How to get published in *Palynology* (or any other journal)

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**ABSTRACT**

There are many published items on guidance in scientific writing, and potential authors should not try to read too many of these to prevent information overload. This article aims to advise aspiring authors on producing scientific manuscripts for publication. It is particularly aimed at early career researchers in palynology and related topics who wish to publish their work in the peer-reviewed literature. It is vitally important that your manuscript makes a good initial impression with the journal editors. This means strictly adhering to the house-style (textual format) of the respective journal, and that your work is well-illustrated, well-structured and well-written. Despite the apparent complexity of the scientific publishing process, the system is primarily designed to allow several expert third parties to critically scrutinise your work in order to ensure scientific excellence. During the production of the first draft, authors are advised to anticipate issues that may be noted by peer reviewers. Consider carefully where to submit your work to. Specifically key metrics such as the impact factor, readership and scope of journals should be assessed. You will need to navigate an online submission process hence it is critical to organise your files effectively before submitting. It is possible, even likely, that you may be asked for more than one round of peer review. Moreover, you may have to recast your work and submit it elsewhere if it is declined by your first choice journal. Ethics in publishing are very important. For example you should invite colleagues to be co-authors only if they have materially contributed to it elsewhere if it is declined by your first choice journal. Ethics in publishing are very important. For example you should invite colleagues to be co-authors only if they have materially contributed to the particular manuscript, and make strenuous efforts not to use the work of others unacknowledged. Remember that many more people will read your title, abstract and keywords than the main body of the paper so pay special attention to crafting these items optimally.

1. Introduction

It is rightly said that a piece of scientific work is not finished until it is published. Moreover, and arguably more importantly, ‘publish or perish’ is a well-known and much-used phrase in the world of science (Raja and Dunne 2021). The pressure on technical professionals to disseminate their work as formal scientific publications has never been greater. This is arguably most important for early career researchers (ECRs) who need papers to obtain a postdoctoral fellowship, or their first permanent job. Equally, an applicant to industry with a PhD and published papers associated with it will normally have greater appeal to potential employers than a candidate ‘merely’ with a PhD. In this relatively short, informal article, which is primarily aimed at ECRs working on palynology and related areas, I will try to encourage aspiring authors to put pen to paper. This piece is aimed at providing practical advice to all authors on how to craft and present a manuscript with the emphasis on palynology (and palaeontology generally) that will hopefully make it more appealing to editors, readers and reviewers of this, or any other, scientific journal. This paper is absolutely not meant to be a list of daunting conditions, demands and instructions. On the contrary, it is a type of toolbox offered in the spirit of teamwork, whereby the authors, editors, publishers and reviewers work together to get research papers produced efficiently and effectively. This article should be used in conjunction with the extensive online resources provided by our publishers, Taylor and Francis in the ‘author services’ part of their website at [https://authorservices.taylorandfrancis.com/#](https://authorservices.taylorandfrancis.com/#).

Every journal has ‘Instructions for Authors’ and *Palynology* is no exception (see: [https://www.tandfonline.com/action/authorSubmission?show=instructions&journalCode=tpal20](https://www.tandfonline.com/action/authorSubmission?show=instructions&journalCode=tpal20)). Some institutions also issue their staff with information on how to write a technical scientific document (e.g. Jackson 2000). These instructions are great for the factual things such as the preferred dots per inch (dpi) resolution and file formats for figures, but normally do not proffer advice on aspects such as what might be termed crafting, nuancing or wordsmithing. A generic point to bear in mind concerns a well-worn cliché on the importance of first impressions. The first assessment your manuscript will get is a relatively quick read through by the editor, before it goes out to peer reviewers (Figure 1). If your manuscript is well-set out and well-written, you increase the chance of editors and reviewers positively engaging with it. Even if the scientific content is great, readers will be immediately turned off your manuscript if it is, for example, littered with poor phraseology and spelling errors, the technical language is inconsistent, the formatting is suboptimal, there is repetition, and/or the font styles and sizes change randomly.
Section 8 below comprises 16 points of guidance in the preparation of manuscripts on palynology which I hope are useful.

2. The literature on guides to scientific publishing

There is a veritable plethora of excellent guides for writing scientific papers (e.g. Day 1977; Rosenfeldt et al. 2000; Hoogenboom and Manske 2012; Delvin et al. 2014; Gemayel 2016). Many of these were written by life science or medical researchers but are generally applicable to all scientific disciplines. There are also numerous textbooks on this topic (e.g. Schimel 2012; Gastel and Day 2016; Gustavii 2017; Glasman-Deal 2020). Deep time palynologists will probably find Craig (1969) and Eriksson et al. (2005) particularly useful. Craig
(1969) is a particularly entertaining, perceptive and well-written article, and is very highly recommended. By contrast, Moerman (2005), Haigh (2013) and Tress et al. (2014) may be more apposite for workers on geography and modern pollen. There are also many short courses on the publishing process, either in person or online, which are also available. The present author’s strong advice is not to read all of these publication guides; pick one or two, read them well and simply dip into some of the others. The present work aims to give targeted advice on how to craft an appealing manuscript with the main emphasis on palynology.

3. The evolution of a scientific paper

As anyone who has successfully published their work in a journal will attest, this can be a lengthy and somewhat convoluted process. Figure 1 is a flowchart of the entire process. At first sight the entire procedure appears daunting but please rest assured, most scientific manuscripts are published eventually. The first two steps, groundwork and conceptualisation, are of course absolute prerequisites; one has to have something to write about! However, assuming you have a substantial body of scientific data and interpretations (perhaps following a PhD) it is necessary to decide how many papers to write and what their respective scopes should be. This is not, in all cases, obvious and the conceptualisation of a paper is a specific skill. A large whiteboard may prove very handy at this stage.

During the writing process, I advise you to be bold and let your creative juices flow liberally. Avoid paranoia about future editorial scrutiny, which can of course be somewhat debilitating, but try your best to anticipate issues that may be flagged up by reviewers and other critical readers. Do not be afraid of asking yourself ‘difficult’ questions. For example is your location map easily understood? Are your sample materials adequately documented? Are your conclusions concise and well-expressed? When you finish writing the first draft, take a well-deserved break and then go back to the manuscript specifically looking for questions editors and peer reviewers may bring up. What would you say if you were asked to peer review it? Do not fall into the trap of submitting your work too early, or with errors and issues you know full well are there. The better a manuscript is upon submission, the less likely that issues will be identified at peer review stage. In summary, you are aiming for a document that needs as little as possible alteration by editors, reviewers and typesetters. Remember the old adage ‘aim for perfection’, which was no doubt much-loved by your college professors!

Most papers these days have two or more authors so, if you are the lead author, the first thing to do is to circulate your first draft to your co-authors for comments. This is just the first in a long line of edits you will do (Figure 1). Another good idea prior to formally submitting the manuscript is to ask a trusted colleague in your department to critically read your document. In addition, some authors may have to obtain corporate permission to publish from employers, funders, sponsors etc. at this stage.

It is a good idea to carefully consider which journal to aim for well before you finish the first draft. A good strategy here is to develop a shortlist. When you have a likely contender, ask yourself whether your manuscript fits the scope of the journal. A perusal of the website of the journal should tell you this. Remember that even generic biological or geological journals sometimes have specific requirements whether geographical or otherwise. Also check for key criteria such as word limits; some journals have very strict parameters on manuscript size. Try to be realistic about the suitability of your manuscript in terms of which journal you submit it to. A relatively routine, geographically focussed taxonomic manuscript will probably be best suited to a specialist journal such as Palynology, as opposed to a very high impact, high profile international generic science organ for example Nature.

Always consider the basket of metrics, and not simply the impact factor, of your candidate journals. The Declaration on Research Assessment (DORA - https://sfdora.org/) acknowledges the need to improve the ways in which research outputs are evaluated, so as not be over reliant on a single metric. Taylor and Francis are a signatory of DORA. However, it cannot be denied that the impact factor of a journal is highly influential. This important metric is a measure of the frequency of citations, and hence provides a quantitative method of assessing journals and their relative influence. Impact factors for selected journals are reassessed annually by the Journal Citation Reports of the Web of Science Group. The impact factor of a journal is the number of citations garnered in a given year of articles from the two previous years, divided by the total number of citable items issued (i.e. not editorials, letters etc.) during the preceding two years. Bear in mind however that impact factors, like many other metrics, are not immune from criticism. It has been argued that they are blunt tools and may not effectively evaluate the influence or quality of a journal (https://sfdora.org/). Furthermore, due to their use by employers and research funders, they may generate strategic manoeuvrings leading to what has been termed an ‘unhealthy research culture’ (Amin and Mabe 2000; Else 2019).

Finally, avoid predatory Open Access journals (Section 8.14). These are unscrupulous online titles which are basically crass profiteering projects. Typically they undertake mass-email spamming, and charge exorbitant prices for publication while exhibiting a total lack of editorial and peer review oversight (Harvey and Weinstein 2017). A common practise of predatory titles is to invite an author to submit a manuscript, then charge them an article processing charge (APC). An invited paper for a reputable Open Access journal should have all APCs waived. A good place to check is the Directory of Open Access Journals (DOAJ – https://doaj.org/). If an Open Access journal is listed here, and is more than one or two years old, it is unlikely to be predatory because the DOAJ has rigorous vetting procedures.

The next step is to submit your manuscript. The overwhelming majority of journals have online submission interfaces. These are generally very straightforward. You will upload all the files, i.e. the main document, the display materials, any appendices and a cover letter, one-by-one. It pays to be very well-prepared here; make sure you organise your
various files well, that they are all in the required formats and that image files are at the appropriate resolution and scale. At the end of submission process, the online system will produce a consolidated pdf file, so ensure that your files are uploaded in the correct order. Should you encounter problems at this stage, helpdesks are always available. Do bear in mind that, during this process, relevant information will be requested such as funding sources, Orcid numbers, the number of words in the main document etc. It may be useful to perform a test upload of a dummy manuscript prior to the real thing so that you do not encounter any unexpected surprises.

The editor will most probably send your work to two or more peer reviewers (Section 7). In the case of Palynology, we normally ask two specialists to undertake reviews. Sometimes, if the editor spots substantial issues with your manuscript, they will request certain amendments before peer review. When the reviewers respond to the editor (hopefully in around one to two months or so), you will get a decision email. In most cases you will be asked to revise your manuscript and these can be, for instance, ‘minor’, ‘moderate’ or ‘major’ (Figure 1). Another option is to initially decline the manuscript but with an invitation to make a brand new submission (‘reject and resubmit’). This option is normally used when the Editor feels that the manuscript has potential, but still requires substantial work to be done. Ensure that you address all the comments by the reviewers. You may rebut points you strongly feel are inappropriate, but you will have to eloquently justify this on a case-by-case basis to the editor. When you resubmit, ensure that you explain to the editor via a separate report or cover letter precisely how you have revised the manuscript.

Hopefully at this stage the editor will accept your work, but do not be surprised if they ask for more final revisions or even a further round of peer reviews. In the case of Palynology, most manuscripts only go through one round of peer review at the time of writing. The acceptance email is not the end of the process; you will be asked to complete copyright forms and to check the proofs following production. When you email the proofs back to the publisher, then you can celebrate.

In some cases, the editor will decline your work. Do not be disheartened, fully address the feedback and select another journal. If your manuscript is declined by an editor and you rework it and submit elsewhere, be absolutely open with the new journal. There is a very good chance that the same reviewers as before will see your new manuscript. In the cover letter, explain candidly the history of the manuscript and that you have taken note of the feedback from the first journal. Finally do not forget to reformat the manuscript to the requirements of the new journal.

4. Ethical considerations

Ethics in scientific publishing are a very important consideration indeed; in the world of science, reputation is all (Talent 1989; Raja and Dunne 2021). Sadly, one cannot assume that all dubious ethical practices are discovered, and the reputational consequences duly felt. The five chapters in the section entitled ‘Research Ethics’ in Shoja et al. (2019) are highly recommended for a comprehensive view on this often tricky area. Firstly, be sure to offer all colleagues co-authorship to all persons who have materially contributed to your work (Feeseer and Simon 2008; Wager 2019). Contributions such as designing the research programme, obtaining funding, undertaking analyses and/or fieldwork, or supervising the project clearly are worthy of co-authorship. This may well be a delicate matter and your mentor, supervisor or team leader will advise. There is, of course, a balance to be struck; a colleague who once lent you a marker pen in the laboratory will not expect (or indeed deserve) co-authorship (Teixeira da Silva and Dobrânszki 2016).

All scientific articles will inevitably draw on the work of others. However, do not even think about flirting with border-line plagiarism (Kumar et al. 2014; Masic 2019). Be sure to give the appropriate credit to previous researchers by citing specific relevant published papers. Always give credit where it is due. Guard against repeating the work of others verbatim; if this is necessary, insert a formal quotation. If you mention any specific commercial products, make a statement at the end of the paper stating that you do not necessarily endorse or recommend them and do not have any conflict of interests generally. Likewise, acknowledge registered trademarks of a company or product with the ® symbol.

5. Reproducing existing display materials and text

If you need to reuse a diagram, a photographic image, a table or some text from an existing publication, you should always seek permission and give the appropriate acknowledgement of the source in the caption and the reference list. This of course also applies to the reproduction of any other intellectual property such as audio/video clips, data-sets, images from websites, logos/trademarks, maps, music lyrics, poems etc. In the vast majority of cases an item of display material etc. which has already been published, either digitally or in print, will be the intellectual property of somebody, and will be copyrighted. The corollary of this is that permission is needed in order to reproduce it. Normally the publisher controls the copyright of items they have issued, and hence can grant permission to others for the reproduction of figures and the like, even if the author(s) actually own the copyright.

If the journal or publisher you are aiming at is a signatory of the Guidelines of the International Association of Scientific, Technical and Medical (STM) Publishers (https://www.stm-associ.org/intellectual-property/permissions/permissions-guidelines/), the procedure for obtaining permissions to re-use is extremely simple. The STM Guidelines aim to expedite the granting of permission to authors for the re-use of limited amounts of previously published materials free of charge and with minimal administrative effort. Most academic publishers have signed up to the STM Guidelines, including the Journals Division of Taylor and Francis. The signatories have a choice either to allow re-use without notification (the ‘automatic process’), or to allow reproduction with notification. When you need to reproduce a published item of display material
or chunk of text, simply peruse the list of signatories to the STN Guidelines to determine which one of these scenarios apply. For Taylor and Francis journals such as Palynology, one has to provide notification. All such requests should be emailed to permissionrequest@tandf.co.uk. This means that you may reproduce up to three figures from a single published item issued by another STN Guidelines signatory free of charge. There are, however, certain caveats designed to prevent wholesale re-use of materials. For example, you cannot re-use more than six items from a single volume of a journal. Naturally, you must acknowledge the source of the item(s) you are reproducing. The best way to do this is to quote the author(s) and the year in the caption as normal and list the full details of the paper in your reference list.

Another strategy for reproducing a figure or similar is simply to contact the author and the publisher direct to seek formal permission. Normally both these parties will gladly give their written permission free of charge on the proviso that you acknowledge the original source in your text. If you wish to adapt/emend the original artwork it is courteous to inform the author and publisher, giving the details of the proposed changes. In this case, it is often simpler to draft a brand new graphic. More details on this topic can be found at https://authorservices.taylorandfrancis.com/editorial-policies/.

6. Formatting

This is a general, and very important, aspect. As an author, you should stick like superglue to the textual format of the journal at which you are aiming for. Always remember that the first person to peruse your manuscript will be the editor. They will be intimately familiar with the format, and will immediately and forensically spot any deviations from it. This issue will inevitably distract the editor from your fantastic science. Perfect formatting will give the editor positive and warm feelings about your article. More prosaically, the more effectively you format your work, the chances of errors by the production team are reduced should your manuscript be accepted.

I strongly advise authors to use a recent paper from the journal in question as a formatting template. Using standard word processing software such as MS Word® or LaTeX®, it is very easy to mimic aspects like using bold font and centred text for the title, the format of the authors’ addresses and the section/subsection titles etc. If you use a recent paper, you will easily be able to reproduce the section/subsection format. For example, does the journal use section/subsection numbering, and are citations with two authors ‘Smith and Bloggs’ or ‘Smith & Bloggs’ etc.? Do not, however, go overboard here; for example there is no need to use a two-column format or mimic the hanging indents that are typically used for the references. The balance should be that, if it is very easy to stylistically reproduce (bold/italic/roman fonts etc.), then do it if you can. Note that the running text should normally be left-justified, but not right-justified.

Having said all the above, certain journals are now waiving the strict rules on textual formatting. Here, at least the initial submission can be in free format. In these cases, the final formatting into house style is done during the production of the paper following acceptance. Arguably this is a good thing. However, Palynology is not one of these journals, and I would strongly advocate writing manuscripts in our house style.

7. Peer review

It seems appropriate at this juncture to briefly discuss the peer review process, which has been mentioned several times already. It is perfectly normal for a researcher who has just produced their first manuscript to be somewhat surprised at the intense level of scrutiny of their work that is involved during peer review. This system seeks to critique and hence improve the quality of published academic work (Figure 1). It is the only widely accepted method for the validation of research and has been practiced continuously, with only relatively minor changes, for the last ~350 years. The beginnings of the peer review process can be traced back to Henry Oldenburg (1618–1677) who was the first editor of the Philosophical Transactions of the Royal Society, the original exclusively scientific journal (Manten 1980; Burnham 1990; Spier 2002). As editor, Henry Oldenburg sent out submitted manuscripts to specialists who were able to evaluate their quality prior to acceptance for publication.

The system is imperfect, for example some reviewers can use somewhat brusque and intertemperate language, lack objectivity and be overly conservative in outlook (e.g. Mulligan 2004; Alberts et al. 2008; Lee et al. 2013; Baglini and Parsons 2020). Also some referees appear to put very little effort into their reviews which can be confusing and somewhat demotivating for the authors. Reviewers’ comments can take many forms, and be in varying degrees of detail, so do not be surprised by this phenomenon. A frequent frustration by authors is that some reviewers request (perceived) unnecessary additional analyses and/or experiments, rather than concentrating on the manuscript before them. Despite some criticism of the process, including its integrity, peer review is still the best method for rigorous scientific evaluation, and has the trust of the research community at large. Authors should not forget that any editor would immediately spot a biased or mendacious review, and would rescind it. A famous quote, attributed to Winston Churchill in 1947 is that: ‘democracy is the worst form of government, except for all the others’. This memorable quotation could be adapted for peer review i.e. ‘peer review is the worst strategy for the appraisal of academic research, except for all the others’. In what I estimate to be >95% of cases for this journal, the peer reviewers are collegiate, constructive, friendly and helpful. If you ever feel you have had a bad experience with peer reviewers, please briefly consider where scholarly research would be without it (Bohannon 2013).

There are several methods of peer review and Palynology, like many other journals, uses a closed, single blind peer review process (Ali and Watson 2016, table 1). Closed, single blind peer review is a system where the identities and affiliations of the authors are clear to the reviewers, but conversely the details of the reviewers are not disclosed to the
authors (or the readers). That said, it is the prerogative of individual reviewers to voluntarily waive their anonymity and this happens very frequently indeed. The principal advantage of reviewer anonymity is that frank and honest feedback can be given. The flipside to this is that some individuals can hide behind this anonymity to give unduly harsh feedback. Closed, double blind peer review is where neither the authors nor the reviewers are made aware of each others’ identity or affiliation. In marked contrast, open peer review is a style where both authors and reviewers are known to each other throughout the entire procedure.

Early career researchers would benefit markedly from getting experience of the peer review process to help them better understand the system and its undoubted vagaries. So, if you are an ECR, why not contact the editors of selected journals volunteering for this task? Sometimes editors struggle to get reviewers, so you are sure to get a positive response!

8. Specific guidance on technical writing with the emphasis on palynology (‘top tips’)

In this section, 16 specific aspects of manuscript production are outlined which are aimed at helping authors, particularly ECRs. The final one is a miscellany. I have tried to be as comprehensive as possible despite the fact that individual readers will be fully cognisant of some of these facets of manuscript production. One general point for authors whose first language is not English is to have your work thoroughly checked over for phraseology, spelling, style etc. by someone who is fluent in English. Naturally, there are publications designed to help with this, for example Glasman-Deal (2010).

8.1. Cover letter

This is your chance to sell your manuscript to the editor. Do not write a short, anodyne message simply reiterating the title and giving the usual blurb about the manuscript not having been published elsewhere, not being under consideration by another journal, and that all the co-authors participated in the research and the writing, approved the manuscript, agree with its submission, and have no conflicts of interest. These details should absolutely be included, but use the cover letter to concisely persuade the editor, for instance, that your paper is really important and novel, how it will appeal to the readership, and how it will enhance their journal. Mention the potential readership demographic and the likelihood of lots of citations. That said, do not be hubristic, and fall into the trap of overselling your manuscript. Any recommendations of reviewers should go in the cover letter. Most online submission interfaces no longer allow authors to do this. The reason for this is past malpractice (not by any authors of papers in Palynology).

8.2. Title

The title is the part of your paper that will be read by far the most people, so it is clearly imperative to get it right. As an author, you want people to be attracted to your work when they peruse a list of papers in a journal or in an online search. So, aim to impart the maximum information in as few words as you can. Readers are attracted to short, snappy titles; long, rambling ones are a real turn off (Letchford et al. 2015). Less is assuredly more in this case! That said, you should always include geochronology/stratigraphy, geography and specific palynomorph groups as appropriate. For example it is profoundly annoying to come across a paper with a title that gives no clue as to the geological age of the samples studied, or the geographical focus of the study (it happens). Take both care and time when you draft your title, and be prepared to change it frequently during and after writing all drafts of the manuscript. A good check is to imagine a person native to a far-flung country from yourself and not a specialist in the subject matter reading your title; would they be able to assimilate and understand it?

8.3. Abstract

Apart from the title, the abstract will be the most widely read part of your paper. The abstract aims to concisely summarise the purpose of the study, the principal results and the major conclusions. It is not there for you to simply list what you did during your research (Landes 1966; Walski and Watkins 2017; Grech 2018). Do not write, for example ‘…samples were collected from the Random Formation and studied’. Write the abstract when you have finished the main text and craft it so as to draw the reader in to the main paper (Hartley and Cabanac 2017). Ensure that it is in block/unstructured format, i.e. a single paragraph of text. Remember journals have strict word limits for abstracts; ours is 300 words, which is fairly typical. Do not fall into the trap of cutting and pasting your conclusions section! Because abstracts frequently appear separately from the main article, it should be able to stand alone so references should be avoided.

8.4. Keywords

The selection of keywords is very important indeed; these will be critical in attracting readers to your work. In particular, they are used by automated search engines and, if you do not choose them carefully, your paper may be missed by some of these. You may choose up to seven keywords in Palynology; try to use all of them if you can. Ensure that you mention the biological, botanical, geological, geographical and stratigraphical foci of your paper, plus the aim of the work (e.g. biostratigraphy, floral history, palaeogeography etc.) as appropriate. Because the name of our journal is Palynology, I do not think ‘palynology’ is a particularly good choice of a keyword, however always mention the principal palynomorph group(s) that you are discussing. For example, if you inadvertently omit, for example, ‘acritarchs’ from the string of keywords, some relevant specialists may not be informed of the article via automated alerts and updates.
8.5. Structure

Most papers on palynology, like in most areas of the natural sciences, fall into an ostensibly formulaic structure. This would typically be something like: introduction, literature review/geological background, material and methods, results, interpretations, conclusions/summary, acknowledgements, and references. Palynology does not enforce a specific structure onto authors. Moreover, we are not looking for a forensic application of the traditional scientific method of asking a science question, conducting research, formulating a hypothesis, doing experiments, making observations, and formulating results and conclusions (Gower 1997; Gauch 2003). However try to show, as far as it is possible, that you have followed the standard scientific procedure. The main thing to bear in mind that the structure of your manuscript should be logical, and communicate your data and interpretations effectively. Never forget, you are telling a story!

8.6. Display materials

There are virtually no papers in Palynology without any Figures or Tables. Consider your reader carefully when drafting these items. This means ensuring all of them are justified in terms of the text, and not making them overly complex. Both Figures and Tables should be aesthetically pleasing, neat and readable. Ensure that the dpi (dots per inch, a measure of the resolution of the image) is suitable and that the font size is large enough so that all the text is easily legible. Try to avoid using abbreviations if there is room to write out the full word or phrase. In other words, only abbreviate the word 'Formation' to 'Fm.' in a Figure or Table if you have space issues. With graphics, always submit editable files in a suitable format such as eps, jpg or tiff.

It is important in this context to understand the difference between raster and vector graphic files. Raster graphics, such as jpg, png or tiff formats, are dot matrix files that represent grids of pixels. The advantages of raster graphics are that the formats are widely used, and the file sizes are generally not excessively large. On the other hand, if a raster file is enlarged substantially the image becomes blurred or pixilated. In addition, some raster images can be difficult to edit. By contrast vector graphics, for example ai, eps and svg files, comprise curves, lines and points that are based on mathematical equations rather than simply matrices of pixels. This means that the curves, lines and points can be scaled up or down without distortion (i.e. pixilation). Therefore no matter the size of the image, or how far zoomed it is, the curves, lines and points remain smooth; it will never develop unsightly blurriness or jagged lines (Marschner and Shirley 2016). However, if the font used cannot be read by the pagemaking software during production, some of the characters may be corrupted or substituted. Therefore it is best to stick to industry standard fonts such as Arial. Also, during typesetting, vector images can take longer to incorporate into the master file of the paper than the much simpler raster images. In conclusion, if your artwork files are relatively simple, and are unlikely to be excessively enlarged for clarity by the reader, then raster files such as jpg will normally be fine. However, if you have some complex or wordy figures such as range charts, do consider submitting them as vector files for example in eps format.

Remember to take as much care when writing the captions for the Figures and Tables as you do when you are writing the main text. Your readers will scrutinise graphics such as range charts very carefully so these should be described adroitly in the captions. Each caption should stand alone, and thus the associated figure or table is interpretable without reference to the main text. Do not submit the captions as a separate file, simply include them at the end of the main document. Finally do not forget to number Figures and Tables sequentially, based upon first mention (‘callout’), in the main text (Table 1).

8.7. Plates

Naturally, a sizeable proportion of papers in our journal include photomontages of palynomorphs. Many journals simply classify these as Figures, but Palynology has always used the term Plates for these images. This is a conscious decision and we feel that this is justified because it is more effective to cross reference photographs of palynomorphs in the running text if there is another subdivision of display material aside of Figures and Tables. In other words it hopefully allows readers to identify specific photographic images more easily. If you need to submit Plates, please try to make them aesthetically pleasing as you can with, for example, consistent background colours, straight confining edges with 90° corners, neatly cropped images and correctly-oriented palynomorphs (Riding and Head 2018). Label the photographs
with numbers and not letters. You can either use scale bars or mention the size of the palynomorphs in the captions.

Remember that photographing palynomorphs does not necessarily need a sophisticated photomicroscope these days (Kerp and Bomfleur 2011). Modern mobile phones typically have excellent cameras. With practice, one can use a mobile phone placed carefully over the camera tube of the microscope to obtain publishable images. This practice requires patience, a steady hand and a good mobile phone. Relatively inexpensive phone clamps which can be used in this procedure are widely available. Figure 2 is a photograph of a fossil dinoflagellate cyst taken by the author using his mobile phone. This item is not a plate here because it is only one image and not a montage of two or more photographs.

Finally, do take care when preparing captions for the Plates. For example, include key sample details, museum cur- ration numbers and England Finder coordinates if applicable (Riding 2021a). If there are many data applicable to each image, items such as stratigraphical details and well numbers can be placed in spreadsheets in the Supplementary data (Section 8.13). Double check that all the photographs in each Plate are mentioned in the caption.

8.8. Conclusions section

The overwhelming majority of scientific papers should have a conclusions section at the end. Do not fall into the trap of not including a concluding statement even if your paper is virtually all systematics. The conclusions should not be a cut and paste of the abstract! This section should be a concise and punchy summary of the achievements of your research paper and their greater significance. You should be immodest in lauding its breakthroughs, as well as acknowledging its less successful aspects. Here is also a good place to discuss potential future research avenues.

8.9. Acknowledgements

It is a courtesy to the people who have materially helped you with your paper to thank them in the acknowledgements section at the end of the main text. These colleagues may be funding agencies, laboratory technicians, landowners of field sites, mentors and the like. Try to keep this section as concise as possible. One important point is that you are enthusiastically encouraged to thank your referees. The peer reviewers do a great job in providing critiques of your work and advising on how your manuscript can be improved. Thank them, even if they chose to remain anonymous.

8.10. Notes on contributors

In Palynology, we offer all authors the opportunity to include a short biographical note and a photograph of themselves for inclusion between the Acknowledgements and the References. This is to help give the readers of the paper a more tangible connection to the authors and promotes what might be termed ‘the personal touch’ (Riding 2021b). Relatively few journals offer this option. Authors should note both the biographical sketch and the photograph are absolutely optional. Try to keep the biographies concise; a short paragraph is ideal and do not to forget to submit these items online with the main submission. The biographies should simply be included in the main document and the photographs uploaded separately.

8.11. References

The list of references at the end of your manuscript is very important. Take great care when preparing this listing; you may wish to use proprietary bibliographical software if you wish. Take great care to use the format that is specified for the journal you are aiming at. Unfortunately, these formats vary significantly (Riding and Powell 2018). Palynology follows the CSE (Council of Science Editors) style for the references (Council of Science Editors 2014). This uses the citation-name system, as opposed to the name-year system. What this means in practical terms is that references with more than one author are arranged by the second author name and not the year of publication. Thus Smith and Bloggs (1999) would be listed in the reference list before Smith, Evans and Bloggs (1972).

Preprints (Section 8.15) can of course be cited because they have digital object identifier (doi) numbers. However, do not be tempted to cite non-published works in the text, and include these in the reference list. I refer to manuscripts ‘in preparation’, ‘in review’ or ‘in revision’. These of course are unavailable to the reader so are effectively useless as references. By far the worst of this infamous trio is ‘in preparation’; in this case, simply refer to ‘unpublished data’.
8.12. Appendices

You may need to include data tables, lists of taxa with author citations and the like in your manuscript. These can be in the form of appendices and these are placed after the references. However, if these appendices are large, you should consider including them as Supplementary data (see below).

8.13. Supplementary data

The appearance of a paper can be diminished aesthetically by the inclusion of lengthy appendices and large tables of data in the main article despite the scientific basis of the article being absolutely contingent upon them. This issue can be elegantly solved by the use of Supplementary data which is directly linked to the main paper. You can include in your initial submission a document or documents (in original or pdf format or both) with necessary but somewhat cumbersome items such as detailed expositions of methodologies, large data tables and lists of palynomorph taxa with author citations etc. If data tables are in their native format (e.g. MS Excel®), they are more useable by readers. These documents are sent to the reviewers and, upon publication, are accessible to readers online via a weblink on the first page, normally in the footer. Please note that the Supplementary data document or documents are not typeset by the publishers. Assuming the reviewers like it, the material is simply placed online. If any corrections or revisions are required, this is solely the responsibility of the authors.

As an alternative, or an add-on, to Supplementary data associated with a paper, information can be uploaded to dedicated online depositories such as Dryad (http://data-dryad.org/). Dryad is a not-for-profit entity which promotes data curation, preservation and publishing. Any data uploaded to Dryad is freely available for download to the user community (e.g. Greenberg 2009). Other online repositories are available for example Figshare (https://figshare.com/). There are also more specific online platforms such as Github (https://github.com/), which is a web-based repository for the development, hosting and maintenance of computer software. Use of these resources is to be encouraged to promote the free availability of scientific data for both peer review or general information storage.

8.14. Open access publishing

The traditional business model of the publishing industry is that the reader pays. Therefore, in the context of scientific journals, the reader, or their employer, pays for a subscription to an individual journal or a bundle. However, this has changed markedly since the early 1990s. Open Access Publishing (OAP), where the author, their institution or their research grant pays, is a relatively new way of publishing peer reviewed scholarly articles. This method demonstrably increases the impact, readership and general visibility of research articles. Bear in mind that your employer or funder may mandate you to publish using OAP. Another important difference with OAP is that the author retains the copyright as opposed to the publisher or the Society. In the OAP model, the editorial and publishing costs are recovered from the author via an APC (article processing charge, e.g. Suber 2002, 2012; Evans and Reimer 2009; Björk et al. 2010). Many publishers have agreements with some institutions whereby the latter will cover part or all of the APCs for their staff. The APC for a manuscript to be submitted to Palynology can be found at https://authorservices.taylorandfrancis.com/publishing-open-access/open-access-cost-finder/.

Directly upon publication of an article published via OAP, the full text can be freely read by anyone, anywhere, anytime, as long as they have an internet connection. Furthermore, provided an open access article is disseminated under the terms of the Creative Commons Attribution License, it can be distributed, reproduced and used, as long as the original author(s) and source are acknowledged. This new mode has grown rapidly since 1993. Between 2000 and 2010, the average annual growth rate of articles published by OAP was ~30%. This is far in excess of the reported yearly 3–4% growth in the volume of publishing overall (Laakso et al. 2011; Science and Engineering Indicators 2019).

The purest form of OAP is Gold Open Access where content is made available freely on the internet immediately upon publication. This has also been termed Direct OAP and contrasts with Delayed OAP where articles are made freely available following a specified embargo period. In the case of Delayed OAP, there is normally no APC and the author does not retain the copyright. Another variety is Hybrid OAP where an author, or more likely the author’s employer, pays for an article to be made freely available in an otherwise subscription-based journal. This is the model adopted by Palynology. The alternative to Gold Open Access is Green OAP. This is the self-archiving of articles by uploading the manuscript, paper or preprint to the author’s personal homepage, their institutional repository or a subject-based repository (Harnad et al. 2004).

8.15. Preprints

Preprints are draft or final versions of manuscripts that are entered into the public record, normally via online servers, before they have been formally peer reviewed or published by a journal (e.g. Berg et al. 2016; Maslove 2018; Fry et al. 2019). The modern concept of preprints is a revival of a practice initiated during the 1960s; this was discontinued because journals refused to accept articles that had previously been circulated as analog preprints (Cobb 2017). Similarly, at the time of writing, certain individuals have reservations about their use (Sheldon 2018; van Schalkwyk et al. 2020).

The widespread distribution of preprints on the internet dates from the early 1990s. When preprints are posted online they are assigned a doi number by the online preprint archive, database or platform to which the document was uploaded to. There are several reputable and widely-used online platforms for preprints (Desjardins-Proulx et al. 2013). A prominent example is bioRxiv (pronounced ‘bioarchive’), which is aimed at the life sciences (https://www.biorxiv.org/). Preprints can also be hosted in institutional repositories.
Hence they permanently enter the scientific record and are therefore citable.

From the author’s perspective, their work enters the public realm expeditiously in the form of a preprint. This may be critical in cases where a manuscript has a long gestation period. For example where it is submitted to a high-impact generic science journal and is rejected following a protracted review process then resubmitted to, perhaps more than one, more specialised journals. Moreover, the potential impact of a manuscript which is first disseminated via a preprint is maximised. Furthermore preprints allow, for example, data and interpretations to be extremely rapidly circulated, feedback from peers to be garnered efficiently and the precedence of commercially sensitive and/or novel science to be unequivocally established.

8.16. … And finally

When you have finished a draft of a manuscript you should always do a check of key aspects such as the accuracy of the references and the correct ordering of the Figure numbers in the text (callouts). Table 1 is a checklist of 17 items that will help you to remember these important points.

What follows here is a miscellany of sundry items which also should be checked for. For example, do not abbreviate the names of genera in the running text; the space saved is not worth the information lost. By contrast, standard abbreviations such as SEM for scanning electron microscope should be used, but explained at the first mention in the manuscript. Thus the first instance should read, for example, ‘…. the specimens were imaged using a scanning electron microscope (SEM) …’. Additionally, always ensure that you use technical terms consistently throughout the manuscript. For example if you discuss microforaminiferal linings, and pollen and spores, then use these terms throughout and do not also refer to foraminiferal test linings or miospores (Riding 2021a, subsection 15.4). Avoid even borderline slang terms wherever possible, for example dinoflagellate cysts is a far better term than the much more colloquial ‘dinocysts’. Finally, if you are writing about geological time and sedimentary rocks, do remember not to confuse chronostratigraphy (early, late) with lithostratigraphy (lower, upper) (Aubry 2007).

Try to note even the most arcane items, for example using en dashes (‘long hyphens’) rather than hyphens to indicate ranges of numbers, dates etc. For example ‘….the years 1970–1985 were a very productive interval for research on dinoflagellate cysts’. In a manuscript you should use en dashes when writing the page range of papers (e.g. 232–250). Please bear in mind that, contrary to popular belief, editors are human and will not mind if you have used hyphens instead of en dashes for page ranges etc. and the production team will change them for you. These sort of relatively obscure issues will be dealt with by the copyeditors and typesetters when your paper is in production.

9. Concluding remarks

It is hoped that this relatively short piece is an effective practical guide which will provide useful advice, particularly to all persons who are interested in joining the prodigious numbers of scientists who are already published. There are thought to be around 30,000 journals out there. The number of published papers in science and engineering has increased by at least 4% per annum between 2008 and 2018. Recent bibliometrical statistics reveal that just over 2.5 million articles were issued globally during 2018, compared with ~1.7 million in 2008 (Science and Engineering Indicators 2019). Hence it could be persuasively argued that we are in an era of information overload (Landhuis 2016).

This article has been crafted with palynologists specifically in mind. Bear in mind that this guide is deliberately concise while hopefully being as comprehensive in scope as possible. Despite my best efforts, I will not have mentioned everything. It is absolutely not a specific pitch for Palynology; you can publish wherever you like and this is all to the good of our fantastic area of science.

It is an unequivocal fact that scientific publishing requires substantial effort but, with hard work, your paper will get published. Remember that executing superb science is one thing, but you also have to work hard on clear and concise written communication, and the excellence of your display materials. By far the best way to become adept at technical writing is by actually doing it. You will learn far more while preparing your first manuscript than during any course or by reading a textbook cover-to-cover. Good luck!

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