

Tables can be used directly for keys and the sequence of characters in a table can be modified for that purpose—for example placing first the most obvious characters or those shared by large groups of taxa. Unique, derived and ancestral conditions may be flagged by the use of different fonts (capital letters, bold face, italics, etc.). Furthermore, reduced figures can be readily inserted into tables, either at the head of the column to indicate where structures are located, or within cells to illustrate the condition in each taxon. Comparison is easy and rapid because one can see at a glance all characters of a taxon. Identification errors can be quickly retrieved and other character choices can be made. If one character cannot be used (wrong sex, poor preservation, etc.), any other may be substituted, and the substitute can be quickly evaluated for utility. New taxa can be readily discovered and relationships quickly determined. Finally the space lost within the table because of different lengths of descriptions within cells may be largely made up by the elimination of the repetition of the name of each character for each taxon, as would be necessary in a paragraphic description.

Figures

The common way in which figures are arranged is also the very antithesis of tabulation. Figures of different structures for the same species are very often clustered or placed on a single plate. Such an arrangement is similar to a paragraphic description, and like it, greatly reduces the ability of the reader to compare species on different pages especially if they are not on the same side of the page. I doubt whether a taxonomist very often checks all the characters of a specimen at once (which would be facilitated by the traditional grouping of all figures for a single species) and even less often both males and females together. Grouping by species may easily mislead the reader who can easily misjudge primitive similarities, insignificant features, or artifacts, unless arrows and lines used in field guides are employed to focus attention on important characters. The crucial requirement for the proper use of figures is comparison and when all figures of the same structure are grouped together many if not all of these problems may be eliminated. Some arrangement of figures may also follow the tradition of trying to squeeze as many as possible onto the page, resulting in a pious arrangement defying all logic, but there may actually be a saving in space by arranging figures by structure rather than by species. A tabular type arrangement of figures of the same structure would probably avoid the infuriating situation in which similar structures are pointing in different directions on different pages, again making comparison difficult. A final problem is the tendency to draw figures to the same scale resulting in large and small figures of the same structure on the same page and making tabulation difficult and wasting of space. Yet it is shape not size that is being compared in drawings, and figures of different size makes comparison of shape more difficult. Nor is it at all clear how one would use difference in size in drawings when comparing a specimen with a drawing. Surely measurement data involving extremes and means of readily measured parts would be infinitely superior to a single measurement of an obscure structure. I would therefore urge taxonomists to produce illustrations drawn to the same size wherever possible to make comparison of shape

easier. Examples of arranging figures to facilitate comparison (Cantrall and Cohn 1974, Roberts 1978, Otte 1984, Vickery 1993) illustrate the great advantage of such methods (there are certainly many other examples). Indeed, a further extension of this method would be to arrange such figures to form a picture tabular key, or to add the figures to the descriptions in a table. In both cases the figures might be greatly reduced in the tables, but the full size figures could be published in the back of the paper if they were particularly detailed, as Vickery (1993) has done.

Although not associated with plate arrangement I would cite here another problem with using plates. This is the tendency, perhaps enforced by editors, to have figures identified by numbers or sequential letters, with all information about the figures in the accompanying legend. The time wasted in consulting legends is enormous and in many heavily used papers, one finds pencilled or inked identifications on each figure that have been added by the reader (or often by the authors themselves in their own copies!). Imagine how many person-hours might be wasted in such activity for papers used by many readers. Surely there is no disadvantage to printing identifiers (names of species or structures) which can often be abbreviated next to each figure, although this might add a slight cluttering to the plate. The time spent in doing this once by the author on the original plate saves many users a large amount of time. It may even save artists' time because each figure must be labelled in pencil on the back and much time is spent consulting the backs during preparation of other figures and arranging them on the plates. Here is a tradition whose origin is unclear and might be best eliminated.

An example showing the value of tabulation of both descriptions and figures is given below for an imaginary genus of orthopterans. D. Otte set me the task of tabulating the characteristics of five lunatic species that came full blown from his fertile mind while he was fulminating over another paper of mine. The equally lunatic but grammatically correct names have been provided by H. D. Cameron of the Classics Department of the University of Michigan, whose specialty is obscure Latin and Greek derivatives created for the amusement and sometimes the edification of taxonomists.

References

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