# <sup>4</sup> Editing for the specialist

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A research experiment is not complete until the results are published. Every researcher builds upon the work of other researchers. Each new advance in knowledge adds to the total picture. If results are unpublished, or if they are published badly, the research has been wasted. If they are published slowly, further research suffers.

It is part of a researcher's job to report work fully, accurately, clearly, and promptly. Editors help in that process.

This module deals with some of the concerns in editing specialist publications. The first three units concentrate on journals and journal articles, because they are the most important means of communicating the results of research rapidly to other specialists. Much that is in those units will apply, however, to other forms of specialized publication.

This module should be read in close consultation with Modules 2 and 3. Graphs and charts are discussed in unit 6.3.

- 1 Journals
- 2 Editing articles: title, author, abstract
- 3 Editing articles: the text
- 4 Citations and references
- 5 Editing tables
- 6 Editing the proceedings of a conference
- 7 Editorial review

### 4.1 Journals

Researchers communicate with one another in many ways, including

- books (by a single author, or by several authors)
- journals
- · conference proceedings
- · bibliographies, indexes, and other reference works
- abstract journals (containing abstracts of articles and publications)
- synoptic journals (containing summaries longer than abstracts)
- reviews and review articles (reviewing new publications or trends in the literature)
- institutional publications (annual reports, books, research papers) including government publications
- technical bulletins
- papers given at conferences
- conference poster sessions
- letters
- conversations

With so many channels of communication, and so much research to be communicated, researchers need help. Otherwise they will be overwhelmed by the flood of information available and may miss reports that would help them in their work. They depend on personal networks to learn what is going on. They use bibliographies, and abstracting and indexing services, to learn what has been published. And, whether they recognize it or not, they depend on editors to see that the material they read is clear, concise, and accurate.

Editors may be involved in many ways. They may work closely with one author in preparing a book. They may edit the articles in a journal whose many authors are scattered in several countries; or they may help an author in their own institution meet the style and standards of a journal published elsewhere. Perhaps they edit a series of technical bulletins, all of which must have a similar structure although they are written by different authors. They may be asked to impose consistency in a bibliography, or to help a researcher prepare a poster for display at a conference.

**Primary publication** Among so many ways of communicating the results of research, the most important is the *primary publication*. This, as its name suggests, presents results for the first time to interested specialists around the world. It establishes officially who made a discovery first. It is the form of publication that brings its author the greatest prestige; it is given great weight by committees making appointments or promotions.

#### A primary publication

- contains information that is new-that has not been published before.
- is easily available through normal channels. Any researcher should be able to obtain a copy through a library or by subscribing or buying it. (The reports of many research institutions may be difficult to obtain worldwide, especially if they are cited without an address being given. For this reason some primary journals bend the first rule and will accept material that has previously appeared in a purely institutional publication.)
- usually depends on external experts, or referees, to assist the specialist editor in deciding what should be published.
- insists on accepted standards of good scientific writing. In its pages, research is reported in such a way that other researchers can repeat the experiment and check the results for themselves. Reference is made to previously published work on which the new work is based. The articles are logical, accurate, and consistent in style.

Primary publications may be books, journals, or reports. In the physical and life sciences, however, by far the greatest amount of primary publication is through journals. This seems to be increasingly true of the social sciences as well.

Because of the overwhelming importance of journals, they receive special attention in the next two units. But much of what is said there for example, about titles, authors, and abstracts—applies as well to other forms of publication for the specialist.

A journal is a publication with a continuing life that gathers together the work of many authors, according to its own editorial guidelines.

Journals vary greatly in quality and in nature. A journal may

- be general or highly specialized, although there has been a trend toward more and more specialization.
- be international, national, or local in content and readership.
- be published by a non-profit agency (such as a research institute) or by a commercial firm; as well it may be sponsored by a professional society, a university, or a research department.
- require subsidy or be self-supporting.
- appear every week, every two weeks, every month, every two months, every three months, every year, at some other stated interval, or even irregularly.
- use referees or depend solely on the judgment of the editor and an editorial board of experts.

A journal may be thin or fat in thickness and small or large in page size. It may contain many or few types of material. A journal may, for example, publish all of the following:

- · original articles reporting the results of research
- · short notes about research or research methods

### Many kinds of journals

- review articles, dealing with previously published material and research trends
- comments on published papers
- letters
- corrections
- editorials
- the business of a sponsoring society, including reports of its annual meetings or workshops
- book reviews
- advertisements
- · guidelines for authors
- synopses of articles that cannot be carried in full, or of papers given at a conference

### Standard structure for articles

Over many years, the editors of scientific journals have agreed on a standard form an article should follow. They feel that this structure meets the needs of their readers best.

There are some variations between disciplines and between journals within one discipline, but in most fields of the life and physical sciences this structure is normal. In slightly different form, it is also used in many of the social sciences.

Authors must understand and follow this structure if they wish to be published in national and international journals. Editors must understand it if they want a journal they edit to meet international standards.

The structure may seem complicated. rigid, or arbitrary. In fact, it has been developed carefully through trial and error and experience. There are reasons for most of it. Authors will accept its rules better if they understand the reasons.

The basic parts of a scientific article are the

- title
- author
- abstract
- text
  - introduction
  - materials and methods
  - results
  - discussion
- references
- notes
- acknowledgments

These are discussed in the following units.

### 4.2 Editing articles: title, author, abstract

Authors naturally spend most of their writing time on the text of an article. Before that they concentrate on the research the article reports. They may spend relatively little time on what comes before the text. Yet these are the words that will most likely determine whether or not the paper is read.

Researchers do not pick up a journal and read it from start to finish. There are too many journals and too little time. They look first in the table of contents for interesting titles or authors. They will likely read the abstracts of articles that interest them. They may stop there, or they may go on to look at the tables and figures. Only if an article has unusual interest, or holds special promise for their own work, are they likely to read all of it.

Most journals do not get read even in this way. More and more researchers depend on secondary sources to find papers of value to them. These may be a periodical that publishes the tables of contents of other journals, or a carefully annotated and indexed printed bibliography, or a bibliographic database that can be searched electronically from a computer terminal. Secondary sources usually contain only titles, names of authors, publication data, and perhaps abstracts; very few to date contain the full text.

The more researchers depend on searches through secondary sources, the more important it is to make sure the contents of those sources are accurate and effective.

The title is likely to be reprinted in bibliographies and subject indexes, stored in bibliographic databases, and cited in other articles. On the basis of the title alone, future researchers may seek or ignore the full text. A poor title may prevent future researchers from finding important information.

A good title for a research report

### Qualities

- contains as few words as possible (many journals limit titles to 25 words; some want fewer).
- describes the contents of the paper accurately.
- describes the subject as specifically as possible within the limits of space.

- avoids abbreviations, formulas, and jargon.
- usually omits the verb.
- is as easy as possible to understand.
- contains key words, for the benefit of information retrieval systems.

## Things to watch Cut unnecessary words in titles. In particular, delete words like "Some notes on . . . " or "Observations on . . . " or "A consideration of. . . " Such phrases add nothing. Make the title get to the point.

Reject or revise titles that depend on allusion to a literary work or that involve metaphors. These are all right in literary journals or poetry. There is no place in a research paper for a title like "Man does not live by bread alone: the nutrient value of IR64 rice."

Make sure the title is accurate and specific. It should describe the research clearly. Revise titles that are too general in wording.

Be sure the title does not promise more than what is in the article or make the article sound more important than it is. A small experiment should not appear too general in significance. Normally titles report the subject of the research rather than the results or conclusions.

Make sure that as many as possible of the key words from the article appear in the title. These are words that will be used to index the article or to find it through computer searching.

Make sure that the most important words in the title stand out—usually by being the first words.

Make sure that the title follows the preference of the journal. Some journals like titles that are a single statement ("The relationship of brevity and readability in titles"). Some like titles that have a title and subtitle joined by a colon ("Readability in titles: the impact of brevity"). Some use either style. A few prefer titles with verbs ("Short titles are often easier to read").

Here are some examples of unsatisfactory titles, all for the same paper:

- Protein in rice
- Notes on Indonesian rice as a source of protein
- Some observations on the PER and other qualities of six Indonesian rices
- Rice: truly the staff of life
- Judging nutritional value in rice
- Our investigations will help monitor future improvements in rice quality
- Protein quality and properties evaluated using solubility fractionation, electrophoreses, and gel filtration in Rojolele, Rendah padang, Serayu, Semeru, and Cisadane High and Normal protein rices
- In improved varieties of rice, we found that protein quality declines but protein quantity rises faster

The editor of the *Indonesian Journal of Crop Science* avoided all these traps and gave the paper the following title:

• Evaluation of protein quality and properties in six varieties of Indonesian rice

The names of the authors should present no problems. After all, authors know their own names and how to spell them. In fact, these few words can cause considerable discussion and even argument.

#### Authors' names should

- be complete enough to ensure proper identification. Many journals use only initials and the last name. If there is any chance of confusion, encourage authors to use their full first name plus initials. There may be several agricultural engineers named A. Khan, for example, but probably only one named Amir U. Khan. Proper identification is important to avoid errors in bibliographies and computerized information retrieval systems.
- include only people who are truly authors.
- list the authors in a logical order. The simplest order is alphabetical. Alternatively, the names can appear in order of the importance of each author to the work being reported.
- be followed by an address for each author. This may simply be the name of the institution where each author works. Some journals like to include a full postal address, at least for the senior author, so that readers can write for more information. The information may appear immediately after the names, or as a footnote on the title page, or as a note at the end of the article. Sometimes an author move to another institution; in that case the main entry should give the name of the institution where the work was done, followed by the author's current address, possibly in a footnote. It is no longer customary to print an author's academic degrees.

Names rarely need much editing. Just make sure they follow the style of the publication. Does that style call for full first names or initials? How should the order of names be decided?

If you have any doubts about the spelling of an author's name, doublecheck it. An unusual name could be a typing error.

Editors sometimes are asked to help authors who cannot agree on who should be listed or in what order the names should appear. Wise editors do not take sides but may offer advice. Rules have been developed for these questions. Here are some of the most important:

• Only people who have made an important contribution to planning and carrying out the research should be shown as authors. An important contribution means being involved in conceiving or designing the

### Authors

### Qualities

### Things to watch

research, or in analyzing and interpreting the data, or both. Someone who simply gave advice, or who helped collect data, should not be listed as an author but can be acknowledged in a note.

- Anyone listed as an author should also have helped to draft the article or have revised important parts of it.
- Technicians and other helpers should be mentioned in the acknowledgments. They should not appear as authors unless they have made a major contribution. (A technician who simply follows instructions should not be listed as an author; but a technician who makes an important suggestion that solves a problem might be considered a junior author.) Collecting data is not important enough to make a person an author.
- Each co-author should give final approval to the version to be published. The editor may wish to have this confirmed. Sometimes one author is too eager to have a paper published and submits it without consulting the other authors. This can create real problems if the article gets into print.
- Unless the names appear in alphabetical order, the first person listed is considered the senior author. This is usually the person who had the original idea for the experiment and led the investigation. Or it may be the person who did most of the research and the writing. Others may be listed in order according to the importance of their contribution to the experiment.

The head of a laboratory or institute may wish to be considered an author of all papers coming from that organization. This isn't something to fight. One proper place is as the last author (which is recognized also as a place of importance).

If you have a chance, urge the authors to agree on the order in which their names will appear before the study begins. They may decide to change the order if one of them makes a greater contribution than expected; but at least they have an agreement to begin with.

The battle to get listed as author is no joke, because it can mean promotion. A veteran editor named Robert Day recalls one paper 12 paragraphs long that had 27 authors!

Abstract Abstracts (also called summaries) usually appear at the beginning of the article, but may come at the end. Sometimes abstracts are published in two languages. A journal published in Malaysia in English may contain abstracts in both English and Bahasa Malaysia, for example; a journal published in China in Chinese may include English-language abstracts. In this way the most important information reaches a wider readership.

### Qualities A good abstract

• is short. Most journals limit abstracts to 200 words, or fewer. Some say it should be no more than 5% of the length of the paper.

Indonesian Journal of Crop Science, 1985, Vol. 1, No. 2, pp. 93-104

#### Maize response to phosphorus application at different levels of residual phosphorus in a Paleudult and a Eutrustox

I Putu G. Widjaja-Adhi<sup>a</sup>, M. Sudjadi<sup>a</sup> and J.A. Silva<sup>b</sup>

<sup>a</sup> Centre for Soils Research, Jalan Juanda 98, Bogor, Indonesia and <sup>b</sup>Department of Agronomy and Soil Science, University of Hawaii, Hawaii, USA

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#### Abstract

Two experiments were conducted, one on a Typic Paleudult in Lampung, Indonesia and the other on a Tropeptic Eutrustox in Molokai, Hawaii to assess the responses of maize to phosphorus application at various levels of residual phosphorus in the soil. Different levels of residual phosphorus or classes of soil-test values required different response equations to formulate fertilizer recommendations. Within a soil family, information on maize response to phosphorus application is transferable, if the change in soil fertility due to previous soil management can be defined by testing for soil phosphorus.

[Keywords: Agrotechnology transfer; Fertilizer, phosphate; Maize; Phosphate, applied; Phosphate, residual; Tropeptic Eutrustox. Hawaii; Typic Paleudult, Indonesia; Zea mays]

#### Abstrak

Respons tanaman jagung terhadap pemberian pupuk fosfor pada berbagai tingkat residu fosfor dalam tanah Paleudult don Eurrustox

Dua percobaan diselenggarakan, satu pada suatu tanah Typic Paleudult di Lampung, Indonesia dan yang lainnya pada suatu tanah Tropeptic Eutrustox di Molokai, Hawaii. Tujuan percobaan adalah untuk menduga respons tanaman jagung terhadap pemberian pupuk fosfor pada berbagai tingkar residu fosfor dalam tanah.

Hasil percobaan menunjukkan bahwa setiap tingkat residu P atau setiap kelas nilai uji tanah memerlukan persamaan respons pemupukan yang berlainan guna merumuskan dosis rekomendasi. Dalam suatu famili tanah pengalihan informasi mengenai respons jagung terhadap pemberian fosfor hanya dapat dilakukan, jika perubahan kesuburan tanah akibat pengelolaan tanah sebelumnya diketahul. Untuk itu uji tanah hara Pdiperlukan.

#### Introduction

Crop response to phosphorus application has been reported frequently for various tropical soils. Lathwell (1977) reported results of several studies of phosphorus response on Oxisols and Utisols. These soils are deficient in available phosphorus in their native states and require phosphate fertilizers for optimum crop yield when first brought into production. Yost *et al.* (1979) found that the response on a highly weathered soil in Brazil was influenced by placement methods and rates of application. Harris (1980) reported the results of a study on rates, placement and sources of

• is written in normal language. Words should not be omitted to save	
space, as they are in cables. There are other ways to be brief.	

- stands on its own. It will be read separately from the paper, in publications like *Biological Abstracts* or more specialized services like the Southeast Asian Weed Information Center newsletter *WEEDWatcher*. The abstract must be complete in itself.
- reports the objective' of the research; its extent or scope; the methods used (by reference if they are standard, or described briefly if they are not); the main results, including any newly observed facts; the principal conclusions and their significance.
- contains all the key words by which the paper should be indexed. These are sometimes listed as well in a short separate paragraph beneath the abstract.

Things to watch Make sure the abstract is no longer than necessary—amdo longer than the publication permits. Cut all unnecessary words. Prune ruthlessly.

Make sure it contains all the necessary information. If space allows, it should include all new items and observations, even if they are not central to the paper's purpose; that information might be useful to other people.

Make sure the abstract can stand alone. Delete

- references to tables or figures that appear in the paper.
- abbreviations or acronyms unless they are standard or explained.
- references to literature cited. If a publication must be mentioned, reference should be in full (author, title, journal, date, etc.)
- any information or conclusions not in the paper itself.
- general or fuzzy statements or adjectives. Make sure findings are given as hard facts.

This kind of abstract is normal for reporting new research. A broadranging review article might require a different kind of abstract: a table of contents that describes the topics covered in the paper. Such an abstract does not stand on its own, but does indicate exactly what kind of information the article contains.

Abstracts are often set in a different size or style of type than the main text. In that way they are easy to recognize. Strangely, however, they are often set in a smaller size than the rest of the article. This makes them harder to read, and that seems to conflict with their importance. Editors might think about this when considering the design of their publications.

**Dates** Many journals report, near the title, the date the manuscript was received in the editorial office and sometimes the date it was accepted for publication. This infomiation is not essential, but it can help establish exactly who was the first to discover something new. It also indicates when the research was done, which may be important if there has been a long delay in getting it published.

### 4.3 Editing articles: the text

The text of a research report should follow the rules of all good writing. The information in itself may be complex and technical; the language should not make communication still more difficult. Long words and long sentences do not make research important. Some authors think otherwise. They may tell an editor who has simplified their prose: "That may be what I mean but it doesn't sound scientific!" They are fooling themselves, Good scientific writing is straightforward, clear, concise, and vigorous.

The structure of research reports varies slightly from discipline to discipline and from journal to journal. This unit considers four major sections of a paper: Introduction, Materials and Methods, Results, and Discussion. Some journals have a further section called Conclusions. Others follow the Materials and Methods with a section called Results and Discussion, followed by Conclusions. This last system has one disadvantage: the reader may find it difficult to separate actual results and the author's interpretation.

The introduction should be relatively short. It is often too long in manuscripts, especially in papers from conferences. The introduction indicates what is of interest in the paper and why the author carried out the research. It also gives the background the reader needs to understand and judge the paper. In a primary journal, the author should not need to explain why the research is important. If it is important, a fellow scientist should recognize that fact.

#### A good introduction

- defines the nature and extent of the problem studied.
- relates the research to previous work, perhaps by a brief review of the literature. This should include only publications that are clearly relevant to the subject of the paper.
- explains the objectives and method of investigation, including, if necessary, the reason why a particular method was chosen.
- introduces the logical order of discussion that will be followed in the rest of the paper.
- states the principal results of the investigation.
- defines any specialized terms or abbreviations to be used in what follows.

### Introduction

### Qualities

Things to watch	The editor must make sure that
	<ul><li> the author leads logically to the hypothesis or principal theme.</li><li> the hypothesis is clearly stated.</li><li> the introduction does all that it should in no more than a couple of typewritten pages.</li></ul>
Materials and methods	In reporting the materials and methods used in the research, the author must provide all the information that will allow another researcher to judge the study or actually to repeat the investigation and test the results.
Qualities	The content will vary depending on the nature of the experiment and the discipline. As appropriate, however, this section should include
	<ul> <li>the design of the experiment.</li> <li>any plants or animals involved, with exact descriptions (genus, species, strain, cultivar, line, etc.).</li> <li>the materials used, with exact technical specifications and quantities and their source or method of preparation. (Generic or chemical names are better than trade names, which may not be universally recognized.)</li> <li>the assumptions made.</li> <li>the methods followed, usually in chronological order, described with as much precision and detail as necessary. (Standard methods need only be mentioned, or may be described by reference to the literature as long as it is readily available. Modifications of standard techniques should be described. If the method is new it should be described in detail. Methods of interpreting data should be described as well as methods of finding data.)</li> </ul>
Things to watch	Many editors find this section demands special attention. Even if they are not specialists in the subject under discussion, they may sense that the explanation is not completely clear. They may then have to help the author untangle thoughts.
	Explaining how something is done. clearly and briefly, is one of the most difficult tasks in writing. That is why cookbooks are hard to write and good cookbooks are hard to find. A good recipe is a model of reporting materials and methods.
	The simplest way to organize this section is usually chronologically. If the writing is confused, ask the author to set down just what was done, one step at a time, leaving nothing out.
	Be sure that the writing is clear and detailed enough to be followed by any competent researcher in the same field. Watch that

- there are no ambiguities in abbreviations or names.
- all quantities are in standard units.
- all chemicals are so specifically identified that another scientist can match them exactly in repeating the work.

<ul> <li>every step is stated, including the number of replications.</li> <li>all techniques are described, at least by name if they are standard or in as much detail as needed if the author has modified a standard technique or devised a new one.</li> </ul>	
• nothing is included that does not relate to the results that follow. (Sometimes authors include steps that relate to results reported in another paper.)	
• there are no unnecessary details that may confuse the reader.	
The results are the core of the paper. This section presents the data the researcher has found.	Results
Well-presented results	Qualities
<ul> <li>are simply and clearly stated.</li> <li>report representative data rather than endlessly repetitive data. (As a 19th century geologist said: "The fool collects facts; the wise man selects them.")</li> <li>reduce, large masses of data to means, along with the standard error or standard deviation.</li> <li>report repetitive data in tables and graphs, not in the text.</li> <li>repeat in the text only the most important findings shown in tables and graphs.</li> </ul>	
<ul> <li>include negative data—what was <i>not</i> found—if they affect the interpretation of results. Otherwise, negative data are omitted.</li> <li>give only data that relate to the subject of the paper as defined in the introduction.</li> <li>refer in the text to every table and figure by number.</li> <li>include only tables, figures, and graphs that are necessary, clear, and worth reproducing.</li> </ul>	
The editor must read the text critically to make sure it meets these criteria. Cut	Things to watch
<ul> <li>repetition of data.</li> <li>unnecessary negative data.</li> <li>data that do not relate directly to the objectives of the study.</li> <li>unnecessary figures or graphs—and any that are not referred to.</li> <li>unnecessary words. (Watch especially for sentences that begin: "Table 5 shows that " Tables don't show anything. Cut those</li> </ul>	

words, and put the reference to the table in parentheses at the end.)

The reader will usually follow the results more easily if they appear in the same order as the objectives were given in the introduction.

Discussion	In the Discussion section, the author explains what the results mean and
	their implications for future study.

### Qualities A good discussion

- does not repeat what has already been said in the review of literature or in the results.
- relates the results to the questions that were set out in the introduction.
- shows relationships between the facts observed during this investigation.
- shows how the results and interpretations agree, or don't agree, with previously published work.
- discusses theoretical implications of the work.
- states conclusions, with evidence for each.
- indicates the significance of the results.
- suggests future research that is planned or is needed to follow up the results.

Things to watch The editor must judge whether readers at this point will say "So what?" If they might, the author has not done an adequate job. The discussion is the most difficult part of any paper, and the one that editors most frequently ask to have revised.

Ensure in particular that the author has

- dealt with each of the originally stated objectives.
- in organization, followed the order of the original objectives.
- introduced previously (most likely in the introduction) the subject of each conclusion, so that none comes as a surprise.
- avoided unnecessary detail or repetition from preceding sections.
- reported previously all methods, observations, or results referred to in this section. This is not the place to mention them for the first time.
- interpreted the results and suggested their implications or significance for future work.

**Footnotes** Footnotes (notes at the bottom of the page) should be avoided in general. They break the reader's flow of thought, and they add to the cost of printing.

> Some journals give references in footnotes. This practice has almost disappeared in the sciences. however, and seems to be growing less in other disciplines. When notes are used to cite references, it is usually more economical to group them at the end of an article or book than to insert them separately, one or two at a time, at the bottom of each page.

Footnotes are more often used to provide information the author feels is important but would interrupt the flow of discussion. An editor can often find ways to insert such notes into the body of the text. often by putting them in parentheses. If a statement is worth making, it is usually worth making in the text.

Footnotes are indicated in the text by a superior number  $(^{1.2})$ . a superior letter  $(^{a,b})$ , or a symbol  $(^{*,+})$ .

Footnotes should be typed on separate sheets of paper, not at the bottom of manuscript pages. They will likely be typeset separately from the main text, and if they are grouped together in this way they can be set more economically. They should be double-spaced so they will be easier to edit and set.

Footnotes may be used for some essential information like the address(es) of the author(s).

Watch for footnotes that may be fascinating but do not add to the argument. They should be deleted.

Acknowledgments form a separate section of the article in many journals. Here the author has a chance to thank any institution or individual who helped significantly in the investigation. This may include a granting agency that supplied funds, a laboratory that supplied space or materials, or a person who gave advice. The acknowledgments are also a suitable place to recognize that a paper arises from a thesis. If no separate place is provided for acknowledgments, they may have to be included in the introduction or as an endnote. Things to watch

### Acknowledgments

### 4.4 Citations and references

	Authors support their arguments by citing previously published material. Readers may want to refer to those publications, to get information for their own purposes or to check the author's use of the cited material.
	To serve the reader, citations and references must be clear and accurate. They are easier to use if they are consistent in style as well.
	Most publications and most editors have definite preferences in the way they cite references in the text and list references at the end of articles. One person looked at 52 scientific journals and among them found 33 different systems being used.
Citations	Three main systems of citation are used in scientific publication today. Within these systems there may be many variations. The main systems are
	<ul> <li>name and year (also called author-date)</li> <li>number</li> <li>number, with references in alphabetical order</li> </ul>
Name and year	In the first system, the name(s) of the author(s) and the year of publication are fitted into the text. Both may be in parentheses, or only the date may be in parentheses, depending on the sentence structure.
	A recent study suggests that the refereeing system works effectively (Lock and Smith 1986).
	Lock and Smith (1986) support the view that the refereeing system works effectively.
	Sometimes the page number must be included as well.
	Papers published in the <i>BMJ</i> had significantly more citations in the years up to 1984 than either of the groups of rejected papers (Lock and Smith 1986, p. 312).
	If there is more than one reference with the same author(s) and year of publication, a lowercase letter is added to the date.

(Lock and Smith 1986a), (Lock and Smith 1986b), etc.

At the end of the paper, all references that have been cited are given in full. They are listed in alphabetical order according to the last name of the author. If there is more than one author, alphabetical order is decided by the name of the first author in the reference. If there are two or more items by the same author(s), they are arranged chronologically.

*Advantages.* The author or editor can add or remove references easily. The reader knows immediately who wrote the work cited, and when it was published. Works by the same author are listed together.

*Disadvantages.* The reader may find that the references interrupt the flow of the text. This may not always be a problem: specialist readers will know many of the authors, at least by reputation, and will not mind being reminded who said what. When many works are cited at one time, however, as can happen in the introduction, the system can be more distracting: in such cases the reader may have to skip several lines of continuous names and dates before returning to the argument. For the publisher, this system adds extra words and figures that have to be set and therefore increases the cost.

In the second system, references are numbered in the order they are mentioned in the text. In some journals, the name(s) of the author(s) may be given as well.

### Number

As Stainton says, long, learned notes are regarded by many authors as the essential insignia of scholarship—and by many readers as 'Do not enter' signs (9).

Scientific papers are not designed to be read; they are designed to transmit information. Any real deviation from the standard mold will be likely to inhibit easy grasp of the information by the reader (Day 3).

The work referred to keeps that number every time it is cited throughout the text, even if it is cited several times at widely separated points.

(This is different from an older system of consecutively numbered notes, still used sometimes in the social sciences and in the humanities. In that system, each reference, even to the same work, involves a new, individually numbered note.)

At the end of the paper, all references that have been cited are listed in numerical order.

*Advantages.* The publisher saves money in typesetting. Readers can skip over the numbers easily. They can find the references quickly in order as they appear in the text. The system is especially good for articles or other short manuscripts that have few references.

*Disadvantages.* If the author or editor decides to add or remove a reference, the entire manuscript must be renumbered following that change: this can be a big job, especially if several such changes are made. The reader may find that, in the list of references, works by the same author are separated. Both reader and editor may find it difficult to

check the list of references for the work of any single author, since the references are not in alphabetical order.

#### **Number with** alphabetical references The third system combines the advantages of both previous systems. All references are first placed in alphabetical order according to author. Then they are numbered in that order. These numbers are used for citations in the text.

*Advantages.* The publisher saves money in typesetting. Readers can skip over the numbers easily. References are listed in alphabetical order.

*Disadvantages.* The author or editor will have to renumber the references and citations if any references are added or removed from the alphabetical listing. Some readers may be troubled by the fact that citations will not appear in the text in numerical order.

## **References** Each reference must be described in detail at the end of the article. The list is usually headed "Literature Cited," or "References Cited," or simply "References."

The list of references should include only works that are 1) actually cited in the paper and 2) actually published or, if not published, are available in libraries or from the author or an organization. Personal communications should be referred to in the text but not in the listing of the literature.

Delete any references that are not cited. Question any that do not make it clear how they can be obtained by a reader.

There is fairly general agreement on what each reference should contain and editors should make sure that all necessary data are present. Editors should not have to check the accuracy of the information, but should make sure the author has double-checked it. If there is any doubt about this, it is wise to spot-check some of the references at a library.

### Articles A reference to a Journal article should contain

- names and initials of all authors (although, if there are many authors, some journals will list only the senior author *et al.*)
- title and subtitle
- name of the Journal (usually abbreviated)
- volume number
- first and last page numbers
- year of publication
- month or number of issue, if pages are not numbered consecutively through a volume

Lock, S., and J. Smith. 1986. Peer review at work. Scholarly Publishing 17:303-16

#### A reference to a book should contain:

- names and initials of all authors
- title and subtitle
- number of edition, if there is more than one
- · name and initials of editor or translator, if any
- place c f publication
- name of publisher
- year of publication
- volume number, if more than one
- page numbers, if any need to be cited specifically

Stainton, E.M. 1982. Author and editor at work. Toronto: University of Toronto Press. p.17

For the proceedings of symposia, conferences, and workshops, references should include

### Proceedings

Books

- names and initials of authors
- title of paper
- · names and initials of the volume editors
- title of symposium or conference
- date and place of meeting
- place of publication
- name of publisher
- year of publication
- numbers of specific pages

Day, R. A. Writing in the basic sciences. In Scott, J.T.; Heumann, K.F.; Langlois, E.G., eds. Scholarly communication around the world: proceedings of a joint global conference sponsored by the Council of Biology Editors, International Federation of Scientific Editors' Associations, Society for Scholarly Publishing; 15-20 May 1983; Philadelphia. Washington, DC: Society for Scholarly Publishing; 1983:33-4.

While editors agree on the content of references, they do not necessarily agree on the form.

Variations

Some publications print the titles of books and journals in italic, and the titles of chapters and articles in roman within quotation marks. Some put capital letters at the beginning of every word in a title. Some put "p." in front of a page number. In the sciences, these practices are going out of fashion. Most scientific publications separate the elements of a reference by periods but not by typographic style. More and more use "down-style" in titles, and use capital letters only as they would in a normal sentence. More and more prune the references of all unnecessary letters.

The placing of the elements also varies from publication to publication. In some the date is put immediately after the author(s), as in the first two examples above. This is particularly valuable if the name and year system of citation is used. In other publications the date is at the end.

Many publications list the names of all authors if there are no more than two or three. If there are more than that, they list only the senior author *et al.* 

Some journals, particularly in the health sciences, have reduced punctuation to a minimum. They have dropped the periods after initials in authors' names, and have even removed the space between initials (thus Smith, J.L. becomes Smith J L). Others omit the periods but keep the space (Smith J L). Still others follow more traditional punctuation and spacing.

To save space, many publications use abbreviations for journal titles. A number of abbreviations have become standard.

Some publications give the first and last page numbers of articles. This helps the reader order copies through a library service. It also tells the reader how long the article is.

Citations and references are one of the most complicated areas of editing. It can also be one of the most time-consuming, if authors submit manuscripts with inaccurate or inconsistent references. Editors should not get unduly lost in the finest points of punctuation and style: what is important is that the reference be clear and accurate. The examples in this unit suggest some of the many possible variations. For other examples and more detailed instructions, refer to a good style guide, or study a journal or other publication you would like to copy.

### 4.5 Editing tables

Editors sometimes accept authors' tables uncritically. They may feel that tables are too sensitive to edit. In fact, tables deserve just as much editorial attention as text. Many researchers read them before reading the text; they may even consider the tables the most important part of a paper. A good table is worth hundreds of words. A bad table may confuse more than it communicates.

Here are some questions an editor might ask about any table included in a manuscript. The advice follows rules generally accepted in scientific publication.

*What is the purpose of this table?* Is the author using it to present the results of research to other specialists? Is it providing data primarily for future reference? In the first case, a table should be designed for easy understanding: numbers may be rounded and results combined so that relationships can be quickly seen. In the second case, there should be more emphasis on precision and ease of finding specific data.

*Is this the best way to present the data?* A table presents large amounts of detailed information in a small space. It makes it easy to see relationships of data within the table, and to compare that information with data presented elsewhere.

Broad trends and interrelationships can be shown more clearly in a graph, however.

The information in a small table often can be presented more easily, more briefly, and more clearly in one or two sentences in the text. If a table is not the most effective way (or the most economical way) to present data, the editor should suggest an alternative.

*Is the table complete in itself?* Can it stand alone, for example, if it were reprinted in another publication? The reader should be able to find all necessary information in the table without referring to the accompanying text.

As in so many other situations, the six basic questions (unit 1.3) can be used to analyze the contents of a table and ensure they are essentially complete. It should be possible from the table to answer all six questions easily. If it is not possible, further information may be needed, or the title and headings may need editing.

### General

- *Who* provided the data? (Are the respondents identified in a survey? Is the source provided in a table that is based on previous research?)
- *What* is being measured? (This in effect is the dependent variable, the one that is affected by changes in the other variable. Is it identified clearly and properly?)
- *Why* is there variation? (This is the independent variable, one that varies regularly, such as time or the gender or income level of respondents. Is it identified clearly and properly?)
- How does the variation occur? (What processes are being measured?)
- Where were the measurements made?
- When were the measurements made?

*How does the table relate to the rest of the manuscript?* Tables are expensive to set in type. They also take space to print and time to read. They should contain only data that deserve publication. They should not include large amounts of raw experimental data. They should include only data that support significant conclusions and cannot easily be included in the text. Has the table met all these criteria?

Does the table support the subject of the manuscript'? Is its information truly relevant and significant? (Authors sometimes cannot bring themselves to discard data they have worked so hard to gather even when the figures do not relate to the subject under discussion.)

Is all the information in the table consistent with information in the text and other tables? Are the units of measurement the same? Do the data agree? (Sometimes text and tables disagree.)

Does the table contain data also in the text? If so, should the text be edited to remove duplication? Should the table?

Does the table contain data also in a graph? If so, should either the table or the graph be omitted?

**Title and headings** *Is there a reference to the table in the text?* Each table should be mentioned in the text. If there is no reference, it may be an oversight. On the other hand, it may suggest the table is unnecessary.

The reference should be by number. Avoid references to "the table above" or "the following table" or "the table on the next page." It may be impossible to place the table exactly where the author wants, because of the way the pages break or because of the publication's design.

*Is the table numbered*? Each table should be numbered, using arabic figures.

The tables should be numbered in the order in which they appear, which should be the same order as they are mentioned in the text. Each table should have its own number: even tables in series should be numbered Tables 4, 5, 6, not Tables 4a, 4b, 4c.

The numbering should start at 1 in each article, chapter, section, or other major unit of the text.

Is the title satisfactory? Does it identify the table clearly and accurately?

Does it contain unnecessary words? The title should not give background information, or duplicate the headings, or describe results. Normally it will not even have a verb. It is purely descriptive.

Is the title of this table consistent in style and form with titles of other tables in the series?

Does the title or subtitle (if there is one) give necessary information about units of measurement, size of sample, or methods of treatment? Does any such information refer to the *entire* table—to every column of data? If it doesn't, move the information to the appropriate column heading.

*Are the column headings clear, accurate, and appropriate?* Are they brief and meaningful? Do they identify the units in which the data are reported? (Units of measurement should not be repeated in the body of the table.)

Are the units logically consistent across the table? (Does one heading refer to days, another to weeks?) Are the units appropriate to the context? (In a study of work, is it more appropriate to report the time spent on each task in hours, days, or weeks?) Are the units the same ones used in the text or in any accompanying tables or figures?

Would the column headings be easier to understand if they were grouped, using two or even three levels of headings? Such subheadings should be placed under straddle rules (thin lines stretching under the main heading).

Are abbreviations and symbols standard and easy to recognize? If not, are they explained in a footnote?

*Are the sideheadings clear, accurate, and appropriate?* Would they be easier to understand if they were grouped, with main entries followed by indented sub-entries?

Are items consistent within the sideheadings? The same rules apply as for any items in a series: things that are logically similar should be described similarly.

Are items consistent with entries in other tables in the manuscript with which this table may be compared?

Are breaks in numerical series clear? It may be ambiguous to break a numerical series as 0-10, 10-20, 20-30, etc. It is clearer to report, if only whole numbers are involved, 1-10, 11-20, 21-30, etc, or 0-9, 10-19, 20-29, etc.

### *Have footnotes been used appropriately?* Are all that are needed present?

Footnotes make it possible to streamline the information in the body of the table. They can be used to define abbreviations for terms that are too long to fit in the table. They can be used to report exceptions, limitations, or other qualifications of data. They can give sources of data and permissions. They can report indications and explanations of statistical significance. Footnotes can grow longer than the table itself, and that is undesirable: but used appropriately they improve a table's efficiency.

Footnotes that apply to an entire table should appear first without any special identification. More specific footnotes can be identified in the body of the table by a superior number (1,2), a superior letter (a,b), or a symbol  $(^*,\dagger)$ . Choose a system that cannot be confused with data in the table.

In every table consider the need for footnotes. Should a measure of probability be reported? Is it there? Should a source be reported? Is it there? If the reference to the source is incomplete, is the source cited fully in the references at the end of the manuscript?

Are any other notes, about the table or about specific data in the table, clear and brief? Are they correctly identified within the table? Are any unusual or ambiguous abbreviations defined?

Data *Are the data in the table all related to its subject?* Does every column or line relate to the subject under discussion? Any that do not should be deleted.

*Is there too much information in the table?* Assuming that all data in the table are relevant and significant, is there still too much information?

Has the author included columns that are unnecessary? For example, is it necessary to have a column that gives the total of two preceding columns if the numbers are so small the reader can add them mentally?

Can some of the information be put in a footnote or in the title? Would the table be clearer if the data were divided into two or more tables? Would such a change make trends stand out more clearly? *Have the data been presented appropriately?* Are figures at a reasonable level of significance, given the units of measurement and the context? Will they be meaningful?

(Is it necessary to report an area as 105,321 ha, or is it satisfactory to describe it as 105.3 in a column headed " $\times$  1000 ha"? In a study of work, should a task be reported as taking 3.44 days, accurate to within five minutes in an 8-hour day? Should grain yield be reported as 7461 kg/ha or as 7.5 t/ha when the figure is only an average?)

Simpler figures save space. They remove clutter. They make it easier for the reader to see relationships and trends.

In any case, figures should not be carried out to more places, and should not indicate greater accuracy, than is reasonable or is indicated by the data.

*Have the data been presented in a logical manner?* Are sideheadings arranged in an order that has some logic? Items may be arranged chronologically, geographically, alphabetically, by custom, or by order of magnitude (the largest usually at the top).

Are column headings arranged in a logical progression?

Are data that have to be compared close together?

Are the most important data prominent? In cultures that read from left to right, top to bottom, tables are read in that order: first the title and column headings, then the sideheadings, and only after that the field of data. Experienced readers go quickly to the right-hand column and bottom row if these present totals or results. The top and left side of a table are usually considered most important. If entries are to be arranged in order of magnitude, the order is usually established by the data in the first column. The last column also is important, and the bottom or top may be reserved for totals.

*Are the data accurate?* The editor cannot verify all the data, but can check the accuracy of calculations within the table. A careful editor will at least spot-check for errors.

If columns or rows end in totals, is the addition correct?

Do columns of percentages total 100? (Some variation is acceptable because of rounding of individual entries, but if a column totals less than 99.8% or more than 100.2%, the percentages should be checked.)

*Have the data been presented correctly?* Have numbers been shortened when appropriate. Can multiples (for example, "× 1000 ha") be used in the headings? Unnecessary zeros obscure meaning.

Are columns of figures aligned on the decimal point or, if there is no decimal point, along the last integer?

### Presentation

Are rows aligned with the sideheadings? If a sideheading is more than one line long, data should align horizontally with the last line.

In numbers without a full number before the decimal point, has the author begun with a zero ("0.12" rather than ".12")? (Some publications relax this rule for columns in which all numbers are less than 1.)

Are missing data indicated correctly, usually with a blank or a dash? (Some publications distinguish between these alternatives: a blank space means the data could not be obtained, a dash means simply the data were not obtained.)

*Is the table well designed?* Is it easy to read? It is easier to compare data down columns than across rows. Subheadings go into sideheadings more easily than into column headings.

Will the table fit on the page of the printed publication? If it must be extended on to a second page, the sideheadings should be repeated. This is a convenience for the reader, who would otherwise have to jump across the width of the inside margins to follow a row of figures, and might get lost. It is also a safeguard because pages are sometimes bound inaccurately and then rows do not line up properly.

Is the table unpleasantly or wastefully long and narrow or short and wide? This may be corrected by changing the axis: making the sideheadings into column headings and vice versa. Before doing this, make sure that the table remains consistent with other tables, if any, in the manuscript.

Are rules used correctly? Normally, the only full-width rules considered necessary today run above and below the column heads and at the bottom of the table. Shorter rules may be used to group columns in straddle heads. Vertical rules are almost never used.

Totals are set off by indentation and/or space.

Itom	Owner-cultivator		Tenant-cultivator	
Item	Fertilizer user	Nonuser	Fertilizer user	Nonuser
Revenue				
Gross vield (t/ha)	2.6	2.1	2.4	1.9
Net vield $(tha)^a$	2.3	1.9	1.4	1.0
Gross value (\$/ha)	144.8	118.3	87.5	62.5
Costs (\$/ha)				
Current inputs	10.3	2.6	11.1	2.1
Labor	14.1	4.8	17.1	8.9
Power	12.4	12.2	10.7	11.6
Cash costs	36.8	19.6	38.9	22.6
Gross margin (\$/ha)	108.0	98.7	48.6	39.9

Table 11. Yield and income gain of fertilizer users and nonusers by tenure. Camarines Sur, Philippines, 1981-84.

<sup>*a*</sup>Net of harvesters' and threshers' shares, and in the case of tenants, owners' shares.

Is there enough white space between columns to permit easy reading? Is there so much white space between columns that it is difficult to compare figures horizontally?

The CBE Style Manual suggests some useful ways to condense tables. If columns just to the right of the sideheadings describe the experimental variables, can they be rearranged as subheadings within the sideheadings? Can columns sometimes be combined, as in this example:

No. inoculated/ no. dead 10/3 10/2 20/12 20/3

*Is the typescript clean?* Will the typesetter be able to follow it easily? If not, have it retyped.

Tables, like all other copy, should be typed double-spaced. They should be on separate pages from the text because they probably will be set separately.

### 4.6 Editing the proceedings of a conference

The proceedings of a conference, workshop, or symposium should be published quickly. If at all possible, they should appear within four to six months of the conference. If it takes a year or more to publish them, much of the information will be dated, including the recommendations.

This may sound like a dream. Too often, the editing of proceedings is a history of exasperation and delay. The authors scatter after the meeting. Their papers trickle in, sometimes months late; some never appear. The papers that do arrive are uneven in length and quality. Some are good; some need revision; a few may deserve to be rejected but possibly can't be. Many should be shortened. The authors have used different styles of abbreviation, citation, and reference, all of which must be made consistent. References may be missing or need to be checked, and illustrations have to be redrawn. The process takes months, even (sometimes, unfortunately) years.

It does not have to be this way. Proceedings can be published quickly—if the editor begins working on them early, and if everyone else involved cooperates. Most of the work should be done before the meeting ends.

Here are eight steps by which editors can speed publication.

Help plan *Try to be part of the planning.* If possible the editor should meet with the organizing committee, or even be part of it. Often the editor has had experience with other proceedings, and can offer good advice.

Organizing committees are likely to be concerned with other matters: the meeting site, the speakers, important guests, accommodation, budgets, arrangements for meals and refreshments, and so on. They may not think of some of the questions an editor considers important. Later it may be too late.

For example, who will own copyright in the published proceedings? Is the sponsor of the conference an organization that has a permanent address and continuous life? That is, will it be in a position to administer copyright and deal with requests to reprint material from the proceedings? If not, is there another body in a position to do so?

Is there any formal agreement between authors and publisher, and what are its terms? Will the authors receive a free copy of the proceedings,

or more than one free copy, or offprints? Have the authors transferred copyright in their papers to the publisher? What rights have they, if any, to publish their findings elsewhere, before or after the proceedings are published?

Are discussions following the papers to be recorded, transcribed, edited, and reproduced? Are the organizers prepared to accept the cost in money and time? Do they really think it is worth it? Would it be better to appoint rapporteurs for each discussion who will write brief summaries of important points?

Define responsibilities. Be certain who is supposed to do each job.

Sometimes the organizing committee will choose one or more subject specialists to be generally responsible for the proceedings. The specialists' names will then appear as editors of the volume.

Such people (volume editors) can be of great help to the editor who prepares the manuscript for publication, especially if the manuscript editor lacks seniority or expertise in the subject of the conference. During the planning of the conference, a manuscript editor might even suggest that a volume editor be appointed.

If there is one, be certain everybody understands which jobs will be done by the volume editor and which by the manuscript editor.

Volume editors should be responsible, first of all, for content. As colleague3 of the speakers, they can insist firmly that instructions and deadlines be followed. As specialists, they can judge quality. They can recommend revision. They know what may be cut from a paper that is too long and what must be kept.

They may occasionally have to settle disagreements between authors and the manuscript editor. Most likely they will be responsible for reading proof of the proceedings, especially if the authors work in many different countries and it would take too long to mail each of them proof to check and return.

Beyond that, volume editors may do any of the other jobs involved in publication. They may prepare and sign agreements with authors. They may make: sure that all permissions have been secured to reprint material that is in copyright. Some edit the manuscripts for language and accuracy.

*Send authors detailed instructions.* The organizing committee should insist that papers be submitted well in advance of the meeting, typed in a form suitable for publication.

The committee should send all participants rules for preparing and typing the manuscript. These should include maximum length, styles of references and tables, and specifications for illustrations. They may

### Define jobs

### Send instructions

form a small leaflet, or at least a single sheet of instructions. The effort involved will save time later. If participants follow the instructions, the editor will not have to impose consistency on their papers. Afterward the same instructions, perhaps revised in detail, can be used for future conferences.

Set a deadline *Set a date by which all manuscripts must be submitted for editing.* In setting this deadline, allow enough time to finish the editing *before* the meeting. Establish a schedule. Be realistic.

For example, an editor may calculate it will take, on average, one working day to edit each paper to be given at the conference. Some well-written papers will take less than a day. Others will take more: some authors may be writing imperfectly in a second language; some may ignore instructions about style no matter how firmly they are stated. Remember also that few editors work without interruption. They may have to set aside one manuscript to read proof of another publication; they have correspondence to deal with; they go to meetings; they get sick. This editor decides to be safe and doubles the average time in order to allow for such interruptions. That means two days per paper. If the program calls for 30 papers, the editor must receive the papers 60 *working* days—nearly three months—before the conference begins.

Not all the manuscripts will arrive on time, of course. But the work can get done as long as most arrive on time and the rest arrive later in a steady flow. Inevitably, a few will not arrive before the conference. They will have to be edited there.

In editing conference papers, look for material that can be cut. This may be unnecessary or redundant tables and figures, paragraphs that add little information, and material more suitable for a spoken presentation than a printed article.

As a general rule, try to minimize the amount of material that does not add to scientific knowledge. Opening speeches, the program of the conference, and such matter may be omitted. If an official speech must be included, perhaps it can be summarized in a preface or introduction. The best volume of proceedings is a document useful to future readers, not a monument to a meeting that took place in the past.

**Be there** *Go to the meeting.* For speedy publication, it is essential that the manuscript editor be at the conference. The chairman should introduce the editor at the beginning of the meeting and emphasize the importance of the editor's job.

Wise editors take to the meeting transparent tape, scissors, a stapler, pencils, and other supplies for quick cut-and-paste editing. Such items often are not easily available at the conference site.

Editors may also bring copies of related volumes their organizations have published. These will show participants what the new proceedings

will look like. They may also result in orders for previous publications. Selling copies should be a secondary concern, but price lists and order forms can be useful.

*Try to complete the editing before the conference ends.* There can be no time lost after the conference in corresponding with authors about revisions. Make sure that editing is complete before the conference ends. Try to meet each speaker during the conference and go through that person's paper, getting answers to all questions, clarifying meanings, and getting agreement to all cuts. Persuade authors to do any necessary revision during the conference. Usually there are resources available for speakers to check references or data.

The editor and organizers must make sure that recommendations and any other material arising from the conference are in the editor's hand at the end. In this way, the editor can go home with a complete manuscript that needs little more than tidying before typesetting begins. As one experienced editor said: "When I leave a conference, everyone knows that what's in my folder will get printed, and anything else won't."

**Deal with any remaining problems.** Sometimes an author cannot revise a paper at the conference. There may not be enough time for substantial revision, or the information may be unavailable. Give that author a deadline by which the revised manuscript must be in your hands. Allow enough time for the work to be done, but not so much that the publishing schedule will be in danger. Make sure the author agrees, and involve the volume editor if there is one. When you are back at the office, write to remind the author that you need the manuscript by the agreed date.

Occasionally a paper may need so much revision that it must be rejected. This should not happen often if the speakers at a conference have been warned in advance that they must bring papers suitable for publication.

Some publishers feel they must have the proceedings refereed. Others argue that the conference itself is a form of refereeing, since each paper is submitted to discussion by the author's peers during the meeting. Frequently, in fact, authors do revise papers on the basis of discussion during the meeting.

Recommendations arising from the meeting should be published prominently. Group them. Some publishers put them at the front of the book before the papers themselves. The recommendations are what many readers look for first.

Occasionally, after a conference, authors ask to withdraw their papers from the proceedings volume. The reasons vary, and so may the responses.

Sometimes it is so the material can be published elsewhere. In such cases, an editor may not be very sympathetic, if the proceedings themselves are being published rapidly. (It is hard to blame an author

### Finish the job

### Settle problems

for getting restless if the proceedings are taking more than a year to appear.) In other cases the author may want to revise the paper as a result of discussions or new information at the conference itself and needs extra time to consider the approach. Occasionally the author may realize that a policy suggested in the paper conflicts with an official policy or a superior's viewpoint and could cause difficulties in the office. In such cases, an understanding editor will probably release the paper. The manuscript is, in fact, the author's, and nothing is gained by publishing questionable material or stirring up trouble.

Publish quickly *Publish the results quickly.* Back at the office, quickly tidy the manuscript for the printer. If necessary, have it checked by a local subject specialist. Then send it for typesetting. For extra speed, prepare camera-ready copy in the office by using a typewriter or word processor.

Some publishers, anxious to save time, do not show the authors proof, but then there is always the danger that errors will be missed. The volume editor or the conference organizers may be asked to read proof instead of the authors. A cautious publisher will show the authors proof but will give them only a short time to return corrections, and will warn them that if they do not meet the deadline the proof will be sent back to the printer as it is. In all cases, the emphasis should be on rapid publication.

The typesetter and printer, as well as the publisher, must be aware of the need for speed. Set schedules, and see that they are kept.

### 4.7 Editorial review

Before a manuscript can be edited, it must be accepted for publication. This decision is usually made by an editor who is a specialist in the discipline, or by a committee of specialists, not by the editor who will eventually check the manuscript for details and prepare it for the printer. All editors should be concerned with quality, however, and the manuscript editor may need to understand the process by which specialist publications are accepted.

Few specialist editors can keep up with all the developments in all the fields in which an organization or journal may want to publish. Many get help from editorial committees of other specialists, each an expert in a particular field. In addition, they often seek advice about individual articles or books from experts outside the office (these experts are sometimes called *referees*). On the basis of what these experts say, the editor may decide to

- accept a manuscript as it is.
- accept it, provided certain changes are made.
- reject it, but suggest that the author revise and resubmit it.
- reject it completely, but perhaps suggest another journal or publisher who might accept it.

Usually the editor passes the experts' advice on to the author. That advice may include several pages of detailed suggestions for improvement. The refereeing system therefore has two benefits:

- It advises the editor how to act.
- It helps the author produce a better manuscript.

Journals have different ways of asking the referees to report. Some have forms that are easy to fill in; some ask more general questions and hope this will produce longer, and more detailed, comments that can help the author. Basically, editors ask whether the manuscript meets the criteria of a good primary publication:

### Asking advice

- Does it contribute new information to its field?
- Is the work significant as well as new?
- Has it been published before?
- Are there flaws in the original plan?
- Are the conclusions soundly based?

- Is the writing clear enough and complete enough for other researchers to duplicate the experiment?
- Should any parts of the manuscript be expanded or made clearer?
- Are references to other work complete and accurate?
- Are there too many references, or too few?
- Are the references appropriate and recent?
- Does the manuscript deserve publication at this length?
- Is the writing style good enough?
- Are all figures and tables properly prepared?
- Is the abstract (if there is one) adequate? Are the abstract and the title informative?

**Choosing referees** Usually editors ask €or two expert outside opinions, or one outside opinion and one from a member of the Editorial Board.

Normally, they promise that the author will never learn the name of a referee: they guarantee *anonymity*. They hope this will encourage referees to be honest and objective in their reports. Without this protection, many referees might hesitate before writing a severe criticism of a paper that deserves it.

Editors also try to make sure that referees are neither close friends nor enemies of the author. They want objective opinions.

Many publishing organizations, for the same reason, avoid referees who work at the same institution as the author. They know that colleagues may hesitate to criticize one another. They also know that people at the same institution sometimes fight with one another.

This system of editorial review is not always perfect. Referees do not always agree. Sometimes they miss problems that appear only when detailed editing is under way. Sometimes they approve manuscripts that should be rejected, or advise the editor to turn away manuscripts that deserve publication. Overall, however, most editors agree that the system works.

It works best when editors actively seek the most expert possible opinions. This may mean going outside their own institutions or their own countries for advice. In many countries, editors and authors understandably are reluctant to do so. I have met this attitude in Canada as well as elsewhere. Obviously some manuscripts cannot be sent outside the country in which they are written. They may be in a national language that is not widely known outside, or they may be about subjects in which no outsider is truly expert. Other manuscripts, however, could benefit from outside opinion, and so could the journals or publishing organizations to which the manuscripts have been submitted. To seek expert opinion outside one's national borders is not intellectual neo-colonialism. It is recognizing that international standards exist in scholarship and trying to meet them. Good referees are

- experts in their fields.
- interested in more than a narrow field.
- objective in judging manuscripts.
- generous about minor failures.
- conscientious.
- prompt in returning manuscripts.
- reliable.

Referees! review manuscripts because they think it is part of the job of a scholar. Also, it gives them a chance to see what is being done by other people before it gets published.

Editors find referees in several ways. They

- keep lists of people who have proved in the past to be good referees.
- use the members of their Editorial Boards.
- ask members of their Editorial Board to suggest other people.
- sometimes follow suggestions made by the author (but rarely use more than ope referee suggested by the author).
- look for possible referees among authors cited in the manuscript: people who have proved their expertise in the field.
- check the secondary literature to see who has written in the field.

Editors also keep track of referees who have proved disappointing: people who are slow returning their comments, or who give short reports that are of little use, or who write reports that are biased or are personal attacks. Such people are not invited to act as referees again.

Authors ,sometimes complain about refereeing, and editors must answer those complaints. Some of the main complaints and answers to them follow:

• It isn't fair that referees should be anonymous. Authors should know who is criticizing their work.

(But referees might be less honest without this protection. In the small world of scholarship, the author might be a friend who could not be openly criticized, or a powerful administrator who could take revenge for criticism.)

• It isn't fair that the referee should know who the author is. Authors with big reputations or from prestigious universities or research centers are treated better than authors who are unknown or come from little-known institutions.

(There is some evidence that this is true, but attempts to hide the author's identity have not always been successful either. The world of science is so small that experts usually know what others in the same

### Answering complaints

field are working on, and so can guess the author's name. As well, many authors identify themselves in their articles, for example by referring to previous articles they have written. Many institutions nevertheless do use the "double-blind" system, in which authors' names are kept secret from referees in the same way as referees' names are kept from authors.)

• Referees are important people in their fields. They are therefore conservative, and try to keep new ideas from being published.

(There is some truth in this also. Editors must be aware of the problem. For a manuscript that is unorthodox, they must try to choose referees who are open to new ideas. Editors must also be aware of strong differences of opinion in scholarship, and avoid giving a paper to a referee who is opposed to the author's point of view.)

• Referees may recommend that a paper be rejected and then publish its idea as their own.

(This is rare, and usually the author can prove it happened. Of course, referees may unconsciously use an idea in their own work, but that seems unavoidable. Authors who are concerned about this danger can protect themselves by presenting their findings at a conference before submitting them for publication, thus proving their claim to the work.)

• Refereeing delays publication.

(True, but good editors ask referees to move quickly. The alternative would be that everything could be published. No one would be exercising quality control.)