INVITED COMMENTARY

SOME THOUGHTS AND REFLECTIONS ON AUTHORSHIP

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Everybody enjoys seeing their name in print and those working in the field of biomedical alcohol research are certainly no exception. Indeed, learning to write scientific papers and getting them published is an important part of the training for a higher degree, such as MD or PhD in the British university system. Success in research or academia depends heavily on a person’s publication record. Promotion from lecturer to senior lecturer in Britain or from assistant to associate professor in the USA depends on the amount of published work (quantity and quality), the ability to attract external funding (grantsmanship), and the supervision of graduate students in their research. Moreover, a long and sustained publication record eventually brings with it invitations to attend international conferences as a keynote speaker, membership of editorial boards and learned societies, and for a lucky few the award of prizes and medals of various dignities.

Those who reach the top in science and academic medicine almost always have an impressive bibliography, often listing 100–200 papers or an average of 4–6 papers a year for a career spanning 30 years. Indeed, there is a small group of scientific elite who have accumulated over 1000 papers (Kantha, 1992). A list of the top-20 most prolific scientific authors in the world between 1981 and 1990 was published by Andersson (1992) and leading the pack was a Russian chemist, Yury Struchkov, who was credited with having his name on 948 papers over this period or a new paper every 3.9 days; quite an achievement!

PUBLISH OR PERISH

Publications have become so important in generating funding and winning prestige that some research groups in the USA employ in-house editors with responsibility, among other things, for preparing manuscripts for publication. This often entails working with a rough draft of a manuscript, brushing-up the prose, checking the spelling and preparing a final version of the work, making sure that the layout and the list of references match the format required by the target journal. By submitting a neat and well-written manuscript you are well on the way to appearing in print. The knack of getting articles published in prestigious journals with high impact factors is a prerequisite for success in research. This leads to bigger and longer-running grants, more postgraduate and postdoctoral students, and a barrage of visiting scientists eager to join the department. All this helps to maintain a steady flow of publications. Rennie and Flanagin (1994) compared publications to coins that academics must have and use to advance their careers. Success in the academic environment necessitates that these coins are counted and sometimes weighed. But the coins also have different denomination or value: original articles published in peer-review journals count most, followed by critical reviews of the literature and case reports, short communications, and letters to the editor being lower in worth. Finally, papers in congress proceedings and abstracts count least and these might be excluded from the curriculum vitae.

QUESTIONABLE AUTHORSHIP PRACTICES

The increasing drive to publish has brought with it certain undesirable effects including the phenomenon of ‘gift authorship.’ This trend is particularly evident in biomedical and clinical
journals and the well known 'Darsee affair' in the USA (Stewart and Feder, 1987), or more recently the 'Pearce affair' in Britain (Smith, 1994; Lock, 1995) are cases in point. Besides the award of honorary authorship these incidents involved fabrication of data, that is, reporting work that had not been done, with serious consequences for many of those involved (Lock, 1995). Several studies have shown a definite increase in the number of authors appearing on papers published in scientific journals over the past 50 years (Strub and Black, 1976). At the turn of the century, 80% of scientific papers had a single author and the remainder had two authors; usually the PhD candidate and his or her research supervisor (Price De Solla, 1963). In 1930 an average of 1.5 authors appeared on the articles published in medical journals compared with 4.5 authors in 1975 (Durack, 1978).

Awarding co-authorship to your best friend or colleague provided that he or she puts your name on their next paper sounds ridiculous, but does happen. Although this is a sure way to expand your bibliography it is considered a deplorable practice bordering on research misconduct (Jackson and Prados, 1983; Croll, 1984). Rewarding your loyal and hard-working laboratory assistant with co-authorship should also be frowned upon. Adding the name of a junior colleague to a couple of minor papers to get him or her started in research is a dubious practice likely to backfire. The famous or infamous British psychologist Sir Cyril Burt was accused of inventing the names of co-authors on some of his publications. These fictitious names were intended to convince readers that he (Burt) was still engaged in on-going collaborative studies such as gathering data on IQ scores of twins and siblings when in fact this work had ended long before. The statistician and chemist W. S. Gosset published important papers under the pseudonym 'Student' because of various links he had with an industrial company, namely the Guinness brewery. The notion of ghost authorship has recently been discussed (Brennan, 1994). Here a team of professional writers, normally working under contract to a pharmaceutical company, review the literature and prepare articles or editorials dealing with the efficacy of various drug products. A well-known physician-scientist is then invited to read through the piece, hopefully agreeing with its contents and conclusions and signing the article for publication. Besides a generous honorarium for the effort, the individual concerned can add another number to his list of publications.

**INDIVIDUAL CONTRIBUTIONS TO MULTI-AUTHOR PAPERS**

The common practice of the professor or group leader automatically adding their names to every paper emanating from their department is generally considered an unethical practice bordering on fraud (Altman and Melcher, 1983). However, these senior scientists are often directly responsible for obtaining the funding to conduct the research. This contribution can be acknowledged in a more appropriate way, e.g. by a statement appearing on the front page of the paper, such as 'The research described here was supported by grants to, etc.' Encouragement and advice from colleagues, help with the statistical analysis of results or the loan of equipment or laboratory animals as well as technical assistance should also be recognized in the acknowledgements section and not with co-authorship.

Another way to attribute credit to individual names on the paper is to spell-out exactly what contribution each co-author made towards completion of the work so that readers can judge for themselves (Moulopoulos et al., 1983). The name of the person who suggested the study and who secured the necessary funding might be mentioned. The same applies to the person who wrote the first draft of the manuscript and did most of the experimental work. Others have echoed the call for giving more precise information about who contributed what to completion of the work (Rolland-Cachera and Fricker, 1989). It was suggested that this could be done under a series of headings on the first page, similar to film credits. Even if these suggestions have merit, if taken to the extreme, the name of the person who typed the manuscript and drew the graphs might also be expected to appear on the paper.

The contributions of the individual authors to multi-authored research papers were recently investigated by sending a questionnaire to the first authors of a random sample of papers published in a limited number of biomedical journals (Shapiro et al., 1994; Goodman, 1994). The results showed that 25–33% of non-first authors had not
made a substantial contribution to the intellectual content of the work reported in the papers (Goodman, 1995). The ordering of the names on a paper is also a sensitive issue and the days when names were listed alphabetically are long gone (Broad, 1981; Burman, 1982; Riesenfeld and Lundberg, 1990). In general, the first author deserves most credit and presumably this person also wrote the first draft of the manuscript and acted as the corresponding author during the peer review process. The name of the senior scientist or head of department almost always appears last in the lineup of names. The contributions made by other names on the paper is open to discussion and probably depends on the particular research project and therefore might vary from a fairly significant contribution to virtually nothing at all (Burman, 1982; Croll, 1984; Shapiro et al., 1994; Goodman, 1994). In most cases, the person who writes the article should be the principal (first) author because this requires examining all original graphs and tables of results and also reviewing raw data contained in the laboratory notebooks.

EVALUATING AND JUDGING PRODUCTIVITY

The tendency toward 'author inflation' makes it increasingly difficult to attribute credit to the individual names on multi-author papers (Fye, 1990). This has created problems when making academic appointments or evaluating candidates for promotion or awarding research grants; in all these situations the applicant's publication track-record has become vitally important. For single-author papers it is obvious to whom the credit and responsibility belong. Guidelines are urgently needed for assessing individual contributions when several names appear or 'masquerade' as authors (Price De Solla, 1981; Farr, 1984; Conrad, 1992). Some suggestions have already been made along these lines, such as those of 'Parse Analysis' (Davis and Gregerman, 1969) and 'True Publication Index' (Johnstone, 1967). Although seemingly written in jest, the notion of calculating a 'True Publication Index' as proposed by Johnstone (1967) might need to be taken seriously.

When faced with the task of evaluating a person's bibliography, it is important to look at single-author papers both for quantity and quality. First and foremost the number of original articles describing innovative experimental work are counted and compared. Preparing a major review article is a challenging and time-consuming task, although these items in the bibliography receive much less attention than they deserve. The journal where the article is published and its impact factor in the scientific discipline concerned is worth noting, because high-ranking journals often have a rigorous peer-review process prior to acceptance for publication. However, in this connection, it would not be correct to compare the impact factor of an alcohol research journal with one specializing in biochemistry or cell biology (Jones, 1993). But regardless of journal impact factor, the value of a paper to a field can only be truly assessed by carefully reading the article concerned.

Look next at the number of first-author articles and the number of co-authors on each of these publications. It sometimes helps to identify the professional standing of the last author on the paper and also the corresponding author, which is often indicated in a footnote. The appearance of a well-known name or authority in the field as the last author of a manuscript is considered by some to ensure receiving a less demanding peer-review, if any at all. Chapters published in books and monographs are usually the work of a sole author and if these are written by invitation this affirms the respect and status of that person in his or her area of expertise. Writing letters to the editor and having articles published in the proceedings of conferences also indicates scientific activity and interest in the field. However, because such items are rarely peer-reviewed, they carry less weight compared with other items in a person's bibliography.

Much less credit should be given to co-authors other than the first name on multi-author papers and, indeed, a large number of co-authors diminishes recognition for the leading author. Some research groups list all the names in alphabetical order except for the first author, which emphasizes the importance of being listed first but also leaves open the question as to what exactly other individuals have contributed. When the names of several senior scientists or heads of departments appear on the same fairly trivial paper or report, this makes one wonder what exactly is going on.

LIMITING THE NUMBER OF AUTHORS

What can be done to curb the rush to publish and the dilemma of multiple authorship? Several
suggestions have been made such as listing only the first six names followed by et al. in reference lists of citing articles. This suggestion from the International Committee of Medical Journal Editors (‘Vancouver group’) has not worked well because many leading journals did not follow the recommendation (Epstein, 1993). A greater effect might have been achieved if only the first three names were listed or perhaps the first and the last name but this notion remains to be tested (Epstein, 1993). Another approach to curtail the zeal to publish was instigated by Harvard University when they set a limit of just 10 articles required for evaluation by those applying for appointment as a full professor (Culliton, 1988). This idea has spread elsewhere and medical schools in Sweden now require applicants for a full professorship to select 20 of their publications for special consideration by the external assessors.

Placing more emphasis on quality instead of quantity and giving extra credit for single-author papers might eventually inhibit and deter author inflation. The temptation to divide results from a single study into two or more short papers producing what have become known as ‘salami publications’ is a well-recognized technique used to enlarge the bibliography. Increasing the number of subjects or patients reported in successive publications or adding more data to previously published data and in this way producing a new paper is also a common ploy used to boost the list of publications. Articles such as these have been christened ‘meat extenders’ and ‘least publishable units’ (Broad, 1981; Buddemeier, 1981; Huth, 1986a).

GUIDELINES FOR AUTHORSHIP

The Vancouver group have promulgated what are known as uniform requirements for manuscripts submitted to biomedical journals. Among other wise words, the following recommendations can be gleaned about authorship of scientific papers:

All persons designated as authors should qualify for authorship. The order of authorship should be a joint decision of the coauthors. Each author should have participated sufficiently in the work to take public responsibility for the content. Authorship credit should be based on substantial contributions to a) conception and design, or analysis and interpretation of data; and to b) drafting the article or revising it critically for important intellectual content; and on c) final approval of the version to be published. Conditions (a), (b) and (c) must all be met. Participation solely in the acquisition of funding or the collection of data does not justify authorship. General supervision of the research group is not sufficient for authorship. Editors may require authors to justify the assignment of authorship.

In conclusion, I consider that all scientific journals should have a written policy or statement concerning authorship and this might be something to consider by the editors of Alcohol and Alcoholism. The Instructions to Authors could be easily updated to include the above suggestion from the Vancouver group or some other statement of requirements such as those proposed by Huth (1986b). Furthermore, the authors should be required to sign a statement vouching for the integrity of the data contained in the manuscript. Finally, it is worth remembering that all of the names on the article carry full responsibility for the work submitted and not just the corresponding author.

REFERENCES