Citing authors' names in indexes and references can cause great difficulties, as ghosts, subterfuges, and collaborative teamwork may often obscure the true begetters of published works.

Much has been written about authors. An online search in February 1991 of the LC MARC database (which covers books catalogued by the Library of Congress from 1968 on) yielded almost 15,000 entries for biographies of authors. The Contemporary Authors series published by the Gale Research Company, which includes brief biographies, contains more than 96,000 entries in the 131 volumes published up to early 1991.

Librarians and information scientists do not necessarily know a great deal about the lives of authors. What many of them deal in are authors' names, as components of the bibliographical units that act as surrogates for the authors' works: catalogue entries, references, or citations. Librarians are especially concerned with establishing the correct form in which to present an author's name, and with linking together variant names and forms of names so that the whole of an author's corpus may be traced in a catalogue or bibliography. Information scientists count occurrences of authors' names in bibliographies or citations and carry out bibliometric analyses of various kinds.

What follows is a collection of facts and findings about authors that in some way relate to, or are derived from, their names. Topics covered are pseudonyms, the treatment of names of co-authors and multiple authors and of ghosts and other non-corporeal authors, and citation. A final note touches on some of the problems of handling authors' names in catalogues and indexes.

**Pseudonyms**

In placing his or her name on the title page, the author takes credit for the work in hand. Publishing anonymously or under a pseudonym might therefore seem to be a way of avoiding or declining credit for a work. The second edition of Halkett and Laing's Dictionary of anonymous and pseudonymous English literature (published between 1926 and 1934) lists around 75,000 entries—which gives some idea of the number of people who have chosen to suppress their real names. In introducing their work, Halkett and Laing suggest that the motive for suppressing one's name is 'generally some form of timidity, such as (a) diffidence, (b) fear of consequences, and (c) shame.'

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academies tried faithfully to implement this model. The proceedings of the famed Accademia del Cimento founded by the Medicis in Florence were published as a collective volume without citing the names of individual researchers. Among them were some of the most distinguished names of seventeenth-century science.7

Kronick points out that anonymity or pseudonymity also afforded authors the opportunity of praising works of their own published elsewhere under their real names, and the similar opportunity of running down their opponents without revealing their true identities.

Authors sometimes adopt a pseudonym as an extra persona under which to publish works different in character from their other publications. Charles Lutwidge Dodgson/Lewis Carroll is a prime example. Some authors are not content with one pseudonym. Atkinson cites a number of popular modern writers using multiple pseudonyms; his record-holder is Lauran Paine, with 'sixty-five discovered pen-names.'8

One pseudonym may also represent two or more authors writing in collaboration. A famous pair were Frederic Dannay and Manfred Lee, who invented 'Ellery Queen' not only as their joint pseudonym but also as the name of their fictional detective. All mathematicians will recognize the 'polycephalic' author Bourbaki, who came into existence in the late 1930s and is actually a consortium. 'The exact composition of the Bourbaki group varies from year to year and has been deliberately kept mysterious. The project was begun by a number of brilliant young mathematicians... At the beginning they made no particular attempt at secrecy. With the passage of time, however, they seem to have become more and more enamoured of their joke, and have often tried to persuade people that there is indeed an individual named N. Bourbaki, who writes the books. Indeed, Bourbaki once applied for membership in the American Mathematical Society, but was rejected on the ground that he was not an individual.'9

Some years ago four members of the mathematics department at the University of British Columbia followed the example of Bourbaki and adopted the group pseudonym of B. C. Tetra. An admission that 'B. C. Tetra' was a pseudonym, and the real names of the four faculty members involved, were presented on the verso of the title page of their book.10

Co-authorship

Co-authors usually appear under their individual names on a title page. A distinction is drawn here between co-authorship—collaboration in the writing of a work—and collective authorship—individual contributions made to a collected work. In collected works such as anthologies, symposia, and the like, any name that appears on the title page is likely to be that of the editor or compiler; the names of the authors of individual chapters or papers are usually relegated to contents pages or lists of contributors.

Co-authorship has a different connotation in the scientific journal than elsewhere. The collaboration represented by the names at the head of an article is collaboration in the work described therein, rather than collaboration in the writing thereof. Over the past few decades, the number of people signalling co-authorship in this way has increased. Derek de Solla Price was the first to draw attention to this increase in his book Little Science, Big Science, published in 1963.11 He attributed it to an increase in 'big' scientific projects involving large teams of researchers and requiring substantial grant funding. Those whose salaries were paid out of grants had their names listed as co-authors to indicate that they actually had performed the work described. The 'publish or perish' syndrome also encourages a system of allocating credit for any contribution, however small. Where a large number of collaborators are listed, there is always concern not to leave out anyone who could be said to have made a contribution. A cartoon in the 10 December 1990 issue of Current Contents shows two cleaning women in a laboratory; one of them has picked up a journal, and is exclaiming: 'Look at this article on sanitation and waste management. I'm listed as one of the coauthors.' In two cases of scientific fraud it was found that some people listed as 'co-authors' were not aware that their names had appeared on publications by the fraudulent author.12 William J. Broad has documented cases of 'co-authors' who asked to have their names removed from papers awaiting publication.13

De Solla Price predicted in 1963 that if the trend he had observed in team research and multiple authorship continued, the single-author paper might be extinct by 1980. It did not become extinct, but multiple authorship flourishes. Garfield recently published statistics derived from the Science Citation Index on articles in the physical and life sciences, published in 1987, that were most cited in 1987 and 1988.14 In the life sciences, 15 of the 101 most-cited articles were single-author articles; the average number of authors was close to 6, and the highest number was 22. (In 1986 the highest was 77 authors.) In the physical sciences, 8 of the 100 most-cited articles were single-author articles; 14 papers had 10 or more authors; and there were instances of papers with 79, 37, and 23 authors. Garfield also noted that the number of authors is influenced by the field of science that is in vogue in a particular year. For example, the 1986 average of 7 per article was double the average for 1985, and down from a peak of 11 in 1983.

High energy physics, which involves very large teams of researchers, holds the record, as far as I know, for number of authors. The INSPEC database producers noted one conference paper published in 1986 that had 246 authors.15 The paper in question appeared in Plasma Physics and Controlled Fusion 28 (12b) (1986): 1943–54, and was presented at a conference by a single author on behalf of 245 others, who came from fifteen different research organizations in Europe, Australia, and Japan. All their names appeared on the title page.

The lists of authors on the title pages of communications published in Physical Review Letters sometimes seem to take up almost as much room as the letters themselves.
Some teams have adopted group names, but editors have not always been willing to accept these. When they do, the names of the individual team members are usually listed in a footnote.16

Discussion about the appropriateness of team names goes back at least as far as 1962. In March of that year the editor of Physical Review Letters noted that he was publishing two letters on virtually the same subject, one with 17 authors from two institutions, and the other under the names of three institutes; in the second 'the participating physicists are not mentioned, not even as a footnote.' In contrast, R. E. Weston was proposing, in a letter to Physics Today, 'that a suitable international body begin at once to choose appropriate and easily remembered names for the various teams of physicists engaged in high-energy nuclear research. Some possible titles suggest themselves at once: the “Reds” of Dubna, the Harvard-MIT “Yankees”, etc.'16

Scientific indexing services sometimes prefer to select one or more of these individual names to include in the author index instead of the team name.17 In the letter from INSPEC referred to in n15, Mike Collins states, 'The size of the author field causes immense problems and we have recently adopted a policy of recording the team name . . . in the author field.' In the preface to their book on collaborative writing, Lisa Ede and Angela Lunsford note that they alternate the order of their names on title pages to emphasize their equal authorship. 'We have even considered publishing major projects such as this book under coined neologisms, such as Annalisa Edesford or LisaAnn Lunede.'18

When so many names are involved, who gets listed first? Scholarly studies have been made of the conventions of name-ordering on title pages.19 This is an important issue, since the number of authors listed is usually limited in indexing services and in citations by other authors. If a journal follows the convention of listing authors in alphabetical order, having a surname that falls late in the alphabet may mean that one's contributions are under-represented in author indexes, or in citation analyses based thereon. One character in Carl Djerassi's novel Cantor's dilemma is a woman scientist who changes her name from Yardley to Ardley to make sure that her name appears up front in author listings.20 Many journals follow a convention of signalling the author to whom correspondence is to be addressed; presumably this person is a chief contributor to the work described and may even have drafted the paper. Sometimes the chief contributor is listed first and the rest in alphabetical order. Discussion of the correct method to use was so intense at one stage that a coding system was suggested as a means of indicating degree of contribution.21

Being listed as a co-author carries credit but also implies responsibility for the content of a paper. When a research project involves many people—perhaps at laboratories in different locations or even in different countries—whose individual contributions are limited, then a 'limited liability' for the paper seems to be the most that can be expected. This matter came to the fore in 1981, when Dr. John Darsee, then at the Harvard Medical School, was found to have fabricated data that formed the basis of more than 100 papers he had co-authored over a space of three years in the late 1970s and early 1980s. An investigation into the shared responsibility for these papers gave rise to the term 'honorary co-author'—defined as one who has not had direct involvement in the work described but who has nevertheless contributed to its existence. An editorial in Nature remarked that there was at least anecdotal evidence to show that such authorship was commonplace:

In molecular genetics, for example, those who supply clones of some genetic material for use by others are often listed among the authors of the ensuing research. Some coauthorship is political in flavour, as when the prime movers in international projects cite sleeping partners as authors for the sake of continued opportunities to investigate otherwise inaccessible phenomena. The practice that the head of a laboratory should as a matter of course appear as an author of all its publications, still accepted as a convention in some Indian laboratories, for example, is rapidly on the way out.22

In an editorial published in 1982, the Annals of Internal Medicine set down five rules defining the responsibility of authors. The fourth rule stated, 'An author should have taken part in the writing of the paper,' and the fifth, 'An author should have read the entire contents of a paper and assented to its publication before it is sent to a journal.'23

Among the many studies of multiple authorship are several that have investigated possible links between the number of authors and the quality of a paper. Bridgstock has recently reviewed these studies and carried out one of his own. He finds that the evidence available from published studies does not support conclusively the claim that papers with more than one author are, on average, of higher quality than those with a single author. He notes a variation between subject fields: the case for a positive relationship between quality and multiple authorship appears to be stronger in astronomy and physics than among the social sciences.24

**Ghostliness**

One form of collaboration is that between a person who has not the time, inclination, or ability to write and the ghost-writer he or she employs. The term 'ghost-writer' implies that the identity and even the existence of this person will not be revealed. More and more often these days, however, we are seeing 'as told to' books that identify their 'ghosts'. My current favourite example is The True Story of the 3 Little Pigs, by A. Wolf, as Told to Jon Scieszka (Penguin, 1989). The printed version of Books in Print for 1990–1 appears to treat this as a ‘serious’ book and places the main entry for it under 'Wolf, Alexander.' Jon Scieszka is listed as ‘jt. author'. The role of the ghost-writer lies somewhere between that of author and that of editor—taking the words of his or her subject and creating a book out of them. Eugene Garfield has explored aspects of ghostwriting in an essay entitled 'Ghostwriting—the spectrum
from ghostwriter to reviewer to editor to co-author.' A brief selected bibliography on the topic is appended.

There are other kinds of ghosts. In bibliographic terms, a 'ghost' is a work whose existence has not been proved. Evidence of a kind—a citation, or a listing in a publisher's catalogue or other bibliographic source—points to the existence of the work, but no extant copy can be found. When Donald Wing compiled his Short-title catalogue, he encountered a considerable number of ghosts, and published a list of them as an invitation to libraries and collectors to turn up copies. Errors in transcription of title-page information may account for some ghosts. A famous ghost was Dr O. Uplavici, who materialized as an author as a result of the incorrect citation of an article in a Czech periodical. The article had been written in the Bohemian language by Jaroslav Hlava and concerned experiments to identify the cause of amoebic dysentery. The work was never translated. A review of it was published in a German periodical, but the author's name was omitted in the citation, and the Czech title 'O úplavici' (which means 'On Dysentery') appeared in place of the author's name as 'Uplavici, O.' Subsequent references to the work cited not only 'O. Uplavici' as the author but also 'O. Hlava,' 'Uplavici' as an apparent pseudonym for 'Hlava,' and even 'Hlava' and 'Uplavici' as joint authors.

A well-known collection of 'ghosts' appears in Appleton's cyclopedia of biography, published in 1886. By 1936, 84 fictitious biographies had been identified in Appleton's, and as many as 200 were predicted to exist. Many of these purported to be of scientists and explorers of remote regions, whose 'works' (shown as being published in obscure sources) were cited. Their origin is attributed to one or more outside contributors to the Cyclopedia who were paid by the line and whose work was not checked. They are thought to have boosted their pay-checks by inventing authors and works. 'The spurious notables, most of them scientists and explorers, had only fleeting connections with the US, worked mainly in Central and South America. Few were born in the US, few died there, and in general dates of birth and death are none too specific. Of their voluminous works, unknown in any library, a great portion are written in French.'

When we think of ghosts in general terms, we think of the spirits of departed souls. Such ghosts may also be considered authors when their messages are communicated in written form by spirit mediums. No matter who holds the copyright or receives the royalties, the Anglo-American cataloguing rules recognizes the spirit in such cases as having responsibility for the work, and calls for entry in library catalogues of 'a communication presented as having been received from a spirit under the heading for the spirit.' A letter to the editor of Nature, published in 1986, purported to be written by God, 'as revealed to Ralph Estling'. I have not been able to find an index entry for this publication, so I cannot be certain that some indexer, somewhere, did not give it the divine authority it claimed.

In this age of technology we have another kind of non-corporeal author. Wajenberg, in an excellent and highly recommended paper on definitions of authorship, cites a new problem for cataloguers: that of a book written by a computer program. One such book was written by a computer program called 'Racter'. Is Racter to be considered the author of the book, or is the person who programmed Racter?

Citation analysis

The extent to which authors are cited is used as an indication of the 'popularity' of a scholar's works but of their importance to other scholars and researchers. 'Influence or utility' is the term used by Eugene Garfield, the father of citation analysis, to describe the significance of a citation. Especially in the sciences, citation of a work generally implies that that work in some way contributed to the research under discussion, that it described 'prior art', or that it gave details of a methodology adopted by the citing author. In the humanities, a work may be cited because it is being analysed, criticized, or related to other works—in other words, either because it is important enough to be the subject of research or because it has contributed ideas to the subject under study.

Garfield has produced a list of the 250 most-cited authors appearing in the Arts & Humanities Citation Index from 1976 through 1983. He derived the list by counting references made to these authors by writers in scholarly journals indexed as sources by the Arts & Humanities Citation Index during these years. Garfield gives numerous reasons why the list must be used with caution, but the results are interesting enough to comment on here. The 'top ten' authors with respect to total number of citations are Marx (cited almost 11,000 times in 4635 articles), Lenin, Shakespeare, Aristotle, 'the authors of the Bible as a group', Plato, Freud, Chomsky, Hegel, and Cicero. Eleven of the 250 are winners of the Nobel Prize for Literature: Beckett, Bergson, Camus, T. S. Eliot, Faulkner, Hemingway, Thomas Mann, Bertrand Russell, Sartre, Shaw, and Yeats. The list is also published in reverse chronological order by date of birth; some of the authors are literally 'classics'—for example, Homer, Hesiod, Aeschylus, Sophocles, Herodotus, Euripides, and Aristophanes.

AACR

Some of the practices of authors noted above cause problems for libraries, which are charged with providing descriptions of works in their collections to facilitate access to them, and with locating copies of items not held on site. To aid in these processes, librarians have adopted rules to help with names in library catalogues. These rules and standards are the subject of the Anglo-American cataloguing rules. The Rules determines matters such as the number of authors to be listed in cases of multiple co-authorship (a limit of three); the treatment of 'corporate' works (those that do not indicate a personal author, but emanate from government departments or agencies, com-
mittees, institutions, companies, associations, or the like); and the way in which all kinds of 'problem' names (such as those with compound surnames, those of saints, titled persons, and so on) are to be presented in the catalogue. This last function is important since it has to do with location in alphabetical listings. Standards for the transliteration of non-roman names are specified so that different versions of the same name can be brought together: Čexov/Chekov/Tschechow/Tsjechov; Mao Tse-tung/Zedung; Khadafi/Gaddafi, and so on.34

Wilmanns describes a project for indexing and standardizing the multiple Latin and German names of medieval authors. Examples include seven variant names for a master-singer called Michael Beheim, and ten for Abbot Bernard of Clairvaux, including the delightful 'Bernhardus Mellifluus' and its German cognate 'Bernhard der Honigfließende'.35

The Library of Congress has developed an online authority file, which provides cross-references for pseudonyms or other variant names used simultaneously or consecutively by authors. An authority file also helps to distinguish between authors of the same name. At one time, librarians used to have to do all this work themselves; now it may be carried out automatically by means of computer access to the online authority file. Occasionally a strange entry in the catalogue is the result, as happened recently at the University of Texas at Austin. A reader searching for a recording by the pop singer Madonna found that it was listed under 'Mary, Blessed Virgin, Saint,' the Library of Congress authorized entry for the Madonna. The computerized library system had consulted the authority file and automatically made the change.36

Problems also exist for abstracting and indexing services trying to identify individual authors whose names may appear in variant forms in scientific and scholarly journals—for example, with forenames in full or with initials only, as dictated by editorial style. A ‘Standard Author Number’ on the lines of the International Standard Book Number has been suggested from time to time. One person to suggest this was Blanken, in 'The preparation of internal author indexes': ‘After noting the almost insurmountable difficulties that the English-speaking indexer faces in determining the proper entry element and format for some foreign personal names, the reader may well feel that more serious attention should be given to a radical solution such as assigning arbitrary numbers to all authors the first time they submit a paper for publication.’ In the absence of such a system, some services present names as they appear, or reduce all forenames to initials, for consistency. Some make greater efforts: the Chemical Abstracts Service uses a computer-aided system to match names awaiting indexing with those already in an author master file. The system also provides some cross-references, typically for compound surnames.37

There are obvious dangers in placing too much trust in machines to perform work formerly done by human beings. All the same, experiments in automating cataloguing processes continue. Svenonius and Molto recently showed that a computer could successfully recognize a high proportion of the names of authors, editors, and compilers from machine-readable title-page data for English-language monographs. In effect, the computer could distinguish them from the names of translators, illustrators, people who had contributed forewords, and others on the title page.38

Computer programs can also be incorporated into online catalogues to compensate for users' errors and to make allowance for the different approaches people take to searching for authors' names. Dickson suggests incorporating spelling checkers for names; programs to search for alternative segments of names if the segment keyed in yielded nothing (as in searching for 'William Shakespeare' under W); programs that would search for a forename as an initial if the full name yielded nothing; and display of portions of the name index to permit browsing.39 Some catalogues already provide these functions.

For those who are interested in weird and wonderful authors' names, the definitive source is Bizarre books.40 Here may be found sections entitled 'Unlikely Books by Authors with the same Names as the Famous and Infamous', 'Extraordinary Authors' Names', and 'Authors Whose Names Are Remarkably Appropriate—or Totally Inappropriate—to the Subjects of Their Books.' If you have read this far, you will most certainly enjoy Bizarre books.

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References and notes
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A recent article in _Nature_ (357, 7 May 1992), ‘The complete DNA sequence of yeast chromosome III’, nine pages long, lists 147 authors each with a superscript number referring to the institutions listed at the foot of the page. The two-line title is 16 mm deep; the block of authors’ names, 53 mm; the abstract, 30 mm; text on the first page of the article (double-column), 87 mm; and the double-column institutions list, 34 mm. The contents list attributes the article to ‘S. G. Oliver et al’ he being the first author listed, though not first alphabetically.

□ ‘The woman with the ludicrously beautiful figure whom we mocked and whom I had wanted to kick, presented me a few weeks later with eight volumes of Ruskin—Modern painters, _The seven lamps of architecture_, _The stones of Venice_ and—most enlightening of all—an index.’

—from _A cab at the door_ by V. S. Pritchett (Chatto & Windus, 1979)