

Of Scientific Publications and Scientific Integrity

Cyrill Labbé – UGA – LIG

Scientific Methodology and (emPirical — exPerimental) Evaluation

November 14, 2024

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1 Of Publications and Knowledge

2 Different kinds of venue

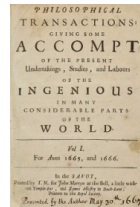
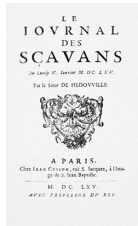
- Accounting Units
- Scientometrics: what for?

3 Let's read!

Journals as a way to build Knowledge

A long story started in 1665

- Paris : *Journal des sçavans*.
- Londres : *Philosophical Transactions of the Royal Society*,



Aims:

- written by and for specialists.
- contribution to the scientific discussion.
- standing on the shoulders of giants: discovering truth by building on

Example of a publication in 1944

[Avery et al., 1944]

STUDIES ON THE CHEMICAL NATURE OF THE SUBSTANCE INDUCING TRANSFORMATION OF PNEUMOCOCCAL TYPES

INDUCTION OF TRANSFORMATION BY A DESOXYRIBONUCLEIC ACID FRACTION
ISOLATED FROM PNEUMOCOCCUS TYPE III

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MACLYN McCARTY,* M.D.

(From the Hospital of The Rockefeller Institute for Medical Research)

PLATE 1

(Received for publication, November 1, 1943)

Biologists have long attempted by chemical means to induce in higher organisms predictable and specific changes which thereafter could be transmitted in series as hereditary characters. Among microorganisms the most striking example of inheritable and specific alterations in cell structure and function that can be experimentally induced and are reproducible under well defined and adequately controlled conditions is the transformation of specific types of Pneumococcus. This phenomenon was first described by Griffith (1) who succeeded in transforming an attenuated and non-encapsulated (D)

Example of a publication in 1944

[Avery et al., 1944]

The original observations of Griffith were later confirmed by Neufeld and Levinthal (2), and by Baurhenn (3) abroad, and by Dawson (4) in this laboratory. Sub-

Another interpretation of the phenomenon has been suggested by Stanley (28) who has drawn the analogy between the activity of the transforming agent and that of a virus. On the other hand, Murphy (29) has compared the causative agents of fowl tumors with the transforming principle of *Pneumococcus*. He has suggested that both these groups of agents be termed “transmissible mutagens” in order to differentiate them from the virus group. Whatever may prove to be the correct interpretation, these differences in viewpoint indi-

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Example of a publication Jan. 2022

[Miller and Wang, 2022]

Ostrich eggshell beads reveal 50,000-year-old social network in Africa

<https://doi.org/10.1038/s41586-021-04227-2>
Jennifer M. Miller^{1,2*} & Yiming V. Wang^{1,2*}

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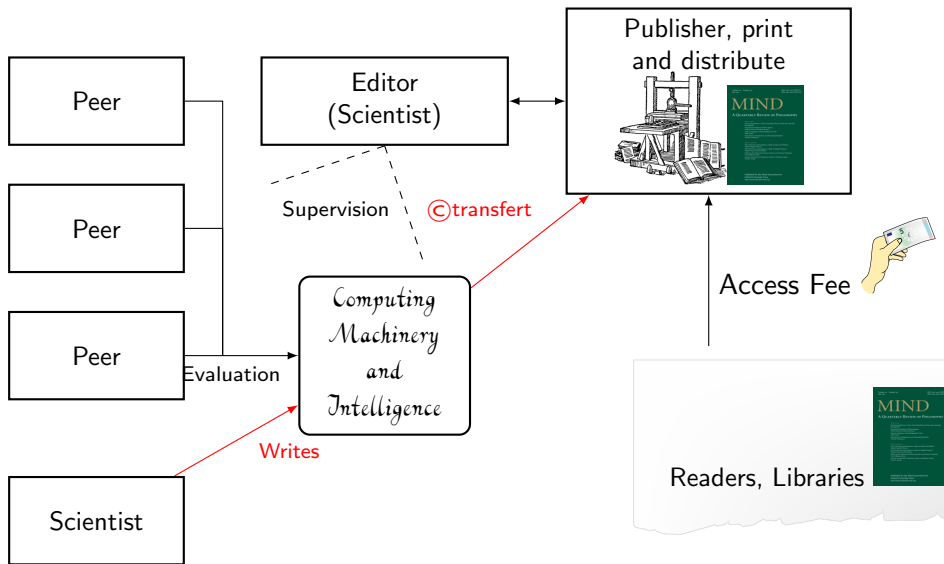
Open access

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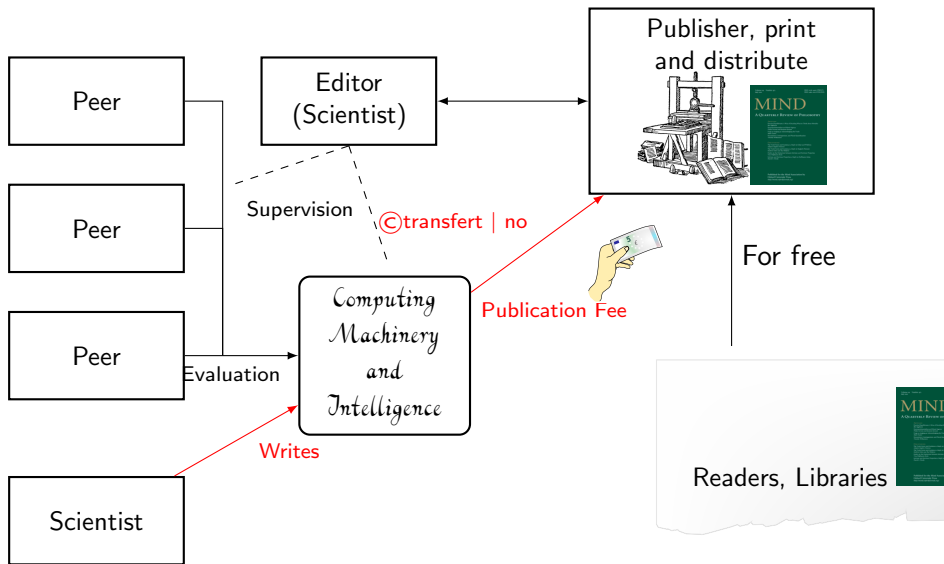
Humans evolved in a patchwork of semi-connected populations across Africa^{1,2}; understanding when and how these groups connected is critical to interpreting our present-day biological and cultural diversity. Genetic analyses reveal that eastern and southern African lineages diverged sometime in the Pleistocene epoch, approximately 350–70 thousand years ago (ka)^{3,4}; however, little is known about the

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Publication process



Publication : Gold Open Access





Overlay Journal : les épi-journaux [épis sciences.org](https://episciences.org)

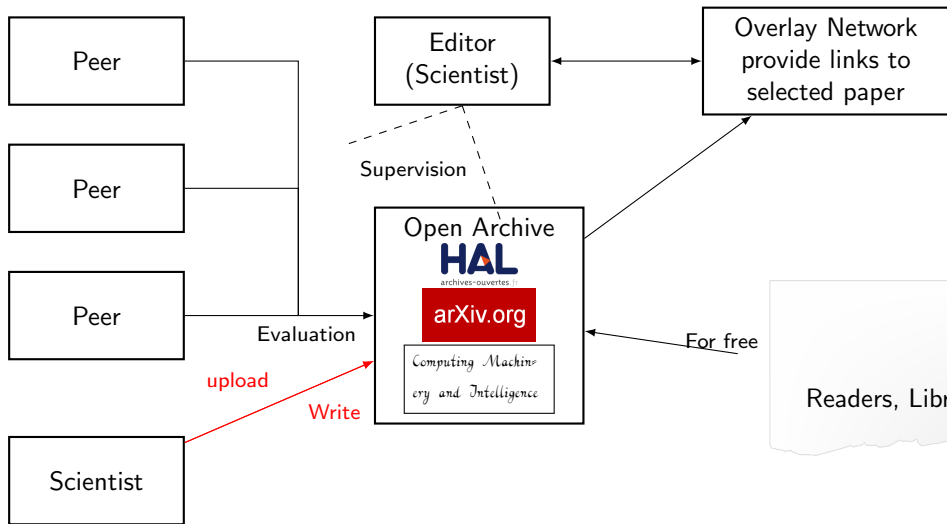


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1 Of Publications and Knowledge

2 Different kinds of venue

- Accounting Units
- Scientometrics: what for?

3 Let's read!

Where?

Possible choices

- ① Journal, international / national
- ② Conference International / national
- ③ Workshop, Symposium,... (with or without proceedings)
- ④ Report – Preprint [HAL](#), [arXiv](#)

Ranking

- Commission
- Classement national [Brésil](#) / [Australie](#)
- Classement international

Different process

Journals

- Regular submission
- Call for papers numéro spécial,
- Evaluation Accepted, Minor revisions, Major revisions, Rejected
- Version finale

Conferences

- Call for papers, Instructions to authors
- Evaluation, Rebutal
- Acceptation/Refus

How to choose

Co-author ship \Rightarrow team discussion

multi-critères

- Vitesse de diffusion (rapport de recherche)
- Recrutement (conférence nationale)
- Reconnaissance (Journal)
- ...

Beware plagiarism!

- for ever

Notice of Violation of IEEE Publication Principles

"Efficient Implementation of QRD-RLS Algorithm using Hardware-Software Co-design"
by Napur Lodha, Nivesh Rai, Aarth Krishnamurthy, Hrishikesh Venkataraman
in the 2009 IEEE International Symposium on Parallel & Distributed Processing (IPDPS 2009),
2009, pp. 1 – 4.

After careful and considered review of the content and authorship of this paper by a duly constituted expert committee, this paper has been found to be in violation of IEEE's Publication Principles.

This paper contains significant portions of original text from the paper cited below. The original text was reused with insufficient attribution (including appropriate references to the original author(s) and/or paper title) and without permission from all coauthors.

Due to the nature of this violation, reasonable effort should be made to remove all past references to this paper, and future references should be made to the following article:

"Hardware-Software Co-design of QRD-RLS Algorithm with Microblaze Soft Core Processor"

by Napur Lodha, Nivesh Rai, Rahul Dubey, Hrishikesh Venkataraman
in the Third International Conference on Information Systems, Technology and Management (ICISTM-09), 2009, pp. 197 – 207.

Information Systems for science

Increasing number of information sources:

- Publishers repositories
- Open archive and dedicated social networks

Various characteristics and goals:

- free vs toll acces, Peer review vs non-Peer review
- Spreading knowledge / State of the art / Scientometrics

Scientific publications are at the heart of the system:

- Ideally: Knowledge diffusion.
- In practice: (Ac)Counting unit.



Ranking Publications, Journals, Scientists and Univ.

Librarian

What are the must-buys for my readers?

Students

Where to study? With whom? In which country? Where shall I submit my research?

Scientist

Where shall I submit my research?

Government

Who deserve investment? What for? Which scientific field?

Research Administration

Who shall I hire? Who deserve a promotion?

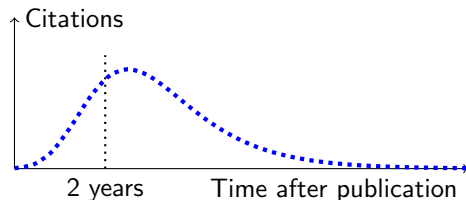
Publisher

Which journal? At what price?

Ranking scientists and journals: examples

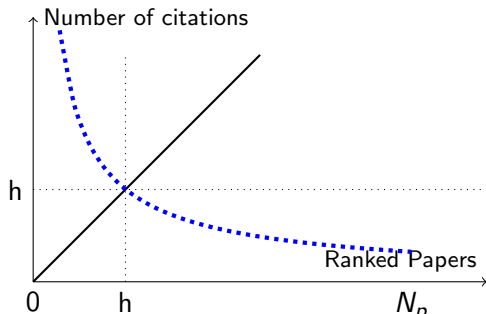
Definition (Impact Factor)

Average number of citations to papers published by the journal over the last two years.
Computed since 1975.



Definition (h-index [Hirsch, 2005])

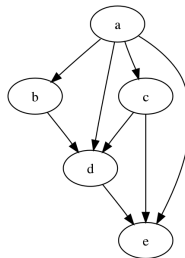
A scientist has index h if h of his or her N_p papers have at least h citations each and the other $(N_p - h)$ papers have $\leq h$ citations each.



Other Funny Numbers.

Citation Graph. [~]

- Paper that cites other papers
- Google Scholar



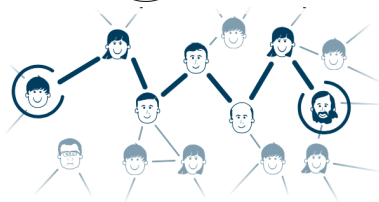
Other index

- $h5$ -index, g -index, h_m -index, a -index, hg -index, ar -index...

Co-authors graph



- "Erdős number" the collaborative distance between an author and P. Erdős.
- "Dijkstra number" the collaborative distance between an author and E.



ARWU

Academic Ranking of World Universities (Shanghai ranking) since 2003

Table from Wikipedia:

Criterion	Indicator	Weighting	Source
Quality of education	(1) Alumni as Nobel laureates & Fields Medalists Weighting	10%	Official websites of Nobel Laureates & Fields Medalists
Quality of faculty	(2) Staff as Nobel Laureates & Fields Medalists.	20%	Official websites of Nobel Laureates & Fields Medalists
	(3) Highly cited researchers in 21 broad subject categories	20%	Thomson Reuters' survey of highly cited researchers
Research output	(4) Papers in Nature and Science.	20%	Citation index
	(5) Papers indexed in Science Citation Index (...)	20%	Citation index
Per capita performance	(6) Per capita academic performance of an institution	10%	–

You are the Dean:

What should you do to improve your ranking?

Quantitative rules.

2015: En France...

- *Publiant* : au moins 1 publication par an, ou 2 publications de rang A sur la période.
- *Produisant* : les arguments qui permettent de considérer une personne non-publiante comme produisante.

... elsewhere

- "at least one international publication per year"
- Rules for defence (MS Thesis, PhD thesis)

Funding rules: SIGAPS [Gingras and Khelifaoui, 2021]

SIGAPS (Système d'Interrogation, de Gestion et d'Analyse des Publications Scientifiques). Gouvernemental funding for French Univ. Hospital according to SIGAPS Points.

Journals ranking according to impact factor

Points are given to publications:

Mark	Rank	points
A	top 10%, ($< 10\%$)	8
B	$10\% < \dots < 25\%$	6
C	$25\% < \dots < 50\%$	4
D	$50\% < \dots < 75\%$	3
E	$> 75\%$	2
NC	in PubMed but not in WoS	1

Per author according to position

Publication point to be multiplied by:

factor	author position
4	First and Last authors
3	Second author
2	Third and before last authors
1	others

Point value

In 2017 1 point is worth 648 €per year for 4 years.

Exercise

How much will the gouv. give to your hospital if are first author of a *Nature* publication?

Funding rules: SIGAPS [Gingras and Khelifaoui, 2021]

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B	10% < ... < 25%	6
C	25% < ... < 50%	4
D	50% < ... < 75%	3
E	> 75%	2
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$$8 * 4 * 648 * 4 = 82\,944 \text{ €}$$

Gaming the metrics: Who and Why?

A. Librarian

What are the must-buys for my readers?

B. Scientist

Where shall I submit my research?

C. Research Administration

Who shall I hire? Who deserve a promotion?

D. Students

Where to study? With whom? In which country? Where shall I submit my research?

E. Government

Who deserve investment? What for? Which scientific field?

F. Publisher

Which journal? At what price?

Who wants to game the metrics?

A, B, C, D, E or F ?

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STUDIES ON THE CHEMICAL NATURE OF THE SUBSTANCE INDUCING TRANSFORMATION OF PNEUMOCOCCAL TYPES : INDUCTION OF TRANSFORMATION BY A DESOXYRIBONUCLEIC ACID FRACTION ISOLATED FROM PNEUMOCOCCUS TYPE III .

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