Tips on How to Write and Submit a Successful Paper

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THE CANADIAN JOURNAL OF CHEMICAL ENGINEERING

Canadian Society for Chemical Engineering | *For Our Future*
Société canadienne de génie chimique | *Pour notre avenir*

Publishing your work

- If you don't publish you research results, it is as though you never did the work.

- Nobody reads theses: You **must publish** your results in peer-reviewed journals if you want to be recognized for your work.

Submission documents

- Cover letter
- Text
- Figures
- Tables
- Supplementary material
- Preferred reviewers
- Non-preferred reviewers

The cover letter

The cover letter is the first file the Editor will read in your submission: **Make it count**.

- Why is this topic important?
- Why are these results significant?
- What is the key result?
- Why is it an advance on previous work?
- Why are you submitting to this journal?
- Why will this journal's readers read it?

***Tip*: Keep the letter short but relevant.**

Example of a good cover letter

Dear Prof. Soares,

We are submitting the paper "XXX", by XXX to *The Canadian Journal of Chemical Engineering*.

Mention the journal' s name

All authors agree to submit this work to *The Canadian Journal of Chemical Engineering*. The work has not been published elsewhere nor is it being submitted to another journal. All authors agree to transfer the copyright to the Wiley Online Library.

Agreement with journal's publication policies

This paper is innovative, as it reports, for the first time, how to use the natural coagulant XXX to remove fluoride from groundwater for human consumption. Excess fluoride in groundwater is a problem worldwide because its consumption beyond the limits established by legislation may lead to serious health problems for the population.

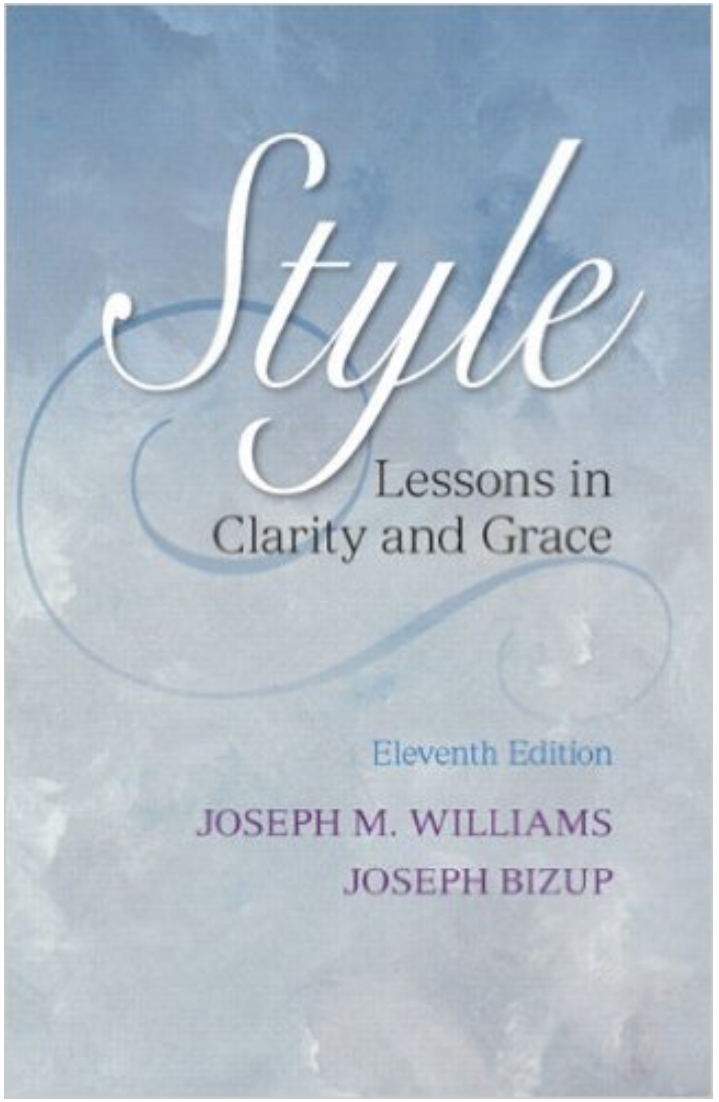
The significance/ innovation of the work

This work proposes fluoride removal using XXX coagulant as an accessible option for poor communities. The process achieves acceptable levels of fluoride in treated water safely, and is particularly relevant for water treatment in North African countries. Our method uses a process that combines coagulation and membrane filtration to produce high-quality water with with colour, turbidity, and fluoride levels within the parameters required by international legislation.

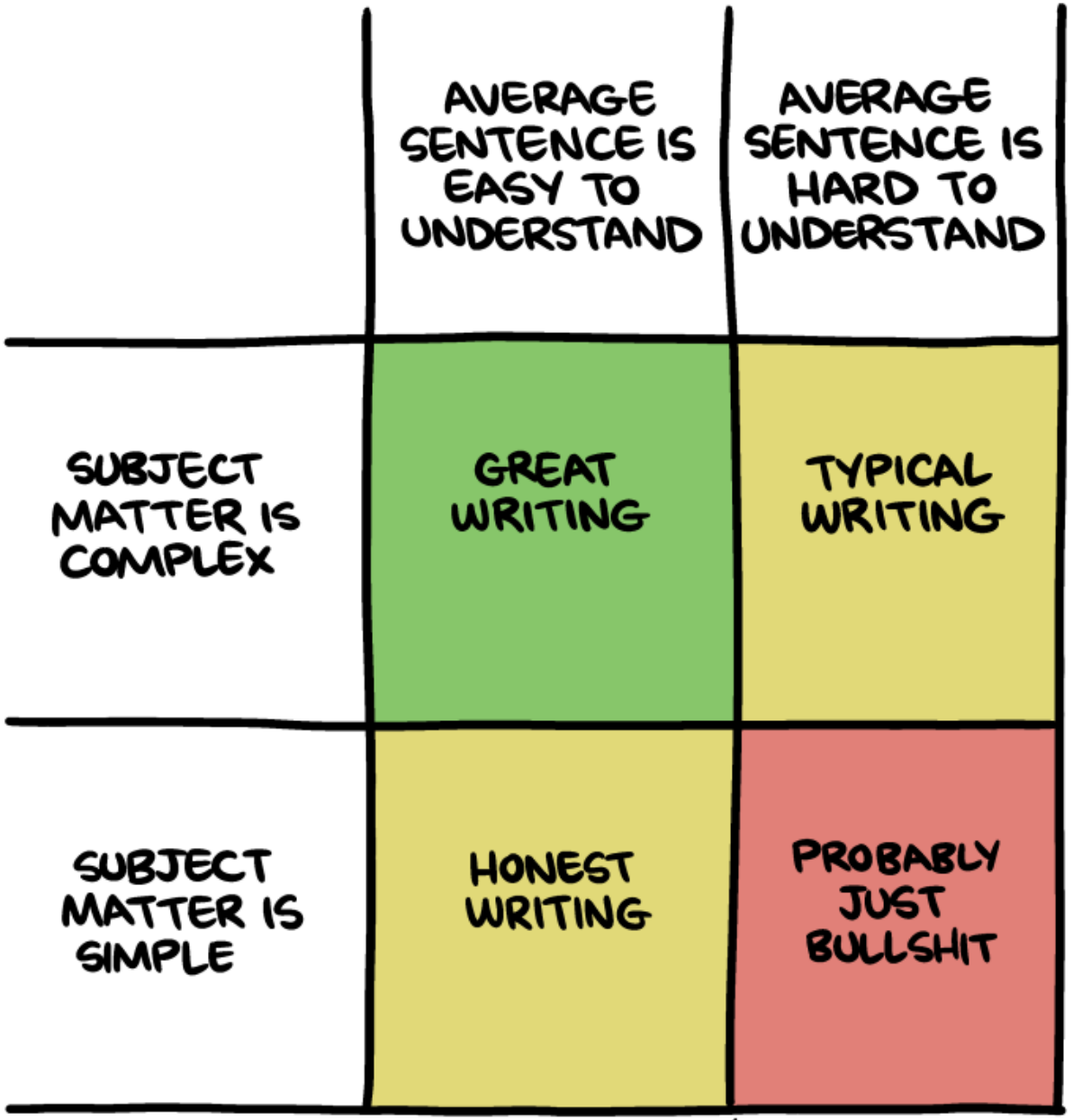
The key result

Basic components of good writing

- Grammar
- **Sentence style**
- Composition



SCIENCE ARTICLES: A GUIDE



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NO, NO, IF YOU MAKE THE PAPER TOO EASY TO READ, EVERYONE WILL KNOW HOW YOU GOT THE RESULTS!

The First Two Principles of Clear Writing

- The subject of the sentence names who is doing the action.
- The verb names the crucial actions that are taking place in the sentence.
    - Our lack of knowledge about local conditions precluded determination of committee action effectiveness in fund allocation to those areas in greatest need of assistance.
    - Because **we knew** nothing about local conditions, **we could not determine** how effectively the committee had allocated funds to areas that most needed assistance.

Use verbs to express actions, not to state that an action exists (nominalization or verb murdering)

- A need exists for greater candidate **selection** efficiency.
- We must **select** candidates more efficiently.
- There is the possibility of prior **approval** of the motion.
- He may **approve** the motion ahead of time.
- We conducted an **investigation** of the phenomenon.
- We **investigated** the phenomenon.
- A **review** was done of the regulations.
- They **reviewed** the regulations.

Passive and Active Voice

Your sentences will sound more direct in the active voice:

- It was shown that the pressure varied periodically.
- The pressure was measured periodically.
- We measured the pressure periodically.
- The pressure varied periodically.

Concision

- Compress what you mean into the fewest words.
- Don't state what you reader can easily infer.

    - **Redundant pairs:** true and accurate, basic and fundamental, etc.
    - **Redundant modifiers:** completely finish, past memories, basic fundamentals, etc.
    - **Redundant categories:** period of time, shinny in appearance, accurate manner, large in size, etc.
    - **Meaningless modifiers:**
        - *For all intents and purposes*, American industrial productivity *generally* depends on *certain* factors that are *really* more psychological *in kind* than on any *given* technological aspects.

Concision – Pompous Diction

- Pursuant to the recent memorandum issued August 9, 1989, because of financial exigencies, it is incumbent upon us all to endeavor to make maximal utilization of telephonic communication in lieu of personal visitation.
- As the memo of August 9 said, to save the company money, use the telephone as much as you can instead of making personal visits.

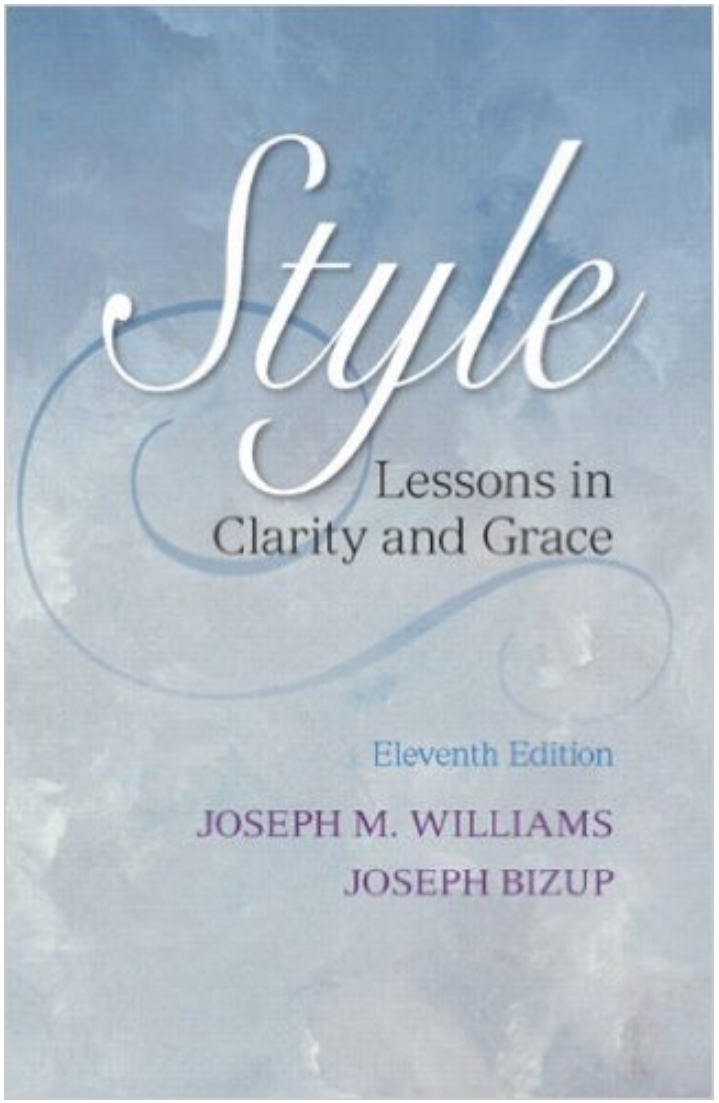
Metadiscourse: Writing about Writing

- **The last point I would like to make here is that in regard to** men-women relationships, **it is important to keep in mind that** the greatest changes **have probably** occurred in the way men and women **seem to** be working next to one another.
- The greatest changes in men-women relationships have occurred in the way men and women work next to one another.

Cohesion and Coherence

- Two important principles:
  - Put in the subject/topic of your sentence and ideas that you have already mentioned, or ideas that are so familiar to your reader that if you state them at the beginning of a sentence, you will not surprise anyone.
  - Among groups of related sentences, keep their topics consistent. They don't have to be identical, but they should constitute a string that your readers will take to be focuses (don't jump everywhere)

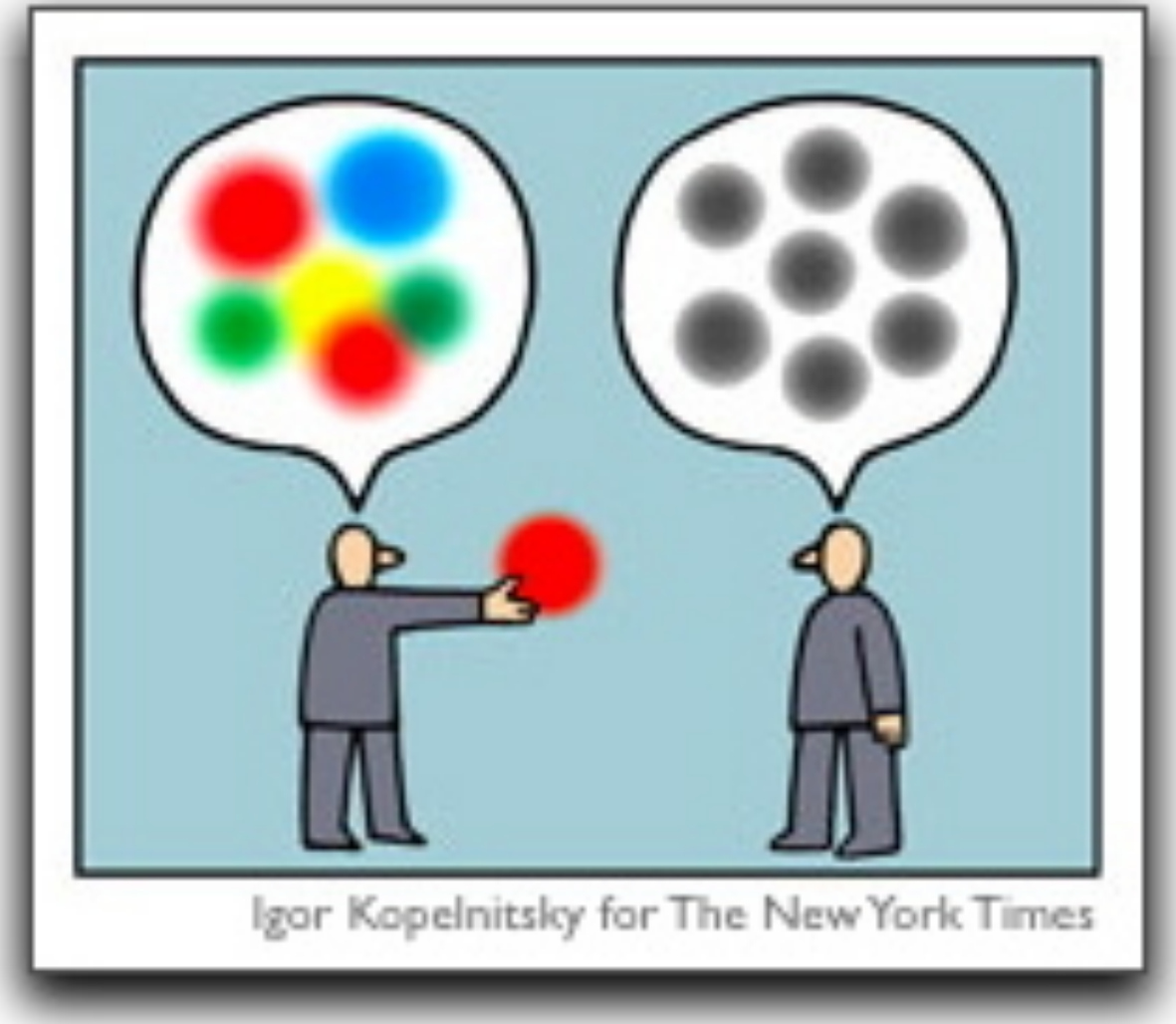
And much, much more…



Writing is Rewriting

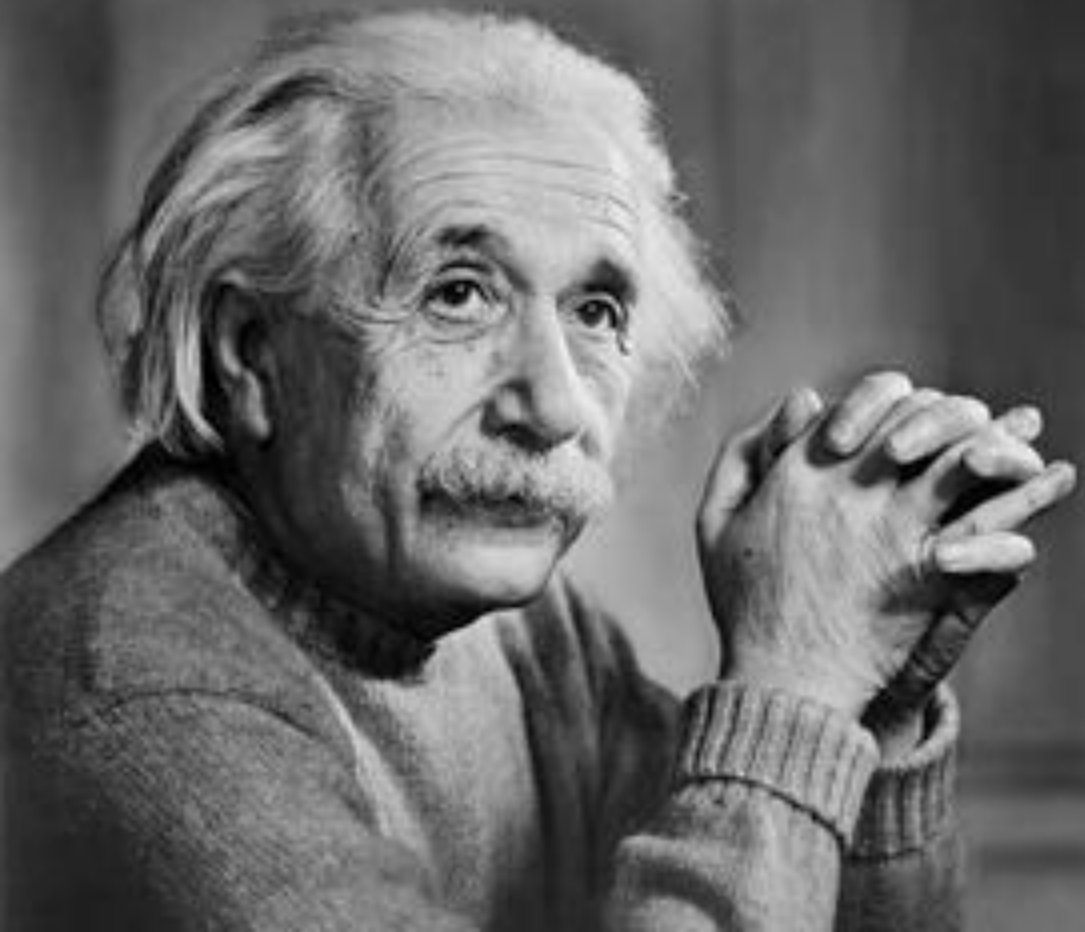
- You are not going to get it right on the first draft. Revise, revise, and revise again.

Important tip: Avoid the Curse of Knowledge

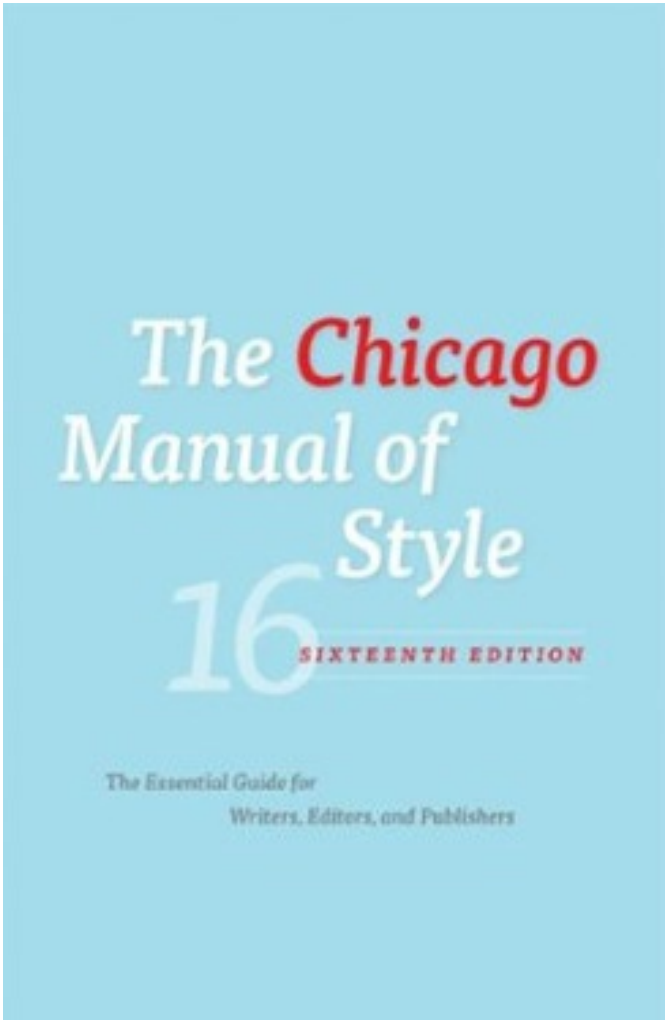


If you can't explain it **simply**, you don't understand it well enough.

– Albert Einstein



The Canadian Journal of Chemical Engineering **uses The Chicago Manual of Style (16th edition) when editing.**



Figures

Figures summarize the results.

Figures are generally "read" first by editors, by reviewers, and by the readers.

Figures should be designed for clarity, simplicity, and impact.

Captions should be written carefully and contain the essential information the reader needs to understand the figure.

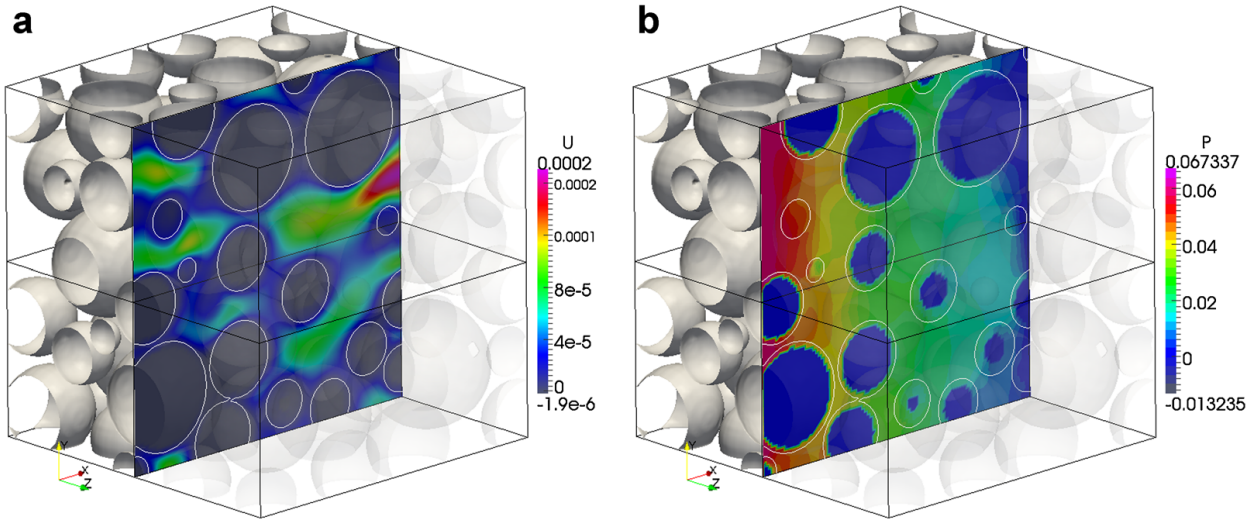


Figure 2. Water flow through a granular porous media (velocity [m/s] and pressure [Pa] contours).

From *Can. J. Chem. Eng.* **2013**, *91*, p. 1204.

Figures should be esthetically pleasing to the reader.

Tables

- The same comments made for figures apply to tables.
- Avoid unnecessary repetition of information.
- Keep tables as simple as possible.

Table 4. Comparison of different technologies at time = 408 days

Parameter/Technology	P-CRIP	L-CRIP	LVW
Coal Seam	Ardley	Ardley	Ardley
Module in-seam Length (m)	32	51	51
Avg. Syngas Flow Rate at Wellhead per Module (Nm^3/day)	2675	2903	4343
Dry Syngas Composition (dry gas basis)			
CH_4	45.42	39.06	50.00
CO	0.03	0.05	0.02
CO_2	42.60	40.91	40.06
H_2	0.19	0.55	0.06
N_2	11.45	14.06	9.86
O_2	0.32	5.38	0.00
Total Carbon Initially in Place (kg)	55 406 000	55 406 000	55 406 000
Avg. Coal Conversion Efficiency (%)[a]	0.851	0.840	1.414
Avg. HHV of Syngas (MJ/Nm^3)	17.12	14.77	18.83

[a]Defined as (kg of Carbon in produced syngas)/(kg of Total Carbon Initially in Place) * 100

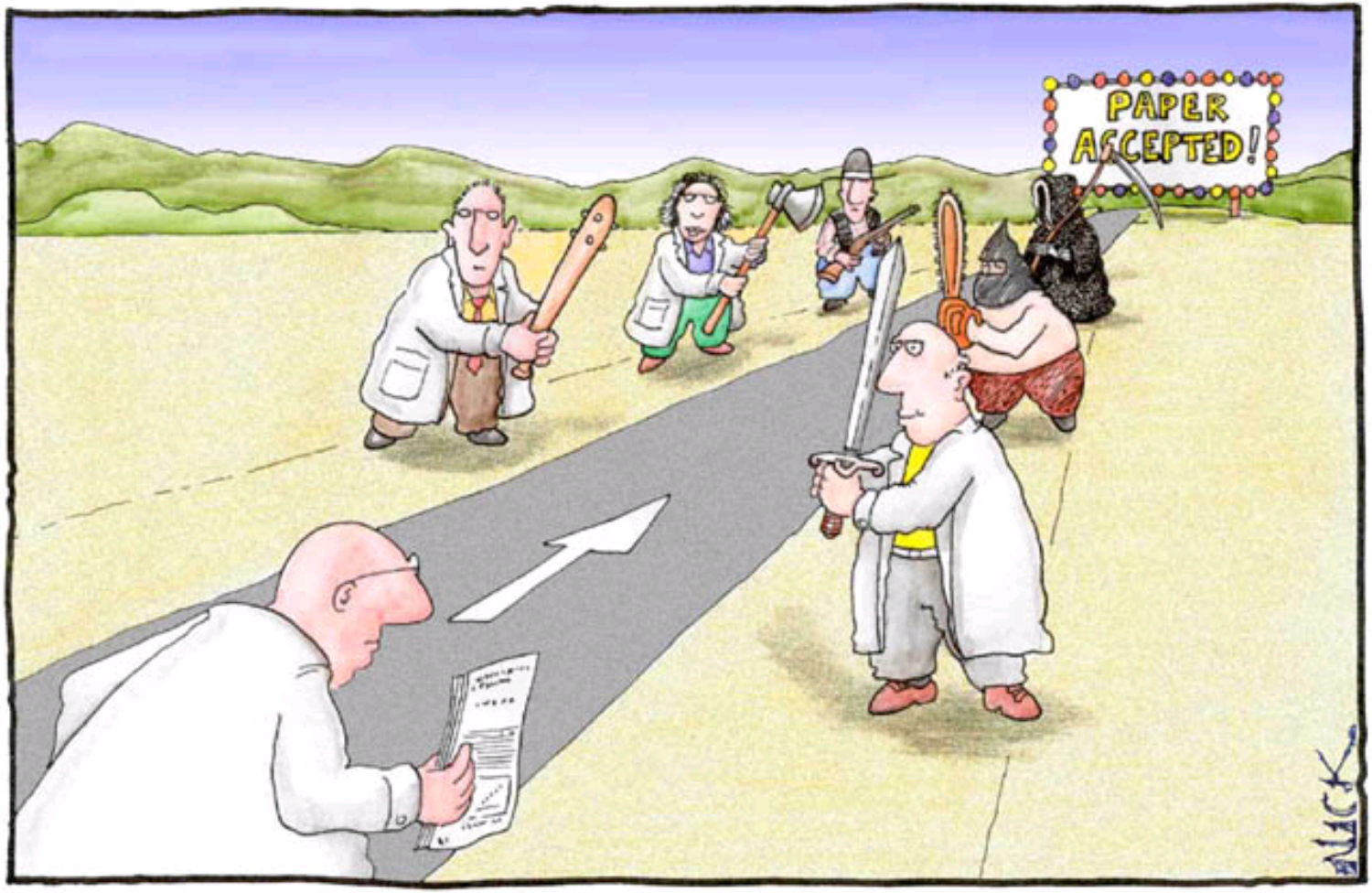
from *Can. J. Chem. Eng.* **2015**, *volume 93(7),* p. 1317.

Tip: Tables are excellent tools to report and summarize your results, but if you want to call the attention of your readers to a particular finding, use figures.

A few notes on formatting

- Formatting requirements **are not optional**.
- Pay attention to the formatting specifications for text, references, figures, and tables.
- Figure resolution is important. You must meet the requirements established by the journal.
- Failing to follow formatting specifications will delay publication.
- In the worse case scenario, the editor may reject your article because of poor formatting.
- Copy editors will help you format your article, **but you are ultimately responsible to meet all format requirements**.

The peer-review process

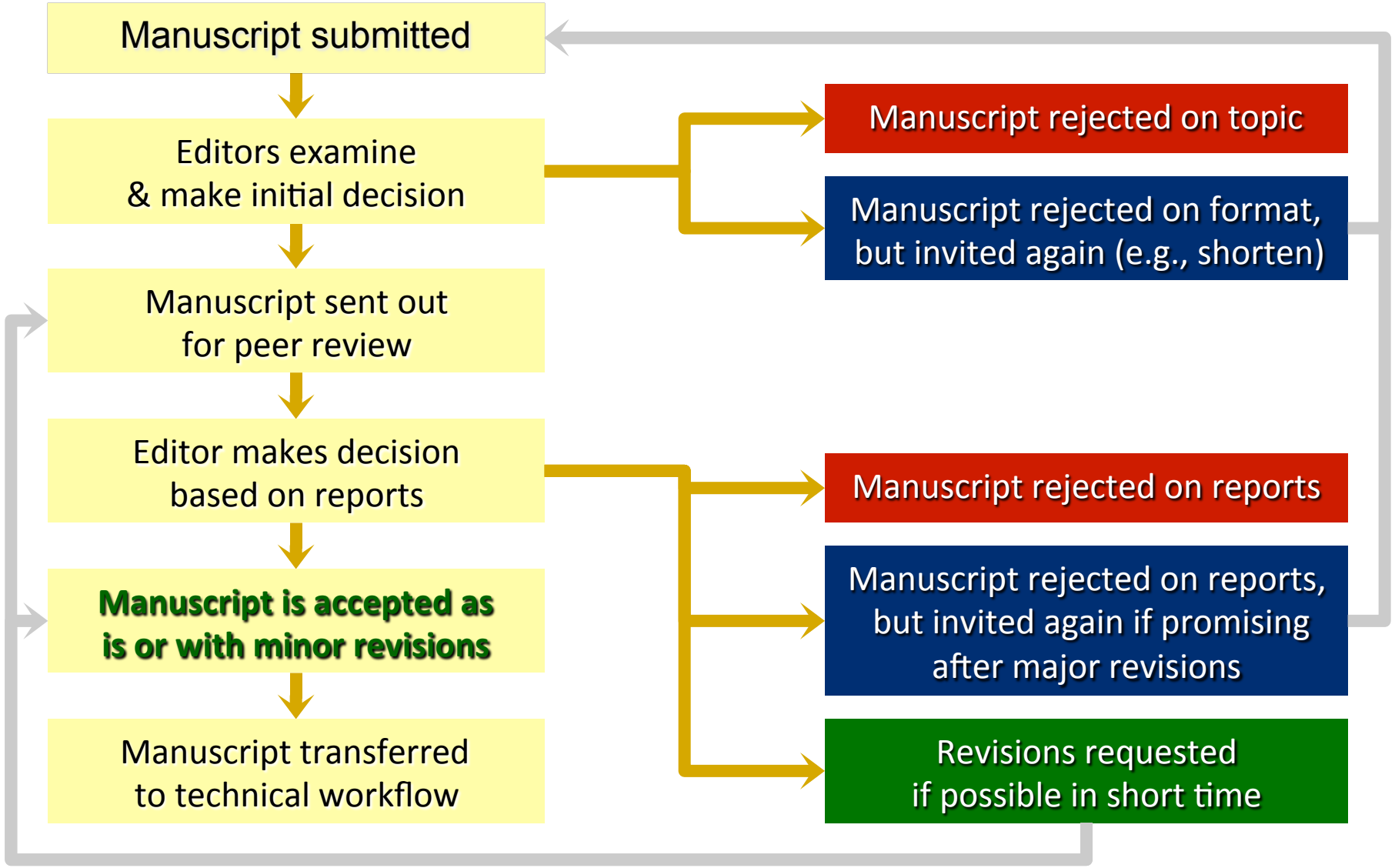


Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

The peer-review process

- **First Hurdle**
  - The Editorial Office
- **Second Hurdle**
  - The Editor
- **Third Hurdle**
  - The Reviewers
- **Fourth Hurdle**
  - The Rebuttal Letter

The editorial workflow



1st Hurdle: The Editorial Office

The editorial office will screen papers according to criteria:

- Is the English usage adequate?
- Is the topic suited to the journal?
- Do the figures have adequate resolution?
- Are the citations and references formatted correctly?
- Does the manuscript look professionally done?
- Are there any plagiarism issues that can be easily detected by *iThenticate* or similar plagiarism software?

- If the editorial office is not satisfied with your manuscript, it will not be sent to the Editor.

2nd Hurdle: The Editor

Editors receive many more papers than they can publish.

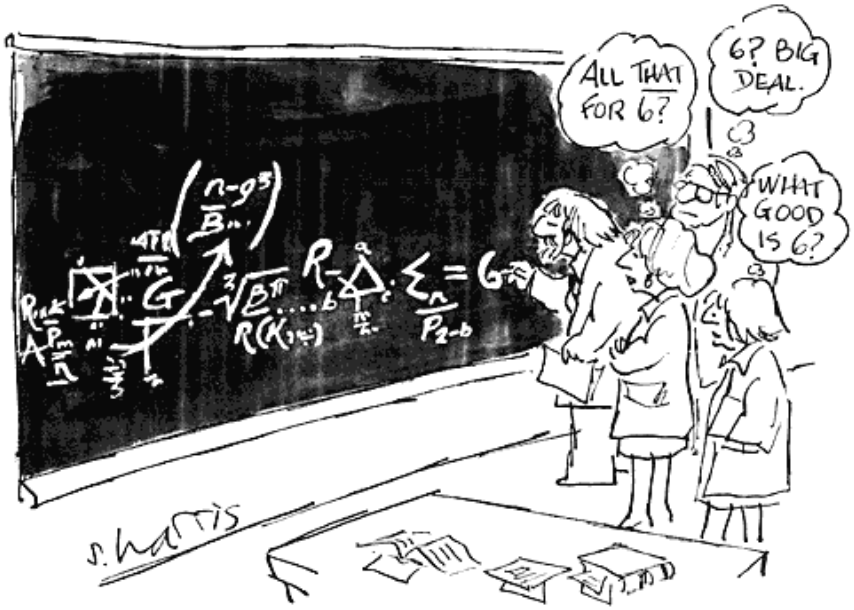
A few things can help you get your paper past the first screening by the Editor:

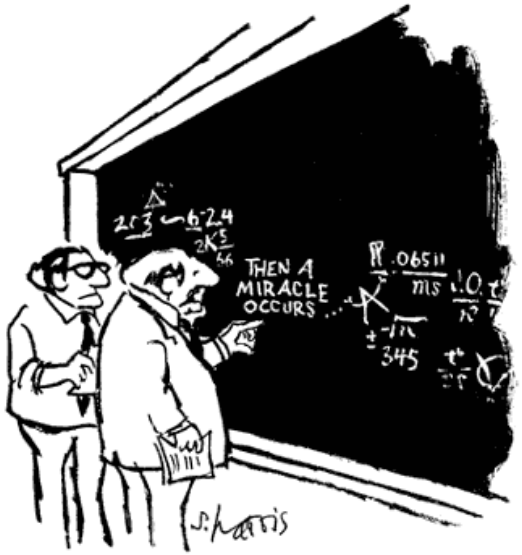
- Emphasize the novelty and main contributions of your work in the **Cover Letter**.
- Write a concise **Abstract** that shows the importance of your work – editors use this information to check for paper suitability.
- **Introduction**: "In this paper we…" Make sure your contribution is well differentiated from the previous art.
- **Conclusions**: Concise, to the point, emphasizing relevance of your findings. Avoid the use of bullet points.
- Make sure the **References** cited in the paper are up-to-date and come from reputable scientific journals.

If the Editor is not convinced your manuscript has the potential to be scientifically relevant, it will not be sent to the reviewers.

3rd Hurdle: The Reviewers

- Write clearly and explain your procedures in detail. Nothing bothers reviewers more than a confusing and/or incomplete paper.





"I think you should be more explicit here in step two"

- Avoid pedantic language, colloquialisms, and clichés.
- Do not make a big deal about things that are obvious.
- Emphasize the novelty of your manuscript.

Reviewers will rightfully reject your paper if:

- There are clear mistakes in methodology and result interpretation.
- You fail to explain the novelty and significance of your results.
- Your conclusions are not supported by your experiments or simulations.
- Your contributions are minor.
- Your manuscript is just a repetition of similar work previously published in the literature applied to slightly different conditions.
- You have not described your experiments/simulations with sufficient detail to allow for replication of your results by other researchers.
- The reviewers cannot follow your rationale because you used unclear sentences, poor grammar, confusing explanations, missing data, incomplete method descriptions, etc.
- If the manuscript appears to be written without proper attention to the details, figures are confusing or incomplete, etc.
- The reviewers suspect self-plagiarism or plagiarism.

4th Hurdle: The Rebuttal Letter

- Answer all the questions from the referees clearly, and explain which changes were adopted in the manuscript to account for their criticisms.
- Write a list with all changes made in the article. Some authors also like to highlight the changes in the article.
- Papers that require many changes are often sent for a second review by the same referees; a clear explanation of the changes is important.
- **Don't offend the reviewers in the rebuttal letter, even if you really want to.**
- You are not expected to agree with all the comments made by the referees, but you have to explain to the editor why you disagree with the comment(s), and why you took no action to modify the manuscript.

Disagreeing with the reviewer

Dear Prof. Soares,

Thank you very much for your positive decision concerning our submitted manuscript. We have carefully considered the reviewer's comments concerning minor corrections and explanations. The revised manuscript has taken these points into account. However, the reviewer has suggested that we carry out two more simulations for the monodisperse case, and to show additional figures for this case. ***We do not think that these changes will add to the main message of the paper for the following reasons.***

The QBMM algorithm is designed for polydisperse cases with a wide distribution of bubble sizes. In the monodisperse case, it simply reduces to the standard two-fluid model. The reason that we have shown results for the monodisperse case is to demonstrate the equivalence between the two-fluid and QBMM results (i.e. to verify that the proposed QBMM algorithm functions correctly in a known limit). **Thus, in our opinion, adding more results for the monodisperse case would say nothing about the QBMM solver, which is the focus of the paper.** In fact, if someone is interested in the monodisperse case we would recommend that they use the two-fluid model because of its slightly lower cost.

In summary, the reviewer asks for various additional figures for the monodisperse case. **We decline to make these changes because we want the principal results to focus on the polydisperse case with a wide bubble size distribution.** In fact, we have published as extensive study of the Delft experiment in IECR a few years ago (ref. 17 in this paper) wherein the reviewer's comments have been addressed.

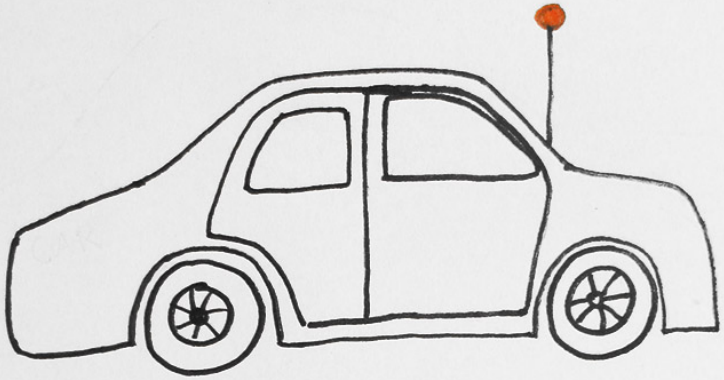
Best regards,

J Smith

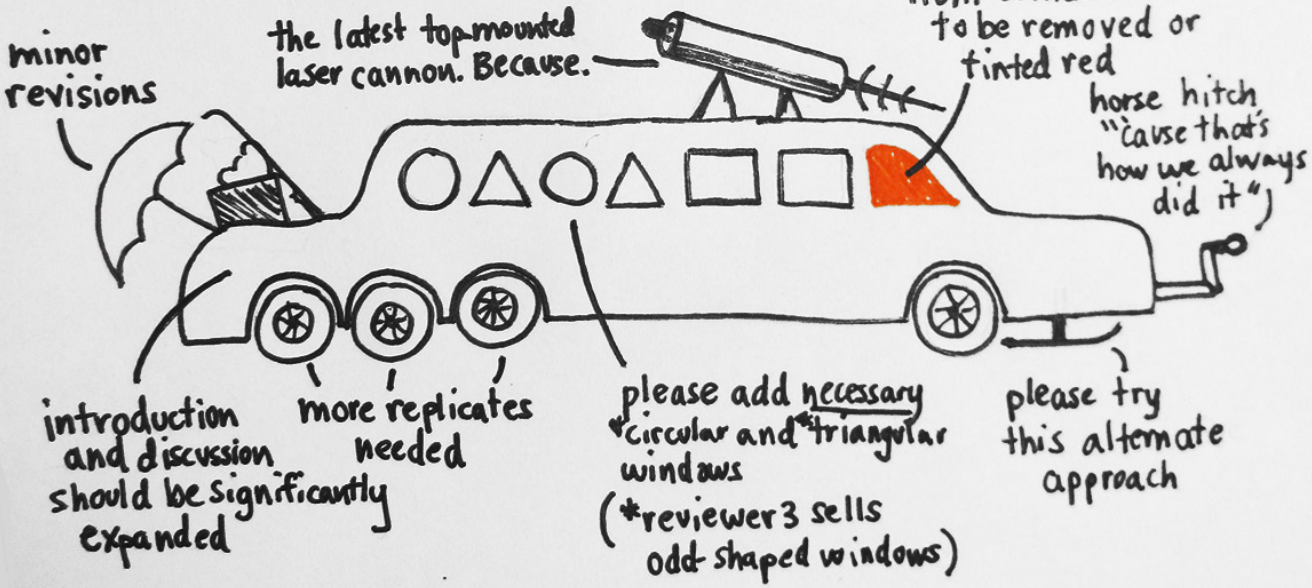
Manuscript acceptance

- If your answers to the referees' comments and the changes made in the manuscript to account for them are adequate, you will receive an acceptance letter from the editorial office.
- In a few weeks or months after the acceptance you will receive proofs of your manuscript:
- Review the proofs carefully, paying attention for possible mistakes during the production stage. Pay special attention to equations, tables and figures.
- A copy editor may review and edit your manuscript to enhance English usage. In some rare cases, the meaning of your sentences may be altered by mistake during this stage. Read your manuscript carefully to avoid this from happening.
- Answer all queries that may come with your proofs and provide any missing information and/or format changes requested by the editors.

Your manuscript as submitted



... and after peer review and revision



REDPEN/BLACKPEN http://redpenblackpen.jasonya.com

Ethical Misconduct

Examples of ethical misconduct that will not be tolerated:

- Falsifying data
- Fabricating data
- **Plagiarism/Self-plagiarism**
- Duplicate publication
- Multiple concurrent submissions
- Image manipulation
- Authorship misrepresentation

All of the above can have serious consequences for the author, ranging from a letter of reprimand all the way up to criminal proceedings.

Plagiarism

Noun

the practice of taking someone else's work or ideas and passing them off as one's own.

- Plagiarism will have devastating consequences in your career

  Do not do it!
- All reputable journals will investigate alleged plagiarism cases
- If you are found to be guilty:
  - Your institution will be immediately notified.
  - You will be banned from publication in the journal to which you submitted your article and other journals from the same publisher.
  - The journal‘s publisher will contact other scientific publishing houses, resulting in an overall ban of your future publications.

“I need you to do a presentation on the topic of ‘plagiarism’. If you don’t have time to prepare anything, just steal something off the Internet.”

Self-plagiarism: What is this?

- Self-plagiarism is the least understood of the ethical misconduct infractions, especially by inexperienced authors.
- What constitutes self-plagiarism?
- Copying entire sentences/paragraphs from your previous publications (journal papers, conference proceedings, book chapters, any material for which you do not hold the copyright).
- This applies even to information in the *Introduction* section of papers, but it is less important when describing experimental methods that were reported in previous papers.
- Copying figures and tables from your previous publications without proper acknowledgement.
- "Rewriting" a full paper by just adding a few new experimental or theoretical results.
- Creating a new paper by assembling pieces of your previous papers.

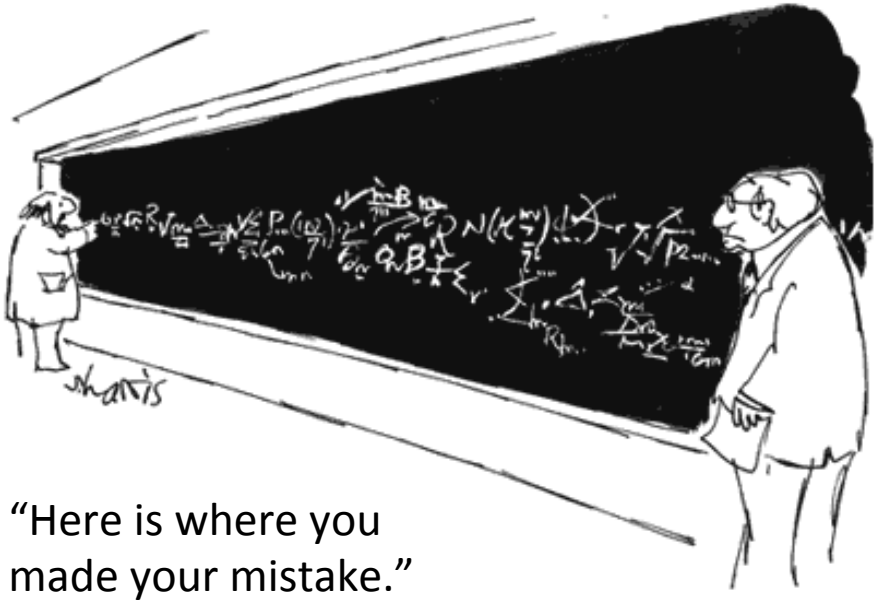
Self-plagiarism: How to avoid it

- It is easy: just don't copy-and-paste information from your previous publications.
- Some solutions for the problems in the previous slide:
- If it is necessary to repeat some information from the *Introduction* of previous publications to make your new paper easier to understand, do not copy-and-paste it, rewrite it. You can probably do a better job the second time around, in any case.
- If you really need to copy-and-paste information from previous publications, present it between quotation marks and clearly refer to where it first appeared.
- If you need to use figures and tables from previous publications, make sure to cross-reference them to the original publication. You may need to get a copyright release permission from the publisher.
- If you found a few new interesting results that are not enough to write a full paper, submit a short communication, referring back to the paper where the initial and more detailed study was reported.
- If you want to summarize the work of several of your previous papers in a single publication, ask the editor to write a *Feature Paper*.

And, if your paper is refused publication…

It sucks, but don't despair. It can happen to anyone. Use the *relevant* comments from the reviewers to prepare a better paper.

Think of it as an opportunity to get better prepared for your thesis or your professional research.



"Here is where you made your mistake."

"A scientist is a mimosa when he himself has made a mistake, and a roaring lion when he discovers a mistake of others." – *Albert Einstein*

Should I appeal a rejection decision?

100 *How to Write and Publish a Scientific Paper*

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Usually, no

Risk of long time to publication

Good papers are noticed and cited no matter where they are published

Occasionally, yes

Importance, impact, or novelty missed by the editor/referees

Factual errors in referee reports that led to rejection

Award for the Best Graduate Student Paper Published in The Canadian Journal of Chemical Engineering

The Award

- A certificate
- One Canadian Society for Chemical Engineering (CSChE) Conference registration
- Invited presentation
- Biography published in *Can. J. Chem. Eng.*

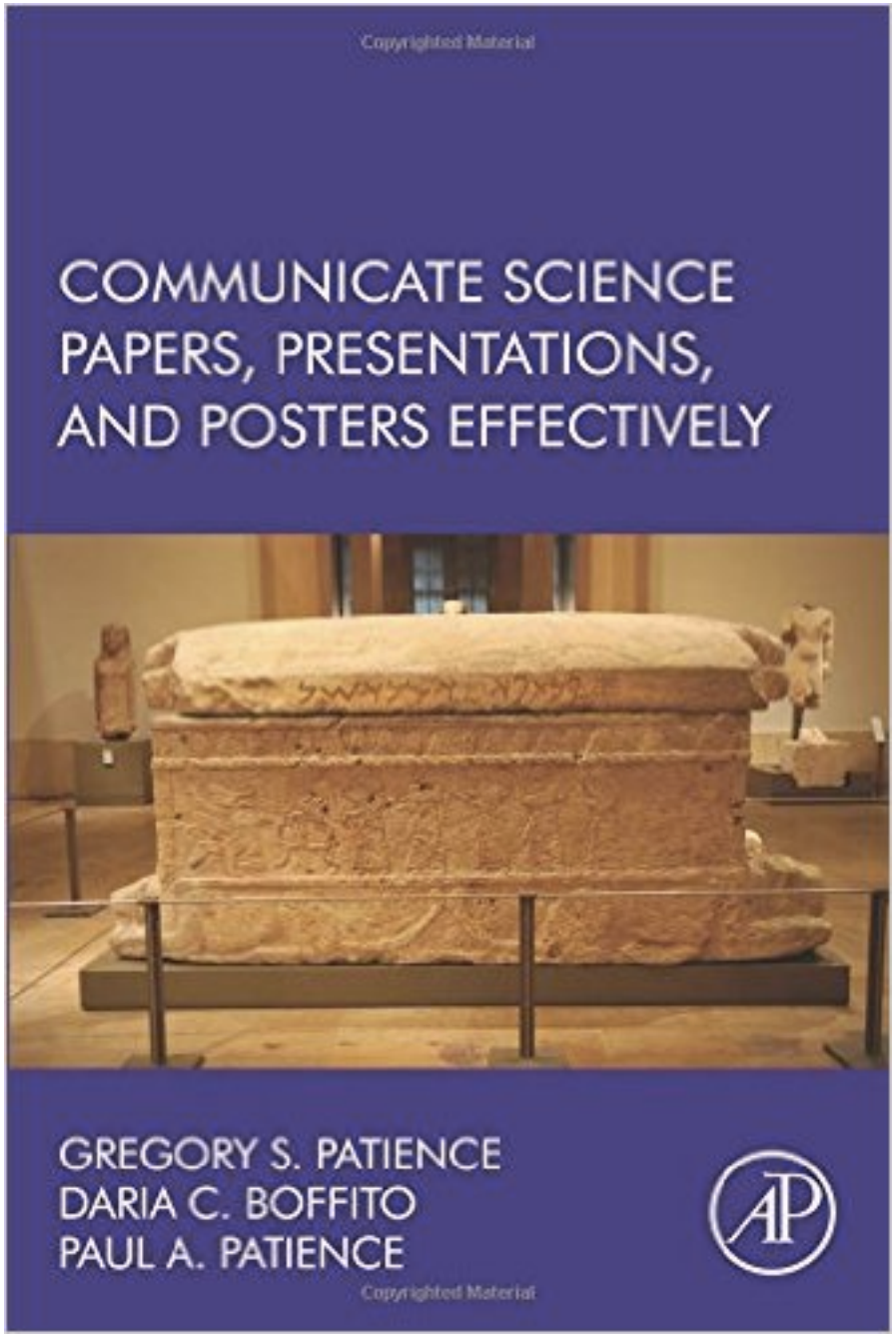
Eligibility

- Outstanding work published in *Can. J. Chem. Eng.* by a graduate student while studying at a Canadian university during a 12-month publication period.
- The graduate student must be the primary author.

Selection

- The Editor-in-Chief prepares a short list of articles.
- Canadian Associate Editors rank the papers in the short list according to their scientific excellence and impact.

If you would like to learn more, I suggest this book for further reading.



Questions?