

Good practice in authoring manuscripts on geomorphology

Stuart N. Lane*

Université de Lausanne, Lausanne, Switzerland

Received 1 October 2013; Revised 24 October 2013; Accepted 29 October 2013

*Correspondence to: Stuart N. Lane, Institute of Earth Surface Dynamics, Université de Lausanne, Lausanne, Switzerland. E-mail: Stuart.Lane@unil.ch

ESPL

Earth Surface Processes and Landforms

ABSTRACT: This article aims to help potential authors of geomorphological articles to get their work published. It identifies the basic characteristics of a good manuscript in geomorphology in terms of: (a) originality and significance; and (b) rigour. It uses these characteristics to define how an author should structure a 'conventional' manuscript in geomorphology by successfully identifying and justifying the motivation for the research; clearly and fully explaining the methods used; and presenting and discussing the results obtained. The article considers the importance of published literature in sustaining all elements of a manuscript in geomorphology. It also presents the natural symmetry that should exist between parts of a manuscript. These practical elements regarding the form and content of a manuscript are then developed through: (a) flagging some of the common mistakes made by authors drawing upon my experience as Managing Editor of the journal *Earth Surface Processes and Landforms*; (b) discussing the ethical and legal issues, including plagiarism, that relate to manuscript submission; (c) exploring the review process from the perspective of an author, including guidance on how best to respond to review comments in revising a manuscript. Copyright © 2013 John Wiley & Sons, Ltd.

KEYWORDS: manuscript; scientific manuscript; scientific article; author; authoring; geomorphology

Introduction

Following from a similar article that outlines good practice in reviewing manuscripts in geomorphology (Lane, 2012), the objective of this article is to provide authors with guidance in authoring manuscripts in geomorphology. Addressing this issue requires recognition of two different but important elements. The first is more philosophical: what are scientific journal articles for and so what are the hallmarks of a good scientific article?; and the second is more mechanical; what should a potential article contain?; what should it look like? Having answered these two sets of questions, I will conclude the article by sharing some of my experience as Managing Editor at *Earth Surface Processes and Landforms* (ESPL), considering specifically the common mistakes that authors make, some of the ethical issues that authors should be aware of and how to handle the review process to which a scientific manuscript will be subjected. Although this article relates in part to the specific practices of ESPL, the significant majority of issues are general to the wider geomorphological and earth science communities.

The Hallmarks of a Good Scientific Article

Understanding the hallmarks of a good scientific article requires understanding of what a scientific article is for. A good starting point here is Ellison (2002). Ellison makes a distinction between two necessary elements to justify its publication: (1) *q*, the inherent interest and importance of a manuscript; its originality and significance; (2) *r*, the rigour of the work. To justify

its publication, the manuscript must have sufficient interest and importance that others will want to read it and to refer to it; it must have sufficient *q*, even if it is neither definitive nor likely to be the last contribution to a topic. This is the sense in which journals do play an important filtering role, some might call it a policing role: there has to be some sorting out of scientific manuscripts to avoid those truly important and original articles becoming lost in a sea of triviality. This role is becoming ever more important given the expansion of academic publishing in geomorphology and related fields over the last three decades (see Gregory *et al.*, 2013). Such judgment may be criticized as a policing role, yet it is one in which the community itself is (and should be) fully involved. Authors choose which journal to submit to through looking at the scope of the journals available to them. The process of review seeks to make sure that the manuscript conforms to the scope and standards of the journal. This is why a critical goal in the authorship of a manuscript that is to be considered for publication as a scientific article must be making sure that the contributions that the manuscript seeks to make are explicit and justified with reference to the scope of the journal where publication is sought.

Second, a journal article is an article of record: that is, once a manuscript is accepted, it is almost impossible to unpublish it. There are some very specific situations when an article can be unpublished (e.g. demonstration of plagiarism or obfuscation, falsification or fabrication of data), but these are exceptionally rare. In order to be an article of record, it must have sufficient *r* (i.e. the findings should be justifiable) such that it can withstand critique. This is why the inclusion of a comprehensive and fully justified methodology is critical, but also

more generally that the findings of the article are fully sustained through the Discussion and Conclusions.

Figure 1 shows how we, at ESPL, balance q and r in terms of the probability that a manuscript will get published, with that probability increasing with both q and r . As Editors, we seek expert guidance on the levels of q and r in the manuscript. In interpreting this guidance, Figure 1 shows that the critical parameter in considering all manuscripts is q , where the probability of acceptance arises later along its axis, and so provides a more stringent control. The probability of publication rises earlier along the r axis, reflecting the fact that all geomorphic research is limited by the techniques and data at the disposal of an author at the point at which the research is done. Most work is based, therefore, on a series of assumptions. Whilst, ideally, the research undertaken would be beyond criticism, it is quite possible that there remain assumptions in the work that have to be left as such. In some cases, if the work appears to be particularly important (higher q) then an Editor may wish to proceed, recognizing that the findings may be dependent upon these assumptions holding true: hence why the probability arises earlier on the r axis than on the q axis. Being explicit about the conditions upon which that q holds is an important way of demonstrating r ; but even a manuscript with a good r may have a low probability of being published even if it has enough q .

The Structure of a Good (Conventional) Scientific Article

Given the earlier definitions of q and r , it is possible to identify a basic structure for a scientific article in geomorphology (Figure 2). This is not to argue that Figure 2 represents the only kind of structure that should be adopted when writing in geomorphology. Other structures might be appropriate, notably for review articles, shorter commentaries or letters, or where the nature of the subject matter justifies it. However, the vast majority of scientific articles in geomorphology follow this structure, including those published in ESPL.

Establishing the q : the introduction and literature review

Figure 2 shows where the q and the r are generally to be found in an article: the q in relation to how the problem being addressed is defined and developed, and then considered in the conclusion; and the r in relation to the methodology practiced. The first part of a manuscript is often the most important: it is here that authors must establish the reason why their work is important and should be considered for publication. That is,

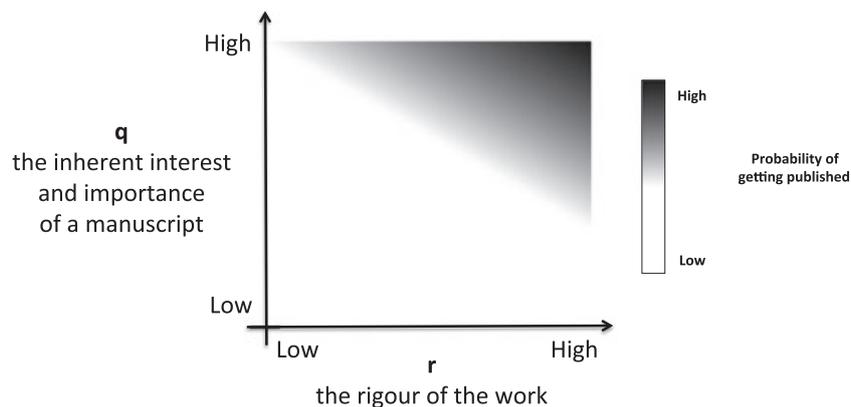


Figure 1. The probability of getting published in relation to q and r .

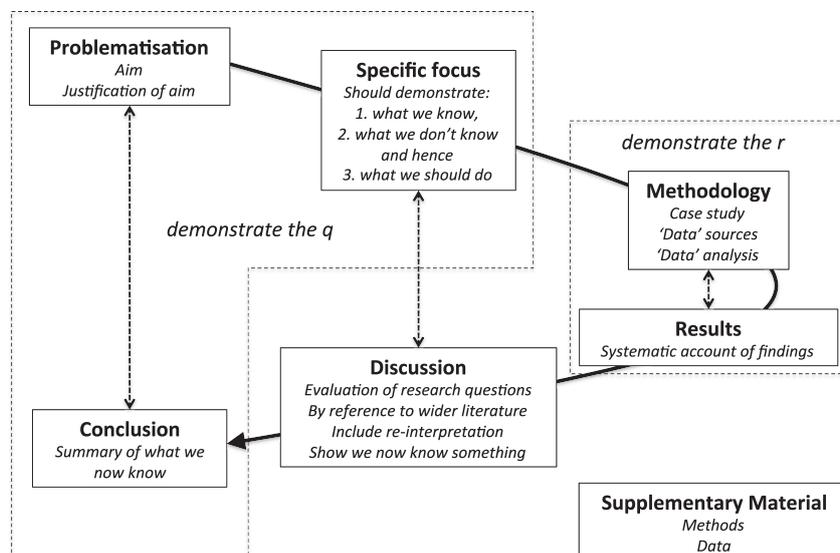


Figure 2. The structure of a conventional scientific manuscript in geomorphology.

there should be a clear engagement with the scientific literature relating to the topic of the manuscript in a way that establishes what we know, what we do not know and hence the objective of the study. We can think of the totality of this knowledge as *Q*, and the literature referred to in the manuscript should do its best to establish this *Q*.

However, establishing *Q* will not be enough. A journal article should also be clear about how it plans to expand *Q*. That is, it must demonstrate what the *q* in the manuscript is. To assist in demonstrating the *q*, it is worth reflecting implicitly upon the general reasons why we undertake scientific research and then explicitly formulating an objective that reflects one or more of these. Harré (1981) provides a useful summary in this respect, showing how contributions can be made in terms of testing theory, developing theory or in the development of method (Table I). A few comments follow. First, as a science that is concerned with field questions, even those approached from a theoretical basis, Table I emphasizes the importance that geomorphologists place upon field or laboratory data, however that might be used. But it also emphasizes that simply reporting field data, without thinking through the wider implications that arise from those data, is unlikely to establish a sufficient level of *q* for a manuscript. This is why engagement with the scientific literature is important for demonstrating the importance of those data.

Second, a number of elements of Table I, notably A1 and A5, but perhaps also A6, draw attention to the role of case studies in geomorphological research. Whilst individual journals might differ in this sense, at ESPL we do publish case studies of particular landscapes or processes, but in doing so we ask that the wider relevance of those studies is demonstrated again through reference to the scientific literature and associated debate of which the case study is an illustration. There is quite a substantial literature on the role and importance of case studies in scientific research [see for example the wide ranging review of Schrader-Frechette and McCoy (1993), or Richards (1996) for a specifically geomorphological example]. This literature reminds us that all of our research activities involve a process of framing, which delimits what we do to those research questions sustained by the assumptions both left implicit but also made explicit in that framing. A case study is one kind of framing, in which the spatial and the temporal extents of our study delimit what we find. The critical question, then, in justifying the focus on a particular case study is to show what the case study represents. I emphasize, this is no different to other kinds of geomorphological approaches (e.g. a scaled laboratory model; laboratory or field simulations; a mathematical analysis of a phenomenon): we are required, by

reference to the scientific literature, to demonstrate the wider questions that our research is addressing. Case studies are welcome, then, but only if they establish this wider context.

Third, Table I has a third section that relates to method. Not all geomorphological journals will accept manuscripts that are concerned with the development and testing of a new method, even if this is both a legitimate reason for doing research and a valuable activity for advancing the discipline. We do accept such papers at ESPL, but only if their relevance to the wider community is made clear in the paper.

Whether or not all of the *q* can be established in just the introduction depends on the subject of the manuscript. This is why Figure 2 shows the Introduction divided into two, but this may not be necessary. If there is a single and longer introduction, it is critical to state a manuscript's aims and to establish their wider importance, early in the introduction. If there is a separate literature review section, then it is crucial to review only that literature that is needed to sustain the research described in the manuscript. The literature review necessary to sustain a methodology should appear in the methodology and not in the part of the manuscript concerned with establishing the *q*.

Demonstrating the *r*: methodology

We report our methods for two important reasons. First, it is so as to establish and to guarantee the quality of the science being reported. Second, it is to allow others to reproduce those methods. For both of these reasons the methods sections of papers are critical. The methodology should justify itself through reference to the literature. Commonly, it should: make reference and justify the case study that is the focus of the manuscript (if there is a case study); provide any necessary background information, including data, necessary to establish the context of the work; detail exactly what was done; and state explicitly any assumptions being made in the analysis. Following from how the *q* should be established, the first time that a case study may be introduced is in the methods section, although this is not necessarily a strict rule to be followed.

There are two particularly common errors associated with reporting methods in my experience: (1) insufficient detail; and (2) a failure to group all relevant methods material in the methods section, with additional methods, notably relating to analysis, appearing in results sections. The latter requires careful structuring of the manuscript (see earlier). The former can be more difficult, especially with manuscripts that have a particularly complex method. Even if the methods have largely been published before, it is not possible to rely on the accessibility of those methods for a potential reader. This is why a paper should stand alone in methodological terms. Some journals, including ESPL, may handle this by allowing authors to add supplementary online only sections to their manuscripts.

Results, discussion and conclusions

In terms of structuring a manuscript, the final three sections should each flow out of the work done in setting up the first part of the manuscript. The results should contain a full description (supported by graphs and tables) of the results obtained in the study being described. In general, it is best to avoid too much linkage between these results and the wider literature, so that the results are kept separate from the discussion. The discussion should then contain the vast body of interpretation of the results in relation to the literature. Although the discussion may be the easiest structural element of a manuscript to specify, it can often

Table I. Reasons for doing science, after Harré (1981)

For the evaluation of theory

- A1 To explore the characteristics of a naturally occurring process
- A2 To decide between rival hypotheses
- A3 To fine the form of a law inductively
- A4 As models to simulate an otherwise unresearchable process
- A5 To exploit an accidental occurrence
- A6 To provide negative or null results

For the development of the content of theory

- B1 Through finding the hidden mechanism of a known effect
- B2 By providing existence proofs
- B3 Through the decomposition of an apparently simple phenomenon
- B4 Through demonstration of underlying unity within apparent variety

In the development of techniques

- C1 By developing accuracy and care in manipulation
- C2 Demonstrating the power and versatility of apparatus

be the hardest to write. Yet, it is the most important as it is here that what we have learnt from the research is made clear in terms of how it has advanced our understanding. It can be distinguished from the conclusions in that the discussion should address each of the questions or issues posed in the introduction. The conclusion should provide a general reflection on what we now know in the light of the wider goals of the manuscript, perhaps with an indication of where the research reported is still in need of further development.

The abstract

I have left reference to the abstract out of the order in which it will appear in a manuscript, primarily because it is often best left until the majority of a manuscript has been prepared. The abstract is a vital resource. Even though most journal articles are now available over the Internet, and so easily accessible in theory, in practice abstracts remain a critical point of entry for many readers. The abstract is also, commonly, the most frequent part of a manuscript where an Editor will ask for changes. The abstract should contain the following elements: the aims of the paper; a very brief résumé as to why these aims are important; a statement of the methodological approach; a summary of key results; and the key conclusions of the manuscript. The abstract is important, but it will rarely determine the success or otherwise of an article.

The title

Whilst most authors will start with the title, I have chosen to finish this section with it. The title is the single most important sentence or phrase in the manuscript. It is also the part of the manuscript that we most commonly ask to see changed. Different journals want to see different things in the title. At ESPL, we take the view that the title is a critical point of entry for a potential reader. We like to see in the title a clear statement of the scientific question that is the concern of the manuscript. In general, this means avoiding reference to both: the case study or region where the question is evaluated; and reference to the methods used; unless the paper is clearly methodological. The very best titles convey the essence of the contribution, succinctly and in a manner that makes the manuscript potentially interesting to a wide readership.

Summary: the symmetry of a scientific manuscript

In summary, it is important to emphasize two points, both reflected in Figure 2. First, elements of the manuscript have a clear symmetry: the conclusion should be a direct response to the questions posed in the introduction and the introduction should therefore identify explicitly the questions that the author(s) feel(s) able to conclude upon; the justification and explanation of the manuscript's focus, either in the introduction or in a separate literature review section, should define the content of the discussion, and what literature is reviewed should related to that which is to be discussed; the detailing of results should be fully sustained by explanation of how those results were obtained in the methodology and the methodology should only cover those elements necessary to sustain the results. Second, reference to published literature should appear at different points in the manuscript, and not only in a literature review section. Indeed, the literature reviewed should be strictly focused upon that which is necessary to justify the wider importance of the

work, to sustain the interpretations made in the discussion, or to support the methodology adopted.

Common Mistakes

Notwithstanding the earlier mentioned, it is possible to identify a series of common mistakes that authors make when submitting manuscripts, ones commonly raised either by Editors during pre-screening or reviewers. First, and most basic, is a failure to write in a manner that is sufficiently clear, given the working language of the journal being submitted to. It is very hard to do anything other than reject a paper that is not comprehensible. Thus, authors must work hard to guarantee that their writing is of sufficient quality.

A second basic mistake regards literature. Perhaps the most common request by a reviewer is to add additional literature to a manuscript. In general, this relates to a genuine lack of awareness on the part of authors of all the literature that is relevant. Reviewers play a critical role in making sure that such literature is properly identified. But there are at least two more problematic issues. With the growth of Internet access to journals, there is a tendency to restrict reading and referencing to those papers that can be accessed from our desk. The result is that authors may not always appreciate the restricted novelty of their research because literature published earlier than the mid to late 1990s has not been considered. The failure to establish Q fully is an issue that authors should bear in mind. Second, I have noted more isolated cases where whole areas of relevant literature have simply not been consulted. It is important that the subject being considered defines the literature used, and not the teams of authors responsible for writing the paper.

Third, there is a view that I have come across in the community that a manuscript does not need to be finished before it is submitted for review. The view held is that even if a draft needs further work, as the reviewers will almost certainly ask for changes, the paper might as well be submitted. Any remaining problems can be dealt with after review. This is an unfortunate view, one that imposes unfairly upon both reviewers and the Editor. The rule followed must be that a submission should be as perfect as it can be on the part of the author(s): figures should be clear and complete; the language should be correct as far as possible; the paper should be structured according to the journal's norms; and the author guidelines should have been followed.

The fourth mistake regards to wider publication strategy. There remains a small tendency in our community to squeeze as many articles out of a research project as possible. Doing so runs the risk of redundant publishing, an issue that I consider later. But, there is a second and less serious element to this problem, 'salami slicing', in which a project is divided up between multiple manuscripts. The problem with salami slicing is not only that it multiplies the volume of material that must be read, especially where multiple articles require multiple versions of the same justification and broadly the same methodology. It can also diminish the value of the wider research project where the whole, were an article presented in its entirety, is more than the sum of the individual articles. At ESPL, we do from time to time raise this issue with authors where we think it is arising. A common reason given is that two articles were necessary in order to get the work into the associated word limit. Our common response has two elements: (1) we can allow an increase in the normal length of articles; (2) we can encourage the formal linking of articles as a Part 1 and Part 2, which generally produces two shorter articles as, with such linking, elements described in Part 1 do not need

to be repeated in Part 2. This is a good example of where consultation with an Editor can help significantly in proceeding in the right way.

Finally, many of the earlier issues will vary in their importance between journals with different editorial policies. This is why it is crucial that authors pay attention to the author guidelines provided by each journal. Such attention is one of the best ways to avoid both these common mistakes and also to avoid falling foul of the ethical and legal issues that I address in the next section.

Ethical and Legal Issues

The submission of a manuscript to a journal is both an ethical and a legal undertaking. All journals, whether Open Access, hybrid or more traditional, require authors to make certain declarations at submission. A failure to meet the requirements of any legal undertaking is a serious matter, and this includes providing false or incorrect information. It follows that if a journal requires a response to a question and you do not understand that response then you should consult the Editor before submitting the manuscript.

The critical issue regarding legal issues is copyright. All authors in all scientific journals must own the copyright of the material that they wish to publish or they must have permission to publish the material for which they do not own copyright. Whether or not they retain this copyright once the manuscript is published varies between journals and also in degree (copyright may be retained for certain restricted activities, for instance). If a manuscript contains extracts, including illustrations, from other copyright works (including material from online or intranet sources) it is normally the author's responsibility to obtain written permission from the owners of the copyright.

Considerations of copyright lead naturally into a second issue: redundant publishing. Submission of a manuscript requires that it be based upon original unpublished work. Clearly, an author may no longer hold the copyright of work if it has been published in full, and this directly prevents it being submitted. However, redundant publishing is a somewhat greyer matter and relates to attempting to publish work where part of that work has been published already. Some element of redundancy may be unavoidable. There may be only one way of describing how a set of methods has been applied to a study. Similarly, when a complex and interlinked body of work, as found in a PhD thesis for instance, has to be divided into a set of shorter articles, there may also be necessary elements of duplication. However, authors may (and do) go further than this, in terms of trying to divide such a body of work into too many articles, or through submitting work that shows very little progress since that already published in one of their previous articles. In the most extreme case, authors submit for publication work that they have substantially published before. In practical terms, two issues follow. First, there is a practical element surrounding redundant publishing where material from methods sections, for example, is repeated from work the author have published before. Such repetition should involve proper referencing to the first time at which the authors presented this material. Second, the level of redundancy in a manuscript may not only vary in degree, but also in relation to where the work has been previously published. Some conferences, for instance, publish extended abstracts that include figures and tables. These may be a few 1000 words long. Whether or not it is then redundant to extend such an abstract to a full article and then to seek its publication is not always clear. In practice, at ESPL, we judge each concern on a case-by-case basis, looking at where the

article had previously been published, whether or not the publication is electronically available, the level of peer review, and whether or not it has ISBN or ISSN numbers or a Digital Object Identifier (DOI). For instance, an article with a DOI is effectively a permanently published article and we would not allow that to be considered for publication at ESPL. The key issue here is that if you think there is a potential matter of redundant publishing, it is best to consult with an Editor before the manuscript is submitted than for the problem to be found by an Editor during manuscript evaluation. Such a consultation can provide the guidance necessary pre-submission for problems of redundant publication to be avoided.

Thirdly, all journals require that they have the sole consideration of a manuscript at the time of submission, until a first decision is made. This is for good reason, notably to avoid the manuscript being considered simultaneously by too many reviewers. Finding reviewers is an increasing headache for Editors.

The final matter is one that has become increasingly of concern in recent years can be grouped under the term 'irregularities'. Central here is plagiarism, which can be defined formally as any situation where an author or authors present work as if it is their own, without due and full credit to the original authors of that work. Plagiarism can take a number of forms. In its crudest, it may involve the wholesale copying of the work of others, whether text, figures or tables, and pasting it into a manuscript, with or without proper acknowledgement and indication of the extent to which the copying is *verbatim* (e.g. by using quotation marks). But it can emerge in less subtle ways. Plagiarism detection software at ESPL, for instance, has revealed examples of where authors have written their manuscripts by lifting multiple sentences from the work of other authors, sometimes without acknowledgement to the sources and invariably without quotation marks. In one case, an entire paper was written using sentences lifted from about 70 previously published articles with only the data and other study specific characteristics changed. Even the less extreme cases constitute a form of plagiarism: in the same way that the effective conduct of a research project requires skill, so does writing require skill, and a failure to recognize the writing of others is a serious matter. A second equally subtle form of plagiarism involves using the research/data/findings of others without permission to do so and without full acknowledgement. There are other irregularities, in addition to plagiarism, such as the fabrication, falsification or obfuscation of data, deliberate or otherwise.

Some of these irregularities can be hard to detect. Reviewers assist enormously in this regard. But, we are fortunate to have increasingly sophisticated software systems that allow us to identify plagiarism. For instance, at ESPL, all submitted manuscripts are routinely put through plagiarism detection software in their first level of pre-screening, before review. When plagiarism appears to have been identified, there are also clear systems of guidance that are followed such as those of the Committee on Publication Ethics (COPE, <http://publicationethics.org/>). These identify the actions that have to be taken, even if the decision as to the level of seriousness of the plagiarism identified in a manuscript requires some subjective judgment. In all cases, we are duty bound to investigate possible plagiarism. There is one comment to add here. A not uncommon response of the lead author, through whom the investigation passes, is that the offending section of text is the responsibility of a co-author. However, this is as much a reminder to the author that in submitting a manuscript, they should have checked such matters with all of their contributing co-authors, before submission.

Authors and the Review Process

There is now a growing difference between journals in how manuscripts are reviewed, including: (1) between those that are open (where all review comments are published online alongside the manuscript) and those that are closed [where only the author(s) and the editor see the review comments]; (2) whether or not the reviewers are anonymous to the author (s) (reviewer anonymity is labelled 'blind review'); (3) whether or not the author(s) are anonymous to the reviewers (reviewer and author anonymity is labelled 'double blind review'); (4) the number of reviews that are needed for an editor to make a decision; (5) the role played by Associate Editors or Editorial Boards in assisting the decision-making process. Given this variety, my aim in this section is to consider how to handle the review process more generally.

Handling the review process requires authors to recognize that the basic objective of the review process is to determine the significance and the scientific rigour of a submitted manuscript. Thus, the review process is designed to be a hurdle that has to be passed so as to guarantee the reasons for publishing a journal article. Using the ideas contained in Figure 1, a reviewer is asked to address the r and the q, the latter with respect to Q. The role of reviewers is not to make a decision on whether or not a manuscript should be accepted; rather it is to provide the information that an Editor needs to make that decision. Most journals will undertake two levels of pre-screening before reviewers are approached. The first will be primarily an administrative matter, concerned with whether or not necessary conditions for submission have been met by the author (e.g. the legal undertakings described earlier). The second will require an element of judgment upon the part of an Editor to assess that the manuscript meets the basic conditions needed to be sent out to review, such as the fit to the journal's scope and the quality of presentation. At this point, a manuscript may be rejected; possibly with an encouragement to resubmit when any associated issues have been addressed. This initial consideration of a manuscript by an Editor is also the point at which potential reviewers will be identified, according to the journal's reviewing policy. Finding two or more reviewers to assess a manuscript can be the hardest part of the editing process: it may take many more invitations than just two, to find two willing reviewers. In my time at ESPL, the current record is 18. I have previously identified some of the factors that we consider when we choose reviewers (Lane, 2012). In summary, we consider: (1) the topic of the submitted manuscript; (2) the methodology adopted; (3) the body of literature within which the work sits; (4) the reliability of the reviewer, if known; and (5), to avoid overloading reviewers, whether or not we have invited them to review for us within the recent past.

Many journals, including ESPL, require authors to suggest reviewers. We do not have a policy as to how many, if any, author suggestions are used. These suggestions are as much used to indicate the kind of community where we should search for reviewers, as they are to identify specific individuals to approach. Nonetheless, it is worth emphasizing when an author suggests a reviewer that we would not normally approach a reviewer who has recently (last five years, possibly longer) published with (one or more of) the manuscript's author(s). We also rely upon some honesty on the part of authors in avoiding suggestion of reviewers with whom the author is collaborating, and where that collaboration is not known to us. It follows that authors can help us to identify reviewers by giving us fair and honest suggestions.

Once two reviews have been received, then it is the role of the Editor(s) to judge the manuscript, based upon a detailed reading, in the light of the reviewers' comments received. The aim is to reach a first decision, as per the example shown in

Table II, and to justify this decision to the authors. In my experience, most Editors of geomorphological journals view their role as more than just secretarial, that is a role concerned with more than just passing on reviewers' comments, and so they will provide a justification of why a particular decision has been reached. Most Editors will also attempt to give a steer to the author(s) as to the work required in revising their manuscript.

Perhaps the most important guidance relating to authors and the review process is how to respond to a decision that, almost inevitably at first decision, will be a request to revise a manuscript. An author's(') aim here is to move their manuscript up the categories shown in Table II. Indeed, in most cases, by changing the manuscript in the ways requested by the Editor and the reviewers, it will be possible to do so. To support this process, it is necessary to record explicitly and in detail the changes made, and to explain them if necessary. It may be worthwhile to return a compared document that marks up all of the changes made.

Of course, reviewers and Editors may have misinterpreted one or more elements of a manuscript. This may allow authors some scope to rebut the comments of an Editor or reviewers. However, there are two important issues here. First, authors should avoid playing reviewers off against one another. A good example of an inappropriate rebuttal is the following: *"Reviewer B questions the appropriateness of this assumption. But Reviewer A commended 'the careful approach to designing our work'. So we have not made any changes here."* The collage of reviewer comments like this is entirely unconvincing to an Editor: it can be very difficult to show that the concern of one reviewer relates to exactly the same object as that praised by another. Second, and more generally, I routinely see lengthy (sometimes essay length) rebuttal of comments by authors, in the response to reviewers. But, the manuscript is then left unamended. If there is an argument that an author seeks to make

Table II. An example of decisions that can be made by the Editor at first decision, here for *Earth Surface Processes and Landforms* (ESPL)

-
- (a) Accept: impossible at first decision
-
- (b) Minor revision: we want to publish the manuscript, but it needs some revision, normally in relation to matters of clarification, expression or presentation; if the paper is revised sufficiently, we do not expect to have to secure further external review.
- (c) Moderate revision: the manuscript needs significant revision, but we are convinced that if these are undertaken thoroughly, the quality and importance of the science will be clear – the q and the r are there – the revised manuscript may need further review; if the paper is revised sufficiently, we are unlikely to have to secure further external review.
- (d) Major revision: the manuscript falls short in some way in relation to q and r but we think it might make it after significant revision and re-review: e.g.
- a substantial addition of literature;
 - fuller description/justification of methodology;
 - re-analysis of data or changes to the representation or interpretation of data;
 - modification of the Discussion;
 - a rethink of the Conclusions;
 - major structural re-write.
- (e) Reject and resubmit: used in three cases
- an interesting idea (potential q) but lacking the supporting data (new data needed);
 - interesting data (r) but context and interpretation do not show q;
 - poorly presented, we think there might be q and r but it is not clear.
- (f) Reject: insufficient q; fundamental flaws in r; and not resolvable through revision.
-

Note that these options are slightly wider than those available to an ESPL reviewer, with options (c) and (e) added for Editor use only.

through rebuttal (e.g. that an assumption is justified) then it almost certainly also ought to be reflected in changes in the manuscript (through a justification of that assumption). In particular, authors should recognize that the goal of writing a scientific manuscript is that it will be read and if a reviewer, as a reader of the manuscript, is not convinced by elements of the work, then there is work to be done to convince them and other potential readers. Of course, not all reviewers may be convincible, but a well-justified rebuttal including careful revisions to manuscript, may well convince an Editor. To put it another way, this is why reviewing matters: it is an opportunity to have your work considered from the perspective of the potential reader (at the stage of review your reviewers and an Editor) and to respond to reviews through revision to your manuscript so that it improves.

One final comment should be made here. Inevitably, authors will be disappointed from time to time: manuscripts will be rejected; or receive requests for revision that they feel cannot be met. Sometimes, authors may feel that the decision is not justified. Journals vary somewhat in terms of the extent to which they allow authors to appeal. But, most Editors will be open to an approach from authors for further clarification and, in exceptional conditions, they may reconsider a decision. For instance, at ESPL, we may allow an appeal if an author can convincingly demonstrate an error in process (such as the use of a reviewer with a conflict of interest). I emphasize, such appeals are rare and rarely successful: but authors are still entitled to clarification and to explanation if they feel they need it.

Conclusion

My main message in this article is that there are steps that an author can and should take to make sure that a manuscript

has key necessary characteristics. Central to these steps is both demonstrating the originality of the work that has been undertaken and showing that the work has been completed with sufficient rigour. These two steps help to understand the most common structure of a scientific manuscript and the one that is most likely to do justice to the research that has been undertaken. Following this structure will not guarantee publication but hopefully it will avoid a series of basic mistakes that may lead to disappointing outcomes, especially for those new to writing manuscripts on geomorphology.

Acknowledgements—This article has benefitted from constructive but critical reviews from the five current Associate Editors of ESPL, Jo Bullard, Mike Kirkby, Oliver Korup, Josh Roering and Ellen Wohl.

References

- Ellison G. 2002. Evaluating standards for academic publishing: a q-r theory. *Journal of Political Economy* **110**: 994–1034.
- Gregory KJ, Lane SN, Lewin J, Ashworth PJ, Downs PW, Kirkby MJ, Viles HA. 2013. Communicating geomorphology: global challenges for the 21st century. *Earth Surface Processes and Landforms*. DOI: 10.1002/esp.3461
- Harré R. 1981. Great Scientific Experiments. Phaidon: London; 222 pp.
- Lane SN. 2012. Seeking good peer review in geomorphology. *Earth Surface Processes and Landforms* **37**: 3–8.
- Richards KS. 1996. Samples and cases: generalisation and explanation in geomorphology. In *The Scientific Nature of Geomorphology*, Rhoads BL, Thorn CE (eds). John Wiley & Sons: Chichester; chapter 7, 171–190.
- Schrader-Frechette KS, McCoy ED. 1993. *Method in Ecology*. Cambridge University Press: New York; 328 pp.