The Evaluation in the Republic of Science. From peer review to open soft peer review

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A Premise ...

"No university teacher likes to be reminded of discussions of appointments, for they are seldom agreeable.
And yet I may say that in the numerous cases known to me there was, without exception, the good will to allow purely objective reasons to be decisive.
However, the decision over academic fates is too often largely a 'hazard'"

Max Weber, *Wissenschaft als Beruf*, 1918

# of a more general problem

- The relationship between objectivity and evaluation

- The role of science within the academia (aka Republic of Science) and its influence on the society in general

The definition of standard Evaluation procedures involve scientific issues and moral issues, concerning knowledge production and its dissemination, careers, funding and the basic structure of the "Republic of Science" itself.

Outline of my presentation

1. The motivations and the historical context that led to the birth of peer review
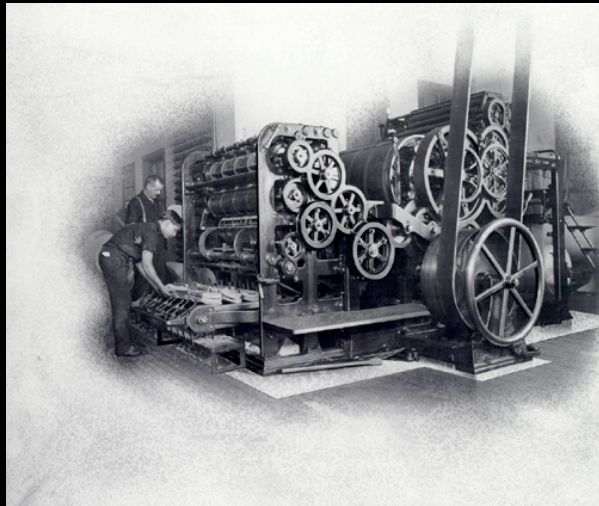
2. Is the Republic of Science a true Republic?

3. A novel approach to peer review: "open soft peer review"

Part I

The birth of peer review

The Context: London, 1650-1700

Stationers' Company

- Royal privilege from 1557 to "oversee the *art and mistery* of printing".
- Publishers, Pressmen, Booksellers, etc.., i.e. everybody who worked with books were included.
- Register book of copies.

Scientists

Publishing was an expensive enterprise.

Their possibilities to publish a book depended on the Stationers' and the Royal Society's will.

The Royal Society

(Henry Oldenburg)

The English Academy of Science, founded in 1660.

Henry Oldenburg was its first Secretary.

The Royal Society's strategy

1. Independence from the Stationers' Company:

a. License of printing scientific works, becoming a guild's publisher.

b. Authority of choosing its own booksellers and pressmen (John Martyn and James Allestry, 1660-61).

2. New practices and instruments:

a. Imprimatur of the Royal Society: no book could be granted a licence unless previously vetted by at least two members of the council itself (a first example of peer reviewing).

b. Birth of the *Philosophical Transactions*, the first scholarly journal (1665)

The Royal Society's strategy

a. The RS *imprimatur* as a mechanism of the construction of credit

0. Printing and publishing

1. Presentation (1661): a public act, often mediated by the secretary of the Society, that became compulsory in May 1661: each member who published a work had to give a copy to the Royal Society; afterwards, the present deserved an answer– typically, a fellowship

2. Perusal: detailed reading of the work by experts of the same Academy. The assessment of the evaluators had to be transmitted to the author and their outcome should not become public.

b. Scholarly Journals: A new instrument for scientific communication

PHILOSOPHICAL
TRANSACTIONS:
GIVING SOME
ACCOMPT
OF THE PRESENT
Undertakings, Studies, and Labours
OF THE
INGENIOUS
IN MANY
CONSIDERABLE PARTS
OF THE
WORLD

Vol I.
For *Anno* 1665, and 1666.

In the *SAVOY*,
Printed by *T. N.* for *John Martyn* at the Bell, a little with-
out *Temple-Bar*, and *James Allestry* in *Duck-Lane*,'
Printers to the *Royal Society*.

1. Centrality of Oldenburg's role: Secretary, mail master and guardian of the Royal Society's registers.
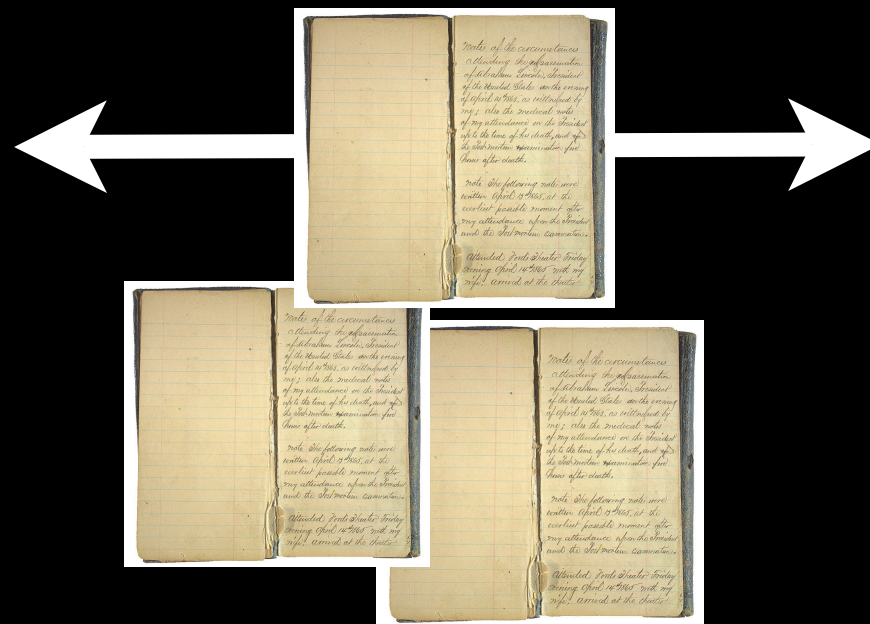
Oldenburg's attempt was aimed at expanding the value of the Royal Society's register beyond the Society itself, and the role of editor of the Philosophical Transactions and of guardian (gatekeeper) of the register constantly crossed.

A system of trust

Scholars

Journals and books

The Royal Society

(Henry Oldenburg)

A system of trust

Writing and publishing books and essays was the sufficient and necessary condition to be a member of the "State of virtuosi".

The peer review procedure played a fundamental role in defining the structure of scholarly communities. It marked the relationship between institutions and the political and religious establishment.

Institutions were cautious of embracing new ideas. Publishing innovative and revolutionary theories was a double-hedged weapon: on one hand, it increased the prestige and visibility of the institution; on the other hand, there was the risk of stepping into the ground of political and religious subjects with the consequence of reducing the institution's autonomy.

The procedure of Peer review contributed to define the boundaries of the Republic of Science.

Part 2

respublica literaria

1. in his general meaning it was used as a synonym of "Letters" and "Knowledge";

2. in a more defined meaning, it was used to refer to the international scholarly community as a whole. Since the beginning, the term "Republic" was often used as a synonym of Academy and University. The Republic was an organization somewhat similar to a state, with a well-defined jurisdiction. It was however, a very special kind of state in which its citizens, the "body of scholars", were members of a cosmopolitan society that crossed the border of national states.

Grounded on two universal principles: Freedom and Equality. A society without a formal government and written rules. Its only postulate was the freedom in "public use of reason".

A republic as a *forma regiminis?*

- The latin locution is a political expression and comparisons between the scholarly republic and political states were not uncommon at the time.

- Christian Loeber, *Dissertatio Politica* (1708). Is possible to consider the republica literaria a state from a legal perspective? Yes, although it has not a proper *forma regiminis*.

- Despite the republica literaria was a non-state, its members considered themselves citizens of a real state.

What a Republic is

A republic can be defined as a forma regiminis, based on a number of principles a priori (in our case freedom and equality) and on the separation of powers:

"Under this model, the state is divided into branches or estates, and each estate of the state has separate and independent powers and areas of responsibility. The normal division of estates is into the Legislative, the Executive and the Judicial". Source: http://en.wikipedia.org/wiki/Separation_of_powers

What about the Republic of Science?

Legislative: All citizens should in theory be able to take part in this function. However, in practice this possibility requires that the individual belongs to a scientific institution.

Executive: is given to a part of the community, on the basis of meritocratic and democratic criteria. It depends on careers. The university government is elected by peers among the whole academic body.

Judicial: obeys to more complex rules.

The Judicial power and the evaluation of science

- Assessment among peers is based on a unique and general principle: that through publications all may be considered comparable to anyone.

- peer reviewing is the first process in which the young scholar is introduced

How peer review works

In SSH:

The book (monograph, edition) is the main publishing tool. Ex ante evaluation of books takes place according to rules decided within the specific communities of the different subject sectors (it is very often a matter of tiny and self referential communities).

Journals have a reduced market. Editorial series are provided with scientific committees, whose members carry out a previous quality control (that is often realized simply in the "presentation" of the work by a "peer").

Afterwards, it is generally the author and their institutions who pays for printing the book with research funds granted by his own institution or through other funds.

Open Scholarly Communities on the Web

The advent of the Internet and the Web and the on-line diffusion of scientific publications are making a rearrangement of the Republic of Science necessary.

During the Nineties, especially scientific journals have started to appear also and then (in some cases) exclusively on-line, a transition which is radically transforming the terms of scientific communication.

Open access publishing: the main goal of scientific authors is enabling the widest diffusion of their publications, rather then their selling (academics are not rewarded by the sale of their texts – but rather by being read and quoted).

Peer review transformation and birth of new forms of scientific literature:
A copernican revolution in the selection process – and, in an extensive meaning, in the way in which the judicial function is exercised in the Republic of Science.

Part 3

What kind of peer review for Open Scholarly communities on the Web?

A question of "quality"

"Many documentation systems used to be designed for particular collections of information, and one could assume that the information in such a system had achieved a certain quality. However, the Web itself cannot enforce any single notion of quality. Such notions are very subjective, and change with time. To support this -- to allow users to actually use the web even though it contains junk as well as gems -- the technology must allow powerful filtering tools which, combining opinions and information about information from many sources, are completely under the control of the user".

Tim Berners-Lee, *The World Wide Web - Past, present, future. Exploring Universality*, 2004, online at URL: http://www.w3.org/2002/04/Japan/Lecture.html

The mechanism of selection

On the Web selection is realized after publication, not before.

The Web 2.0 has experienced the birth and diffusion of the so-called social software, that is to say the appearance of collaborative sites which create actual social networks, flourishing from the idea of using the web as a delocalized desktop technology in which one can store its contents and share them with others.

Contents are annotated by users with metadata (mainly the so-called tags, but also comments, evaluations, votes, lists): metadata hold great value within the relative social network, also since they aid the selection of information by the reader.

Thus, the scholarly communication model that is currently gaining ground is open (universal), decentralized, and doesn't enforce a single notion of quality. Furthermore, the new system is conceived for managing far more information than the previous, and, at the same time, it fosters communication within the web niches sharing common interests.

The great transformation concerning "evaluation" consists in that it is not relevant any more its coming before publication and its realization by "a few experts".

This condition modifies the access to the Republic of Science: in the web era, "peer" means something different from professional rank or affiliation to any academic institution, qualifying anyone who wants and is capable of offering relevant contributions to scientific research.

Alternative peer review models:

A. Open peer review

B. No peer review

C. Soft peer review

Open peer review

It is a kind of peer review that is put in practice ex post, once a text has already been published.

In practice, there exist several forms: an example consists in leaving the possibility to the readers of commenting on the text likewise it happens in blogs. The journal Nature has tested it (with scarce success), but in the discussion on the peer review system1 boosted in November 2006, several reports show that the open peer review experiments are numerous and successful.

No peer review

It consists in skipping the traditional peer review process, leaving entirely to the reader the task of assessing the scientific quality of a text. On the web it is possible to realize it:

1. putting preprints in the authors' websites. Thus, the reader is already able of assessing the scientific quality of a published text

2. storing the document in an institutional or disciplinary repository.

3. cooperating with sites such as Wikipedia, that allows the articles to be edited from the public.

4. allowing, more generally, to note and evaluate documents.

5. Using very simple software such as blogs for writing and/or marking articles and thus submitting them to the comment of the public; nowadays many (also academics) researchers make use of this tool.

Soft peer review

It is a matter of using collaborative metadata stored in "online reference managers" (such as del.icio.us, citeUlike, Connotea) for evaluating scientific contents. The benefit of such a system consists in the possibility of managing a large amount of data, already available on the web – while traditional journals have difficulties in managing a high number of articles.

Thus, Web 2.0 "soft" evaluation systems may be an answer to the problem of evaluation that traditional actors of scholarly communication (authors, but also publishers and institutions) should not ignore. The so-called social software may offer to the academic system new tools and evaluation standards, based on:

(1) "(Semantic) metadata"
(2) "Popularity"
(3) "Hotness"
(4) "Collaborative annotation"

Thus

If nowadays peer reviewing is invoked to provide for continuity with the previous tradition in the context and the transition stage between print and digital era – however its birth is closely linked to printing and to scientific journals, and influenced by them.

It is not by chance that in the 2.0 Web era its concept and practices are undergoing important transformations. The wider a discussion on a text, the more the available data on its value.

It may be possible to select information according to the taste and the needs of the single researcher; with an important consequence from a philosophical and political point of view: consisting in the choice of believing a little more in future, putting as much information as possible at its disposal, as well as the suitable tools for selecting and choosing, according to the best.

It's not an easy challenge...

Conclusions

The only common virtue is intellectual honesty.
In the end "we shall set to work and meet the 'demands of the day,' in human relations as well as in our vocation. This, however, is plain and simple, if each finds and obeys the demon who holds the fibers of his very life."

Max Weber, *Wissenschaft als Beruf*, 1918