How To Write a Scientific Publication on Radiation Protection

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Outline

- **Introduction**
  - Increase in publications
- **How to write a high quality manuscript**
  1. Steps to do before writing
  2. Proper manuscript language
  3. Structuring your article
- Refereeing process

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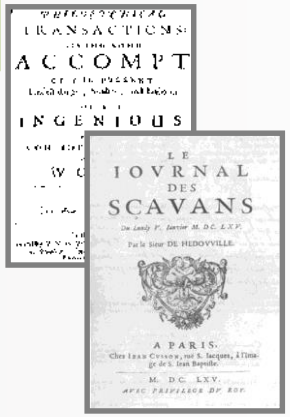
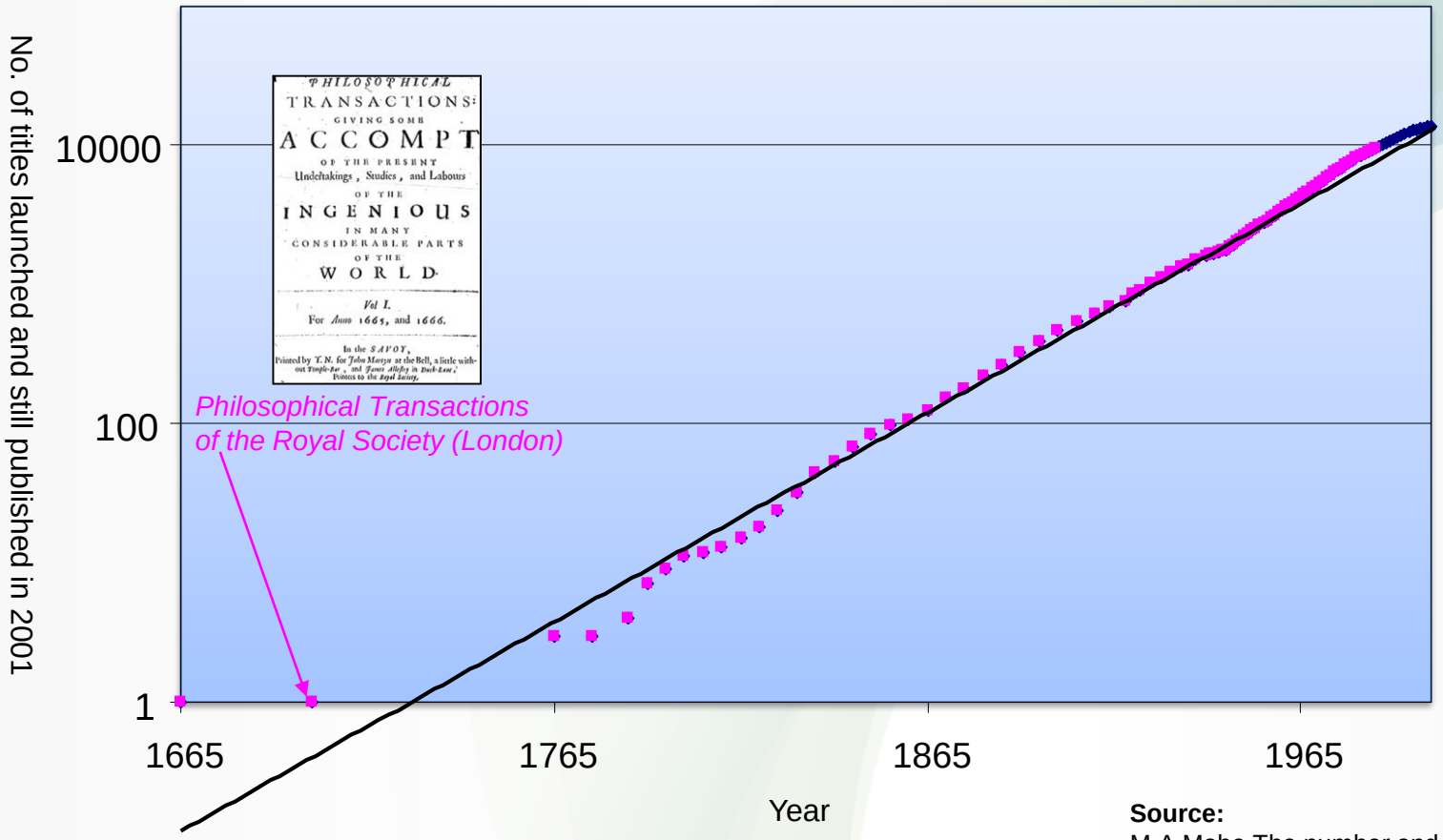
The Publishing Industry Over Time…

1580 | 1665 | 1880 | 1989 | 1998-1999 | 2000 | Today



Peer-Reviewed Journal Growth 1665-2001



Source:
M A Mabe The number and growth of journals
Serials 16(2).191-7, 2003

Publishing Connect
Partnering with the Global Research Community

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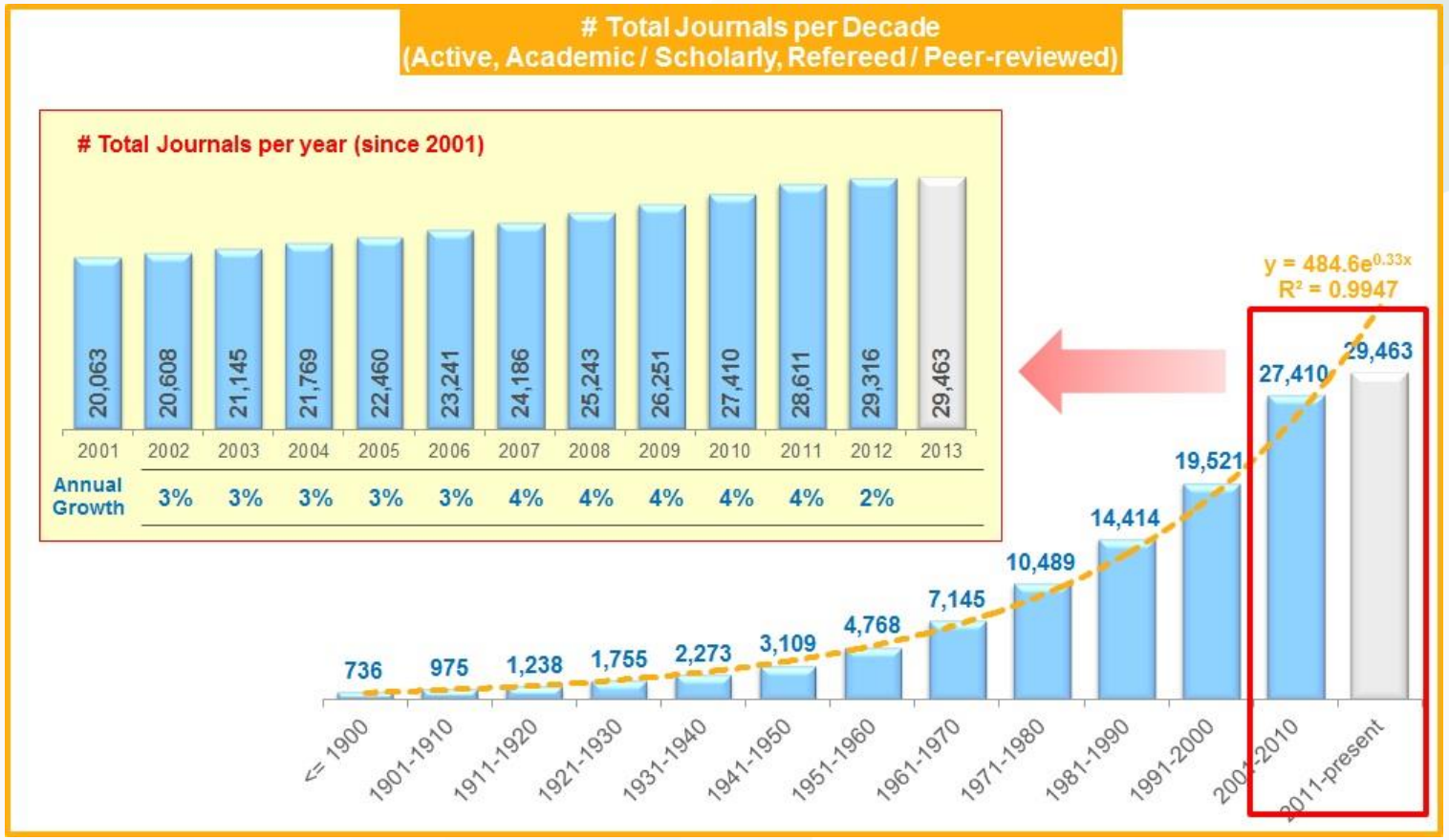
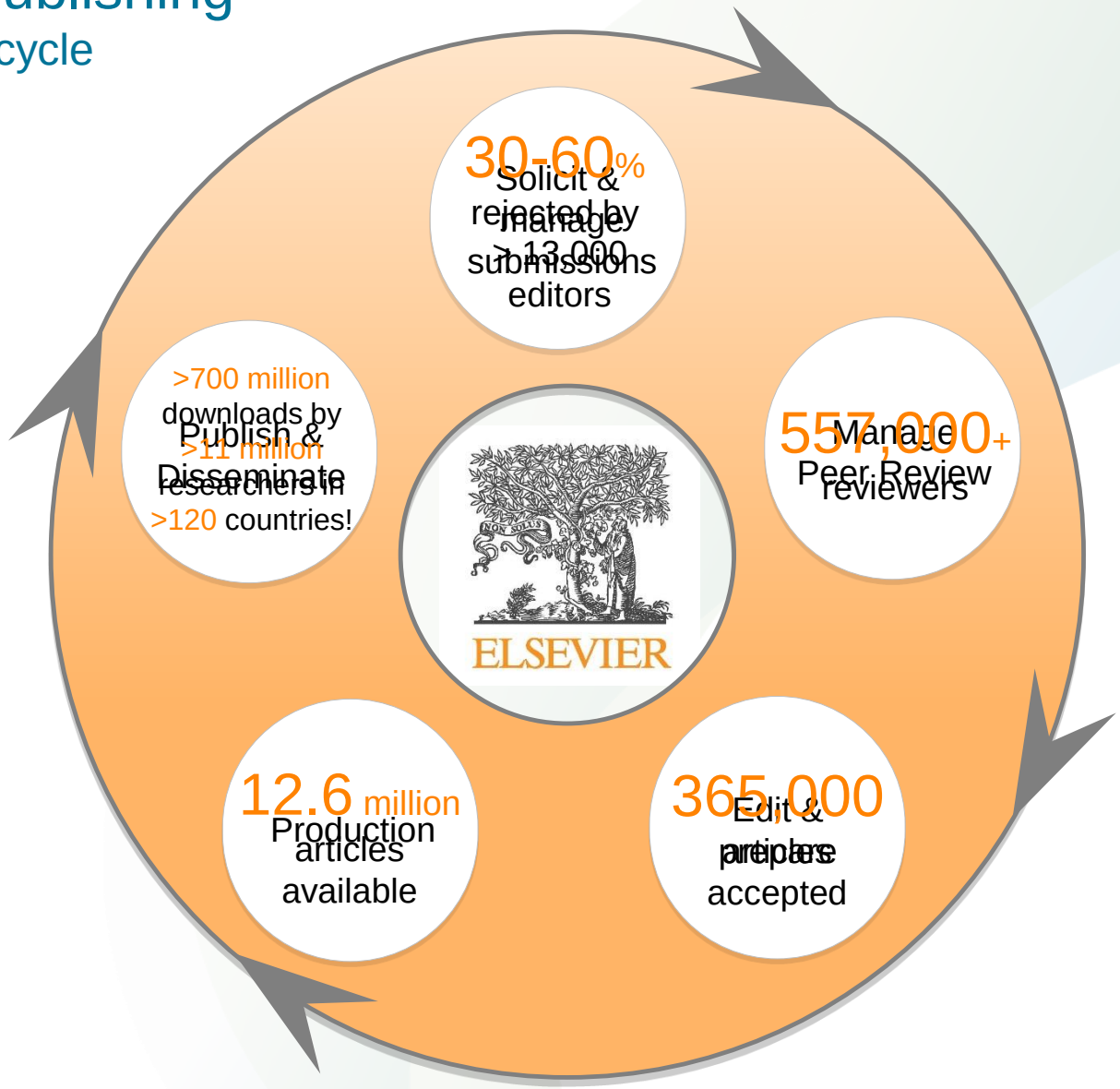
Peer-reviewed journal growth



Source: Ulrichsweb Global Serials Directory

Academic publishing

The publishing cycle



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Objectives

1. What steps do I need to take before I write my paper?
2. How can I ensure I am using proper manuscript language?
3. How do I structure my article properly?

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Your personal reason for publishing

Get funding?

Get promoted?

PhD degree?

....?????

Reaction of the Editor: So what?

What Editors like to see

- New, original results or methods
- Rationalizing, refining, or reinterpreting published results
- Reviewing or summarizing a particular subject or field

Something to **share** with the scientific **community**
that **advances knowledge** in a certain field
that fits within the aims and scope of the journal

Examples

Measurements of radiation exposure of radiography students during their clinical training using thermoluminescent dosimetry

Calibration of an ^{41}Ar monitor

What is a high quality manuscript?

Clear & useful message

A logical manner

Readers grasp the research

Why is it important to submit a high quality manuscript?

- It is good for your personal scientific career
- But also for the Editor and Reviewers

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A good preparation requires:
the Do's

- Decision about the type of manuscript
- Submission to the right journal
- Pay attention to the journal requirements
- Check the English
- Pay attention to ethical standards

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and the DON'Ts

- Do not publish reports of no scientific interest
- Do not publish because 'it is not done before'
- Do not submit 'salami' articles
  research spread out over many papers, each too small to be a meaningful contribution to science
- Submit to one journal only

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One good paper does more for your scientific reputation then ten mediocre ones

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Decide the most appropriate type of manuscript

- Conference Paper
- Full article/Original article
- Short communication/letter
- Review paper/perspective

  - Self-evaluate your work: Is it sufficient for a full article? Or are your results so thrilling that they need to be shown as soon as possible?

  - Ask your supervisor and colleagues for advice on manuscript type. Sometimes outsiders see things more clearly than you.

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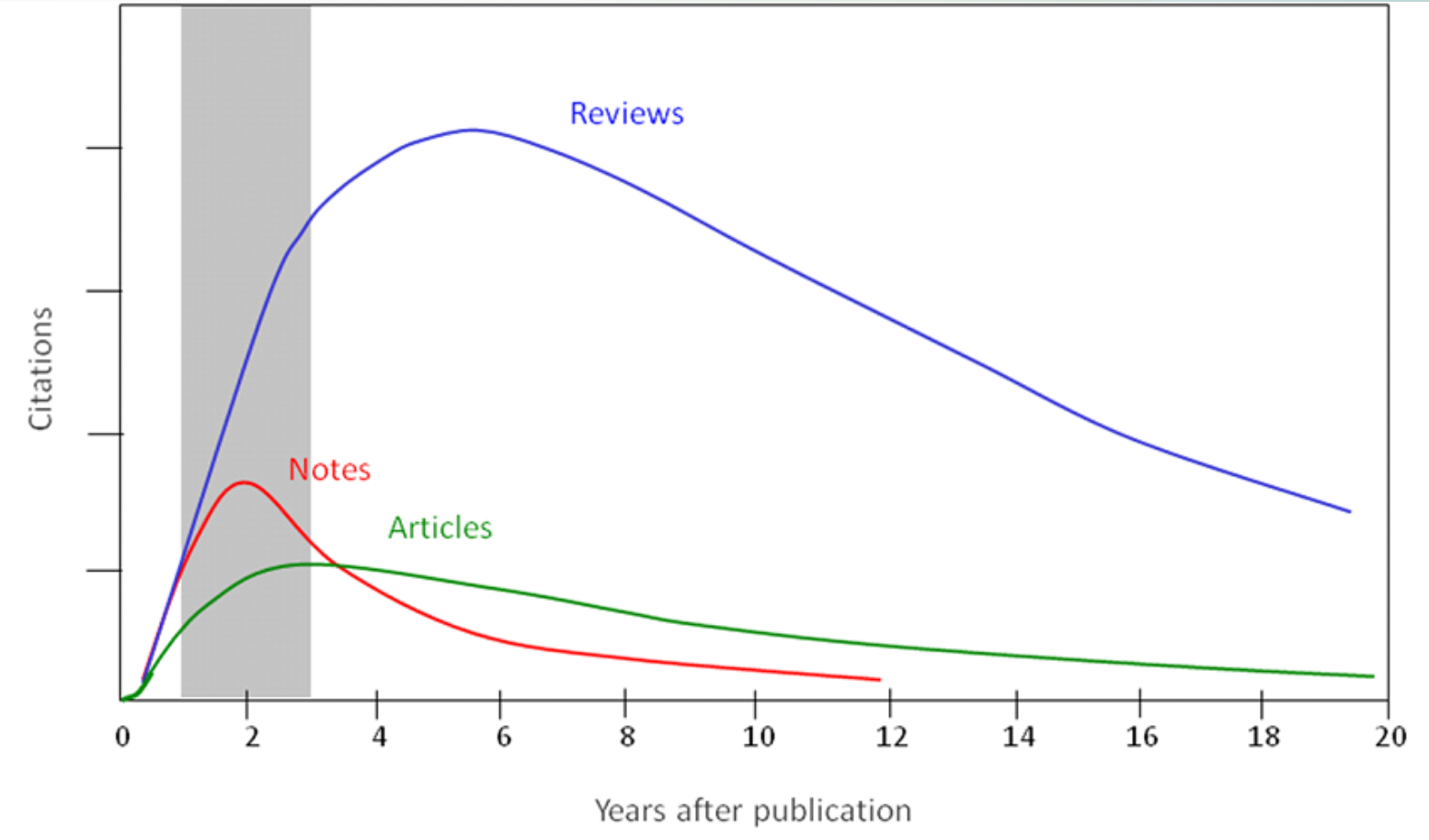
Citations impact varies by publication type



Choosing the right journal

Journals on Radiation Protection

- Radiation Protection Dosimetry (Oxford)
- Health Physics
- Journal of Radiation Protection and Research
- Journal of Radiological Protection (IOP)
- Nuclear Technology & Radiation Protection Journal
- Nuclear Science Engineering
- Applied Radiation and Isotopes
- Journal of Environmental Radioactivity
- Radiation Measurements
- Radiation Physics and Chemistry

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Choosing the right journal

Investigate all candidate journals to find out:

- Aims and scope
- Accepted types of articles
- Readership/community
- Current hot topics
  - go through the abstracts of recent publications
- Level - Don’t aim to high, don’t aim to low – but on target!

Tips:

1. use journal finder https://journalfinder.elsevier.com
2. look to the articles in your references

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Journal quality

"**Quality**" is in the Eye of the Beholder

- Authors: speed
- Editors: production, e-submission system
- Societies: distribution, free access
- Reviewers: language, science

Quality is indicated by the **Impact Factor** (IF).

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Impact Factor

- The number of current citations to articles published in a specific journal in a two year period
  - In 2015: 200 citations to papers published in 2014 and 275 to papers published in 2013.

divided by

- The total number of articles published in the same journal in the corresponding two year period.
  - The journal published 180 articles in 2014, and 205 in 2013

Impact Factor 2015 for this journal is:

(200+275)/(180+205) = 1.233

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Summary – What steps do I need to take before I write my paper?

- Determine if you are ready to publish
- Decide on the type of manuscript
- Choose the right journal
- Check the Guide for Authors

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Recap: Objectives

1. What steps do I need to take before I write my paper?

2. How can I ensure I am using proper manuscript language?

3. How do I structure my article properly?

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Why is language important?

- It not only important to have a message but also to communicate your message
- If the language is not proper time must be spent trying to understand what the author is saying

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Do publishers correct language?

- No. It is the author's responsibility
- However:
  - Publishers often provide resources
  - Visit http://webshop.elsevier.com for translation and language editing services

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Manuscript Language – Overview

Write with clarity, objectivity, accuracy, and brevity

Key to successful manuscript writing is to be alert to:

- Sentence construction
- Redundancy
- Voice (active – passive)
- Correct Tenses (past – present)
- Use of Adverbs

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Manuscript Language – Sentences

- Write direct and short sentences
- One idea or piece of information per sentence is sufficient

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Manuscript Language – redundancy

Redundant	Clear
It has been found that CO_2 and H_2O formation has been reduced at high temperatures	CO_2 and H_2O formation is lower at higher temperatures
Found to be able to account for	Accounted for
… was demonstrated to be excellent	Was excellent
Additional experimentation was completed	… more test were made

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Manuscript Language – Grammar

- Use **active** voice to shorten sentences
  - Passive voice: “It has been found that there had been…”
  - Active voice: “We found that…”
  - Passive voice: “carbon dioxide was consumed by the plant…”
  - Active voice: “…the plant consumed carbon dioxide..

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Language – abbreviations

- Avoid abbreviations: “it’s”, “weren’t”, “hasn’t”
  - Never use them in scientific writing
  - Only use abbreviations for units of measure or established scientific abbreviations, e.g. DNA
  - Double-check unfamiliar words or phrases

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Manuscript Language – Tenses
Past or present?

- Present tense for known facts and hypotheses:
  "The average life of a honey bee is six weeks"

- Past tense for experiments you have conducted:
  "All the honey bees were maintained in an environment with a …"

- Past tense when you describe the results of an experiment:
  "The average life span of bees in our contained environment was eight weeks…"

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Manuscript Language – Adverbs

Abverb	Imprecise	Clear
Extremely	The rate is extremely dependent on operating temperature	The rate depends on temperature
Significantly	The rate increases significantly with temperature	The rate doubles for every increase in 10 °C
Very, a lot	Samples were withdrawn from the tube very often	Samples were withdrawn at a frequency of 2 h^{-1}

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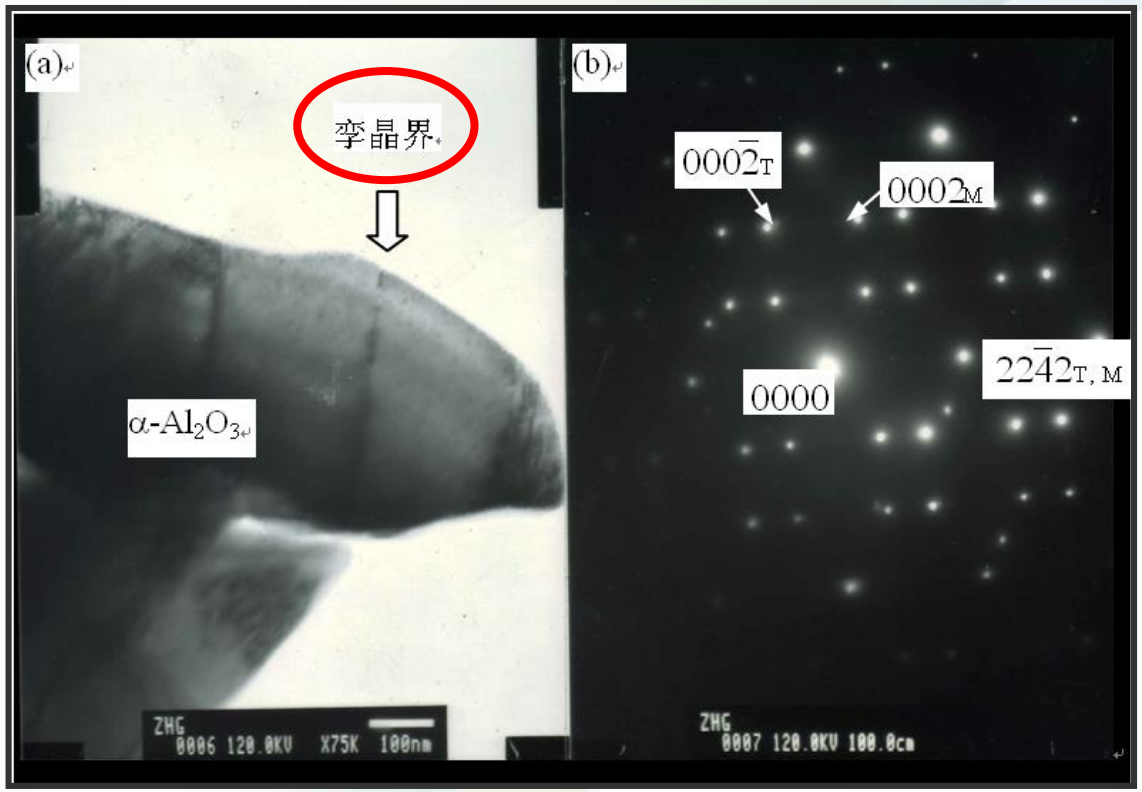
Language

Finally, you should use English throughout the manuscript, including figures.



Summary – How can I ensure I am using proper manuscript language?

- Proper manuscript language is important so that editors, reviewers and readers can easily understand your messages
- Refer to the journal's Guide for Authors for specifications
- Check that your paper has short sentences, eliminate redundant phrases, use correct tenses, minimize the use of adverbs, use correct grammar, and English throughout
- Have a native English speaker check your manuscript or use a language editing service

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Recap: Objectives

1. What steps do I need to take before I write my paper?

2. How can I ensure I am using proper manuscript language?

3. How do I structure my article properly?

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General structure of a research article

- Title
- Abstract
- Keywords

Make them easy for indexing and searching

- Main text (IMRAD)
  - Introduction
  - Methods
  - Results
  - And
  - Discussions

Journal space is not unlimited.

Make your article as concise as possible.

- Conclusions
- Acknowledgements
- References
- Supplementary Data

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The Process of Writing – Building the Article

Title

- A good title should contain the *fewest* possible words that *adequately* describe the content of a paper.
- Effective titles
  - Identify the main issue of the paper
  - Begin with the subject of the paper
  - Are accurate, unambiguous, specific, and complete
  - Are as short as possible
- Articles with short, catchy titles are often better cited
- Do not contain rarely-used abbreviations

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Title

Original Title	Revised	Remarks
Preliminary observations on the effect of Zn element on anticorrosion of zinc plating layer	Effect of Zn on anticorrosion of zinc plating layer	Long title distracts readers. Remove all redundancies such as "observations on", "the nature of", etc.
Action of antibiotics on bacteria	Inhibition of growth of mycobacterium tuberculosis by streptomycin	Titles should be specific. Think to yourself: "How will I search for this piece of information?" when you design the title.

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Abstract

... is freely available [PubMed, Medline, Embase, SciVerse Scopus, ...]

- This is the **advertisement of your article**. Make it interesting, and easy to be understood without reading the whole article.
- You must be **accurate** and **specific**!
- Highlights the **important results**
- A clear abstract will strongly influence whether or not your work is further considered.
- Keep it as **brief** as possible!!!

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Keywords

Used by indexing and abstracting services

- They are the labels of your manuscript
- Use only established abbreviations (e.g. TLD, LSC)
- Check the ‘Guide for Authors’
- Well-chosen keywords make your article easy to find

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Introduction

- **Provide context (keep it brief, no historical lesson)**
- **Clearly address the following:**
  - What is the problem?
  - Are there any existing solutions?
  - Which solution is the best?
  - What is its main limitation?
  - What do you hope to achieve (aim, goal, research question)?

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Introduction

Pitfalls

- Using more words than necessary
- mixing ‘ introduction’ with:

  ‘ results’ , ‘discussion‘ and ‘conclusion’
- Using expressions such as “novel”, “first time”, “first ever”, “paradigm changing”

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Methods

Describe how the problem was studied

- Include detailed information
- Do not describe previously published procedures
- Identify the equipment and describe materials used

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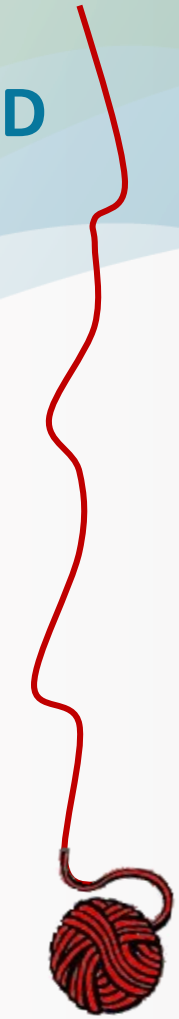
Results – what have you found?

- Tell a clear and easy-to-understand story. **RED THREAD**
  - Be structured (sub-headings)

- The following should be included:
  - The main findings
    - Thus not all findings (Add Supplementary Materials for data of secondary importance)
    - Findings from experiments described in the Methods section
  - Highlight findings that differ from findings in previous publications, and unexpected findings
  - Results of the statistical analysis



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Results – Figures and tables

- Illustrations are critical, because
  - Figures and tables are the most efficient way to present results and;
  - Captions and legends must be detailed enough to make figures and tables self-explanatory

Discussion

What the results mean

- Most important section
- Make the Discussion correspond to the Results
- You need to compare published results with yours
- Avoid sudden introduction of new terms
- Speculations on possible interpretations are allowed **but** should be rooted in fact, rather than imagination

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Conclusion

How the work advances the field from the present state of knowledge

- Should be clear
- Justify your work in the research field

Acknowledgments

Ensures those who helped in the research are recognised

Include individuals who have assisted with your study, including:

- Advisors
- Financial supporters
- Proofreaders
- Typists
- Suppliers who may have given materials

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References

Cite the main scientific publications on which your work is based

- Do not use too many references (full text article: ~ 30)
- Always ensure you have fully absorbed material you are referencing and do not just rely on checking excerpts or isolated sentences
- Avoid excessive self-citations
- Conform strictly to the style given in the Guide for Authors

  (typically there more mistakes in the references than in any other part of the manuscript)

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Summary – How do I structure my article properly?

- **Title**
- **Abstract**
- **Keywords**

- **Main text (IMRAD)**
  - Introduction
  - Methods
  - Results
  - And
  - Discussions

- **Conclusion**
- **Acknowledgement**
- **References**
- **Supporting Materials**

- **Structure** your article properly
- Make sure each section of the paper fulfills its **purpose** clearly and concisely

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Cover Letter

Your chance to speak to the editor directly

- Mention what would make your manuscript special to the journal
- Note special requirements (reviewers, conflicts of interest)

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Authorship

General principles for who is listed first

- **First Author**
  - Conducts and/or supervises the data generation and analysis and the proper presentation and interpretation of the results
  - Puts paper together and submits the paper to journal
- **Corresponding author**
  - The first author or a senior author from the institution

Avoid

- **Gift Authorship**

  – including authors who did not contribute significantly
- **Misspelling names:** Be consistent!

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Last Check

(before submission)

- Check the manuscript as thoroughly as possible before submission
- Ask colleagues and supervisors to review your manuscript

Finally, SUBMIT your manuscript with a cover letter and await a response…

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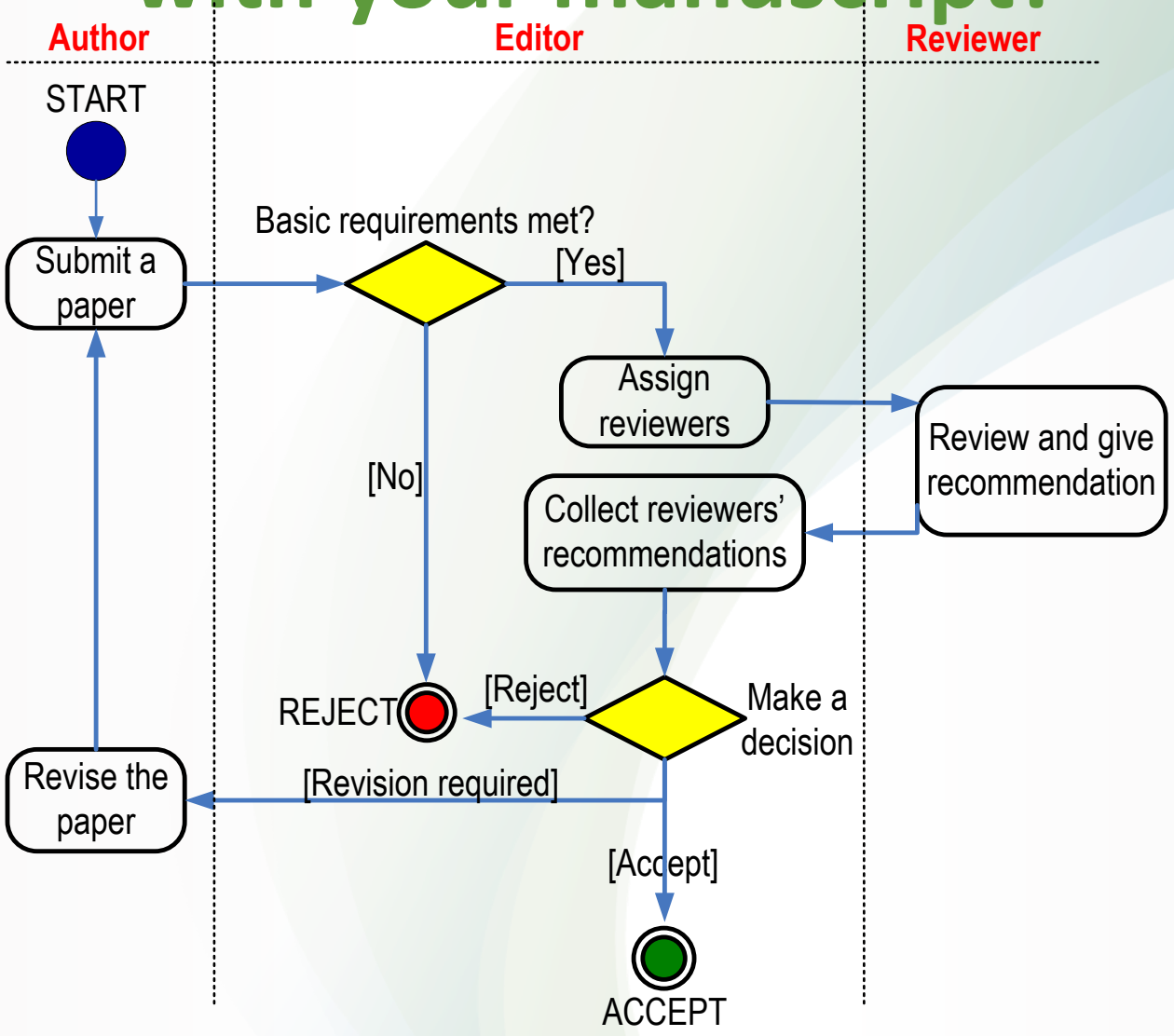
What actually happens with your manuscript?



The refereeing process

- Referees are knowledgeable peers from your field
- Most journals have a single blind refereeing process in place
- Referees are selected and invited by the Editor
  - Authors are asked to suggest referees
- Default number of referees is two
- Editor takes advise from the referee but ultimately is the one taking the final decision

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Referee assessment

- Novelty and quality
- Relevance of the work for the journal
- Methodology and statistical analyses
- Conclusions justified – arguments sound?
- Presentation sufficient unambiguous and clear

- References – relevancy and format
- Title, abstract and conclusion(s)
- Figures, tables and captions
- Space taken is in proportion to the message

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After submission

- Refereeing speed varies tremendously between journals
- The Editor will decide to “Accept”, “Accept with Revision (Minor or Major)”, or “Reject” the manuscript

Revision: take it seriously

- Nearly every article requires revision.
- Bear in mind that editors and reviewers mean to help you improve your article. Do not take offence.
- Minor revision does NOT guarantee acceptance after revision. Do not count on acceptance before you carefully study the comments.
- Revise the whole manuscript – not just the parts the reviewers point out.

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Revision: A great learning experience!

- Cherish the chance of discussing your work directly with other scientists in your community. Prepare a detailed letter of response.
- Cut and paste each comment by the reviewer. Answer it directly below. Do not miss any point. State specifically what changes (if any) you have made to the manuscript. Identify the page and line number. *A typical problem – Discussion is provided but it is not clear what changes have been made*.
- Provide a scientific response to the comment you accept; or a convincing, solid and polite rebuttal to the point you think the reviewer is wrong.

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Plagiarism

"Plagiarism is the appropriation of another person's ideas, processes, results, or words *without giving appropriate credit,* …"

the Federal Office of Science and Technology Policy, 1999

(self)-plagiarism is not always intentional: avoid

- Double submission
  - Conference paper / regular paper
- Copying from your earlier work without proper acknowledgements

For more information on ethics in research and publication, please see http://www.ethics.elsevier.com/

10 tips

For writing a truly terrible journal article

1. Refuse to read the previous literature published in your field
2. Take the lazy route and plagiarize
3. Omit key article components
4. Disrespect previous publications
5. Overestimate your contribution
6. Excel in ambiguity and inconsistency
7. Apply incorrect referencing of statements
8. Prefer subjective over objective statements
9. Give little care to grammar, spelling, figures and tables
10. Ignore editor and reviewer comments

From: Bert Blocken January 11, 2017 http://www.elsevier.com/authors-update

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Thank you

For finding the right journal:

http://journalfinder.elsevier.com

For writing/submission tips and author services:

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