Catalogues, Checklists and Lists: A need for some definitions, new words and ideas

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A Washingtonian was once accused of not knowing the difference between catalogues[1] and checklists (Cogan et al. 1980: 40). We believe the problem isn't as simple as they implied. While the language is English, this doesn't endow our British colleagues with the right to dictate definitions of words[2]. The language belongs to all of us.

The problem is that there are different definitions for the same word (catalogue) and the same definition for different words (catalogue and checklist). The oldest definition for "catalogue" in the English language is a "complete enumeration" (OED, 2: 170). This definition is usually expanded to mean a systematically arranged enumeration which includes descriptive details. Lay people use the word "catalogue" for complete descriptions of such things as art exhibits, museum holdings, products for sale, library holdings, and educational programs of colleges and universities [this last perhaps only in America]. To them the entomological definition of "catalogue" is closer to that of a "directory" in the sense of a telephone directory, which lists only names, addresses, and telephone numbes. Likewise, most biologists use the word "catalogue" in a more comprehensive sense (*vide*, Mayr 1969: 263 " . . . complete series of references"). To them "checklist" is not a derogatory term as implied by our British colleagues, but a quite respectable term for a work that is something less comprehensive than a catalogue. Mayr (1969) called "A checklist . . . a very careful, critical revision, usually with extensive synonymy and a detailed elaboration of geographic distribution . . . " (e.g., see American Ornithologists' Union). However, Mayr did indicate that "A checklist in entomology is generally only a list of names . . . " The word "list" is used to denote a mere series of names. The various degrees of comprehensiveness are diagrammed (fig. 1).

While in entomology the word "catalogue" is typically used for what everyone else calls a "checklist", the term has been used in its most comprehensive sense by entomologists (*vide* Hampson). Hampson not only gave a complete index to the names of noctuids, but also gave keys, descriptions, and illustrations to them [while not used by the Entomology Department, this most comprehensive sense of "catalogue" is still used by many at the British Museum (*vide* Napier)]. The word "checklist" has never been applied to the most comprehensive end of the scale, but the word "list", while usually used for simple enumerations of names, has been used also for comprehensive works, such as the infamous Francis Walker "List[s] of . . . Insects . . . of the British Museum" (*vide* Walker).

So despite the comments of our British colleagues, there is a real problem of definitions. How should it be resolved? Should priority be invoked and the word "catalogue" be restricted to the more comprehensive end of the continuum (levels 8 and 9), with "checklist" (levels 5–7) used for the middle and "list" for the least comprehensive (levels 1–4)? Or should usage be accepted as the determining factor? If so, whose usage? That of lay people, biologists, or entomologists? General usage follows priority and applies "catalogue" only in its most comprehensive sense. This course would also be the most practical as only one word would be needed to specify the degree of

[1] In deference to English colleagues, we have used the insular spelling of "catalogue", but, as we are questioning their definition of this word, we might also ask the need or importance of the final "ue". As Americans we consider the language English and drop the French vestiges!

[2] Or as one of our reviewers reminded us that "America and Britain are two nations separated by the same language!"

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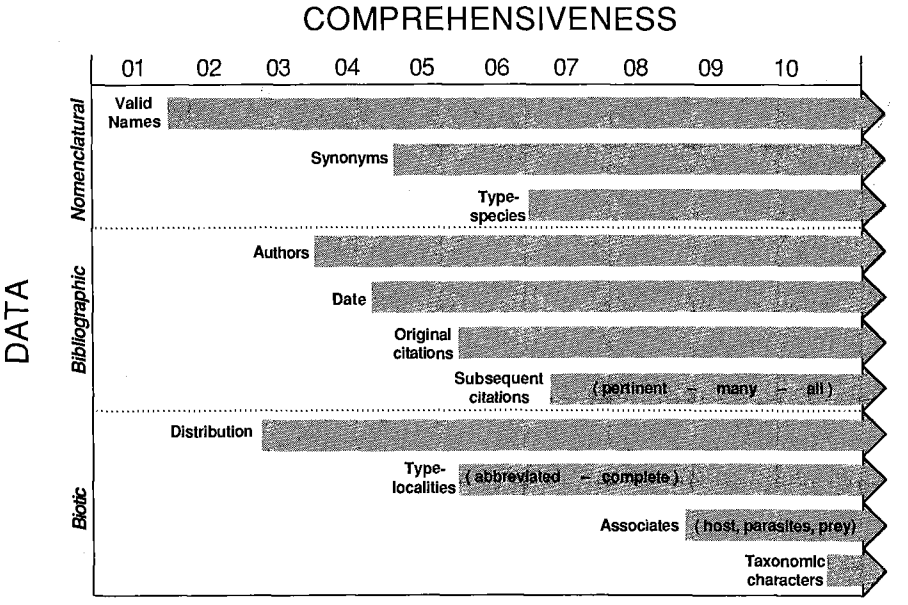

Fig. 1. Levels of Comprehensiveness of Biosystematic Publications.

comprehensiveness. If one accepts entomological usage, then there would be a need to differentiate between the degrees of comprehensiveness. Adjectives such as "synoptic" (less inclusive) to "monographic" (most inclusive) could be used.

However, rather than argue with our colleagues in the entomological community, and to avoid being misunderstood by our general users and supporters who are not entomologists, we have decided simply to abandon the use of the confusing word "catalogue". We have changed the names of our respective "catalogue" projects to DATABASE projects. Database is a new term (not yet in the OED or its supplements[3]!), and is defined (ANDIPS, 1984) as:

> "1) A set of data, part or the whole of another set of data, and consisting of at least one file, that is sufficient for a given purpose or for a given data processing system;
> 2) A collection of data fundamental to a system; and
> 3) A collection of data fundamental to an enterprise."

We like these definitions because they include THREE critical components: 1) collection of data (i.e., a catalogue in the sense of enumeration); 2) handled by a computer system; and 3) comprehensive for its purpose. We will use adjectives to define the purpose of our databases. For example, the *Systematic Database of Diptera of America north of Mexico* will include all the essential data fundamental to describing the system used to classify the flies of the region (a hierarchy of higher category names (order, suborder, superfamily, family, subfamily, tribe), genus-group and species-group names, with citations to their original source, type species, type localities, and distribution). Ordinarily, descriptions of major groups (families) and references to essential systematic literature would be included, but published portions of this database are designed to complement the new *Manual of Nearctic Diptera* (McAlpine et al., 1981, 1987), which includes that data. The *Biosystematic Database of the Flies of the World* will include all the above kinds of data along with the essential biological data on associates such as hosts, prey, parasites, predators,

[3] While we continue to treat "data" as pleural, we note that OED now accepts "data" as a singular collective noun!

commensals, etc., and a comprehensive listing of references. And eventually, we hope to add images and taxonomic character data to our database.

The computer connotation is important, as it denotes that the data on which the published version is based are preserved in a format that can be revised easily and up-dated as well as queried in numerous ways virtually impossible for the traditionally published "catalogues". Consider the problem of extracting all the names described before 1900 and from Europe that apply to species that occur in all faunal regions except the Afrotropical Region. Naturally that could be done manually as one of us did, but it would take a computer less than a second to find the single name that met those restrictions (*Lonchoptera furcata* (Fallen)).

Another reason for a name change is that "catalogues" as a product of research have been greatly depreciated by administrators, who view "cataloguing" as a sort of clerical activity of little value in a "modern" world. To build a systematic database (= catalogue) involves much original, basic research. The first requirement for such a database is a solid classification. Hence, the builders must re-evaluate all higher taxa (families, subfamilies, tribes, and genera). Second, the species concepts of earlier workers (these frequently being merely a name documented only by a type specimen) must be re-evaluated and placed

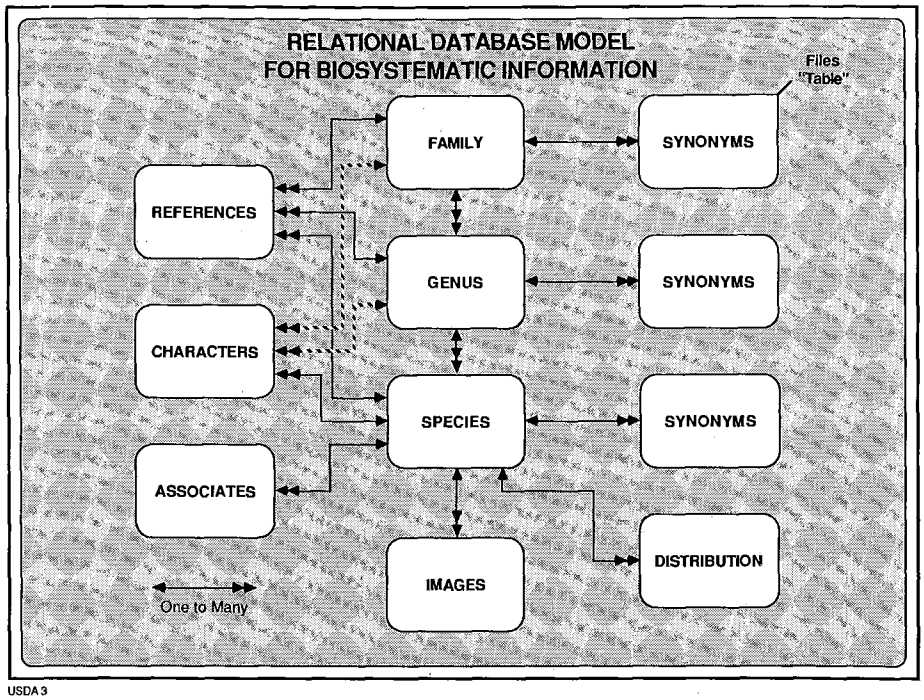

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Fig. 2. Relational Database Model for Biosystematic Information. The squares represent tables (= files) which contain rows (= records) of information. The lines indicate the relationship between the tables. For example, the family table includes information about the family group taxa (Family, subfamily, tribe) and is related to a synonym table which includes information about all the synonyms for a family group taxon. Likewise, the family table is related to the genus table which includes information about all the genera included in a family group taxon. These relationships are of a "one (parent) to many (children)" type, that is, one family group taxon may have many synonyms or include numerous genera, but each synonym or genus belongs to only one family group taxon.

in the new classifications. Sometimes the magnitude of the original research in a "catalogue" can be appreciated by the number of new combinations, names and synonyms in the work. Other times the research is published in ancillary works. For example, Roger Crosskey's treatment of the tachinid flies in the catalogue of oriental Diptera represents the culmination of many years of revisionary work (Crosskey 1967, 1976, 1977). And rarely, the research on which catalogue treatments are based is never published. For example, Vockeroth's treatment of the Scatophagidae in the Nearctic Diptera catalogue (Vockeroth 1965) is based on his unpublished doctoral dissertation (1950). A name change from catalogue to database may aid the increased appreciation of the true significance of "catalogue" research.

As computer technology advances, making, for example, laser disk storage cheaper, "images" [photographs, line drawings, cladograms] could be added to biosystematic databases. Also, character data could be included. When character data and images are merged into the database, the user will be able to extract data for "unknown" objects by first interactively working with the database to identify the object. In computer jargon, such an interactive database system would be called an "Expert System", but, as systematists, we would know it merely as our old-fashioned identification key implemented on a computer system! So, as now envisioned, the *Biosystematic Database of the Flies of the World* would include all the essential data on flies (see figure 2 for the relational database model). Such comprehensive databases may well become the future publication sources for all systematics work (that is, "up-dating the database would be considered the same as "publishing" a new species description, etc.).

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