had a place in the latter, and if so, schizotypification had not occurred.

Similarly, in action 3, does the exclusion of *P. coccinea* infer that *P. melastoma* is retained in *Plectania*? Karsten did not treat *P. melastoma*, doubtless because it had not been found within the range of his Finnish flora. Again we are tempted to say that typification is implied. But Karsten may have restricted the genus, in his sense, to include only species with spherical spores (a character of the only species he listed) rather than broadened the genus to include species with spherical and ovoid spores. We cannot know from his taxonomic actions which sense of *Plectania* Fckl. in the period 1870—1885 Karsten was emending, and whether or not *P. melastoma* was included in his concept of "Plectania Fckl. pr.p." He may have excluded both original species! Since he failed to associate *P. melastoma* with the emended genus *Plectania*, we cannot accept action 3 as schizotypification.

Action 5 was merely a later lectotypification (and was undoubtedly a "first species" automatic typification under the American Code). The schizotype, created by action 4, takes date precedence, just as it would have done if it had been an explicit lectotype. Action 6 was merely a still later lectotypification than actions 4 and 5.

**Proposal:** — Add to Art. 7, Note 3, after the second paragraph defining the lectotype, the following new paragraph:

"The schizotype (a special kind of implied lectotype) is the one specimen or other element from the original material retained in a taxon by an author who has treated in a single publication all of the syntypes of a taxon and has specifically excluded from the taxon each of the other eligible syntypes."

**Proposal:** — Change the first sentence of paragraph 4f of the Guide for the Determination of Types, to read:

"The first choice of a lectotype (including schizotype, Art. 7, Note 3) must be..."
Acknowledgments

Supported by National Science Foundation Grant GB-2339, "Monographic Studies of the Discomycetes." We are deeply indebted to many Cornell University colleagues and students for their long hours of argument, dissent, and discussion. Dr. G. L. Hennebert, Louvain, and Dr. M. A. Rifai, Sheffield, deserve particular thanks for their help in crystallizing the concepts at a critical point.

References

Karsten, P. A. 1885 — Revisio monographia atque synopsis Ascomycetum in Fennia hucusque
Korf, R. P. 1953 — The new rules of typification as they affect Sarcoscypha and Velutaria.
Mycologia 45: 296–301.
Veg. 23: 1–372.
Le Gal, M. 1958 — Petite promenade à travers le maquis de la nomenclature. Rev. de Mycol.,
ser. 2. 23: 121–126.
Centralbl. 18: 213–220, 247–256.
— 1889 — Syllog. fungorum 8: 1–1143.
Seaver, F. J. 1927 — A tentative scheme for the treatment of the genera of the Pezizaceae.
Mycologia 19: 86–89.

LECTOTYPIFICATION OF GENERIC NAMES IN FLORAS*)

C. E. Wood, Jr. (Cambridge, Mass.)

Careful typification of the names of all taxa of plants undoubtedly offers one of
the best pathways toward nomenclatural stability, for, once all names have been
typified, a major cause of nomenclatural change will have been eliminated. In recent
years the names of genera have received much attention, especially with the develop-
ment of the excellent and rapidly growing Index Nominum Genericorum. Yet, many
generic names are still only partially studied in terms of the principles of typification
embodied in the International Code of Botanical Nomenclature, and difficulties with
or even complete lack of typification pointed out in a flurry of recent papers shows
that much remains to be done. Since it is only by careful typification that exact

*) This paper is an outgrowth of studies toward a generic flora of the southeastern United
States, a project supported in part by grants from the National Science Foundation. I am
indebted to Drs. G. K. Brizicky, Bernice G. Schubert, F. A. Stafleu, and J. J. Swart for their
helpful comments and suggestions.