"Openness is a scientifically and societally relevant part of a published article's quality"

Jan Velterop – Vienna – April 2016

Openness is rarely seen (yet?) as a crucial element when judging a journal article’s quality

Quality is mostly what journal editors and peer reviewers deem an article to have – however arbitrary and subjective.

How right are they?

“The most prestigious journals have the highest rates of retraction and fraud and misconduct are the sources of retraction in these journals than in less prestigious ones.”

Professor Curt Rice
in http://curt-rice.com/2016/03/16/why-you-cant-trust-research-3-problems-with-the-quality-of-science/
(accessed 10 April 2016)

‘Quality’, anyone?

Some of the images you find when searching for ‘retraction’

Retraction

Early report

Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children

A J Wakefield, S H Murch, A Anthony, J Linnell, D M Casson, M Malik, M Berelowitz, A P Dhillon, M A Thomson, P Harvey, A Valentine, S E Davies, J A Walker-Smith

Summary

Background We investigated a consecutive series of children with chronic enterocolitis and regressive developmental disorder.

Methods 12 children (mean age 6 years [range 3–10], 11 boys) were referred to a paediatric gastroenterology unit with a history of normal development followed by loss of acquired skills, including language, together with diarrhoea and abdominal pain. Children underwent gastroenterological, neurological, and developmental assessment and review of developmental records. Ileocolonoscopy and biopsy sampling, magnetic-resonance imaging (MRI), electroencephalography (EEG), and lumbar puncture were done under sedation. Barium follow-through radiography was done where possible. Biochemical, haematological, and immunological profiles were examined.

Findings Onset of behavioural symptoms was associated by the parents, with measles, mumps, and rubella vaccination in eight of the 12 children, with measles infection in one child, and otitis media in another. All 12 children had intestinal abnormalities, ranging from lymphoid nodular hyperplasia to lymphoid ulceration. Histology showed patchy chronic inflammation in 11 children and reactive ileal lymphoid hyperplasia in seven, but no granulomas. Behavioural disorders included autism (nine), disintegrative disorder (one), and possible postviral or vaccinal encephalitis (two). There were no focal neurological abnormalities and MRI and EEG tests were normal. Abnormal laboratory results were significantly raised urinary methylmalonic acid compared with age-matched controls ($p<0.003$), low haemoglobin in four children, and low serum IgA in four children.

Interpretation We identify associated gastrointestinal disease and developmental regression in a group of previously normal children, which was generally associated in time with possible environmental triggers.

Lancet 1998; **351:** 637–41
See Commentary page

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Correspondence to: Dr A J Wakefield

Introduction

We saw several children who, after a period of apparent normality, lost acquired skills, including communication. They all had gastrointestinal symptoms, including abdominal pain, diarrhoea, and bloating and, in some cases, food intolerance. We describe the clinical findings, and gastrointestinal features of these children.

Patients and methods

12 children, consecutively referred to the department of paediatric gastroenterology with a history of a pervasive developmental disorder with loss of acquired skills and intestinal symptoms (diarrhoea, abdominal pain, bloating and food intolerance), were investigated. All children were admitted to the ward for a week, accompanied by their parents.

Clinical investigations

We took histories, including details of immunisations and exposure to infectious diseases, and assessed the children. In 11 cases the history was obtained by the senior clinician (JW-S). Neurological and psychiatric assessments were done by consultant staff (PH, MB) with HMS-4 criteria.[1] Developmental data included a review of prospective developmental records from parents, health visitors, and general practitioners. Four children did not undergo psychiatric assessment in hospital; all had been assessed professionally elsewhere, so these assessments were used as the basis for their behavioural diagnosis.

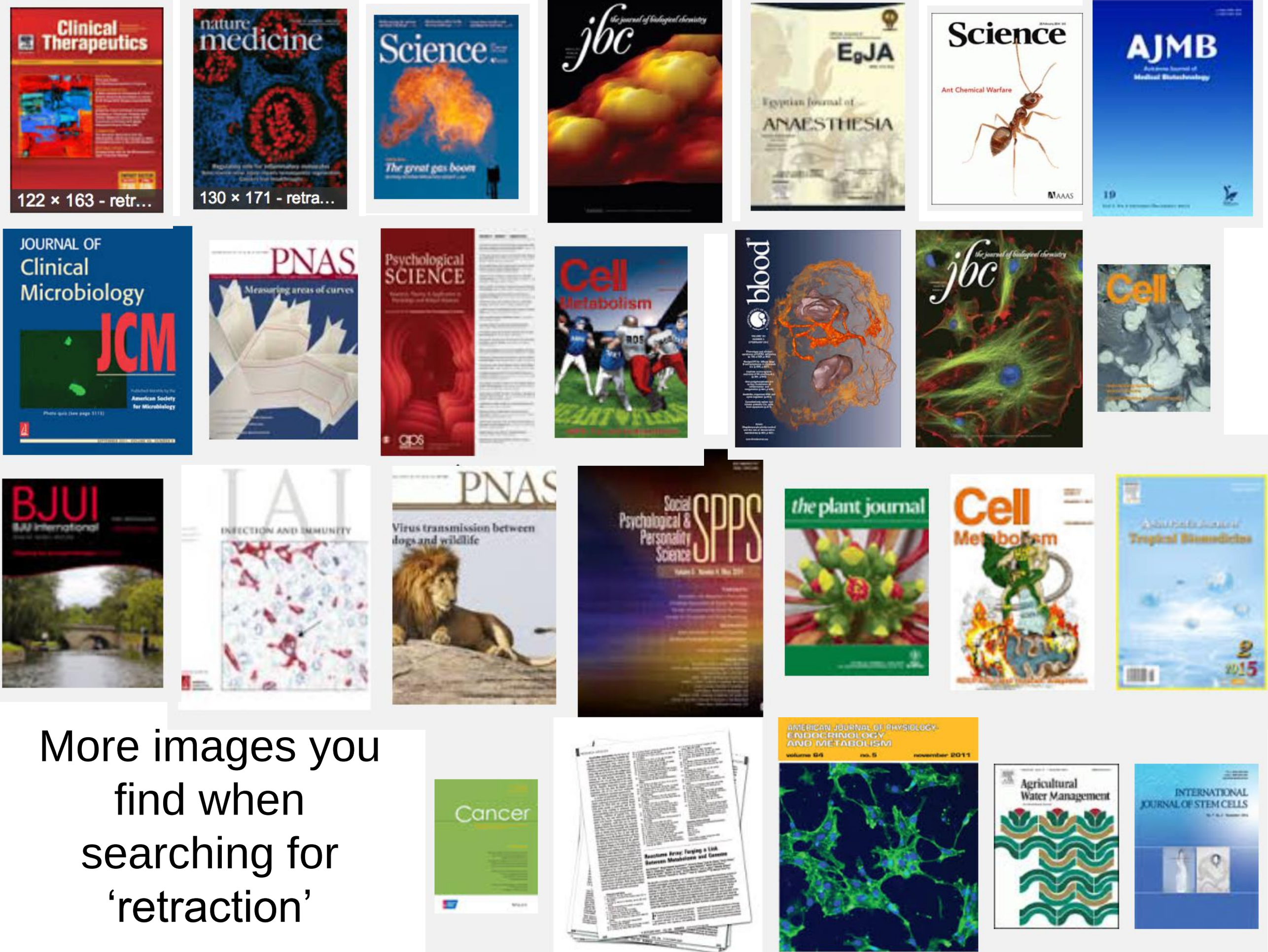
After bowel preparation, ileocolonoscopy was performed by SHM or MAT under sedation with midazolam and pethidine. Paired frozen and formalin-fixed mucosal biopsy samples were taken from the terminal ileum, ascending, transverse, descending, and sigmoid colons, and from the rectum. The procedure was recorded by video or still images, and were compared with images of the previous seven consecutive paediatric colonoscopies (four normal colonoscopies and three on children with ulcerative colitis), in which the physician reported normal appearances in the terminal ileum. Barium follow-through radiography was possible in some cases.

Also under sedation, cerebral magnetic-resonance imaging (MRI), electroencephalography (EEG) including visual, brain stem auditory, and sensory evoked potentials (where compliance made these possible), and lumbar puncture were done.

Laboratory investigations

Thyroid function, serum long-chain fatty acids, and cerebrospinal-fluid lactate were measured to exclude known causes of childhood neurodegenerative disease. Urinary methylmalonic acid was measured in random urine samples from eight of the 12 children and 14 age-matched and sex-matched normal controls, by a modification of a technique described previously.[1] Chromatograms were scanned digitally on computer, to analyse the methylmalonic-acid zones from cases and controls. Urinary methylmalonic-acid concentrations in patients and controls were compared by a two-sample *t* test. Urinary creatinine was estimated by routine spectrophotometric assay.

Children were screened for antiendomysial antibodies and boys were screened for fragile-X if this had not been done



More images you find when searching for ‘retraction’

In the same blogpost by Prof Curt Rice mentioned before:

Surely a measure of quality?

Commenting on an observation on replicability in

The New Yorker:

‘Quality’, anyone?

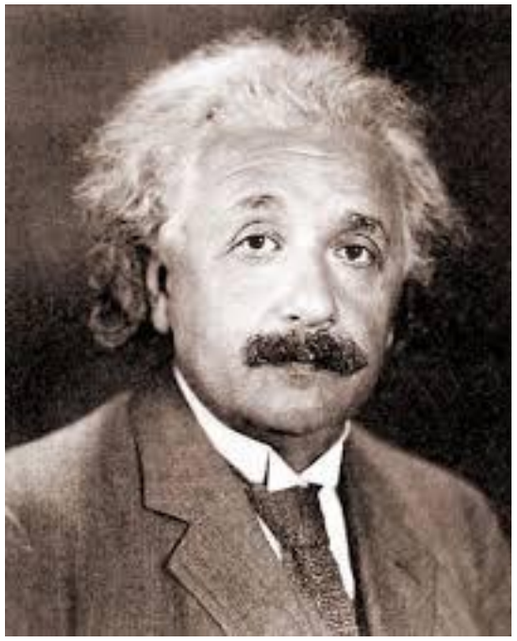
“The most likely explanation for [illegible]e [of the strength of evidence] is an [illegible]ne: regression to the mean. As the exp[illegible] repeated, that is, an early statistical fl[illegible]ancelled out.”

Curt:

“Yet it is exactly the spectacularity of statistical flukes that increase the odds of getting published in a high prestige journal.”

Or is quality, illusionary or not, just a bureaucratic necessity in the scientific ego-system?

“Not everything that can be counted counts, and not everything that counts can be counted.”



Quote often attributed to Einstein, possibly apocryphally

nature sort of agrees ; but nature didn't do irony in 2006

nature still didn't do irony in 2013

Even an impact factor of < 1 is worth boasting about.

Apparently.

And even imitation impact factors

INNO SPACE

SJIF Scientific Journal Impact Factor

CERTIFICATE OF INDEXING (SJIF 2012)

This certificate is awarded to

Bioscience Discovery
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SJIF 2012 (Scientific Journal Impact Factor Value for 2012) = 3.429

SJIF (A division of InnoSpace)

Prof. Khaoula MESSAOUDI
P. Box 695 Rabat - Cheliff 10002 Morocco

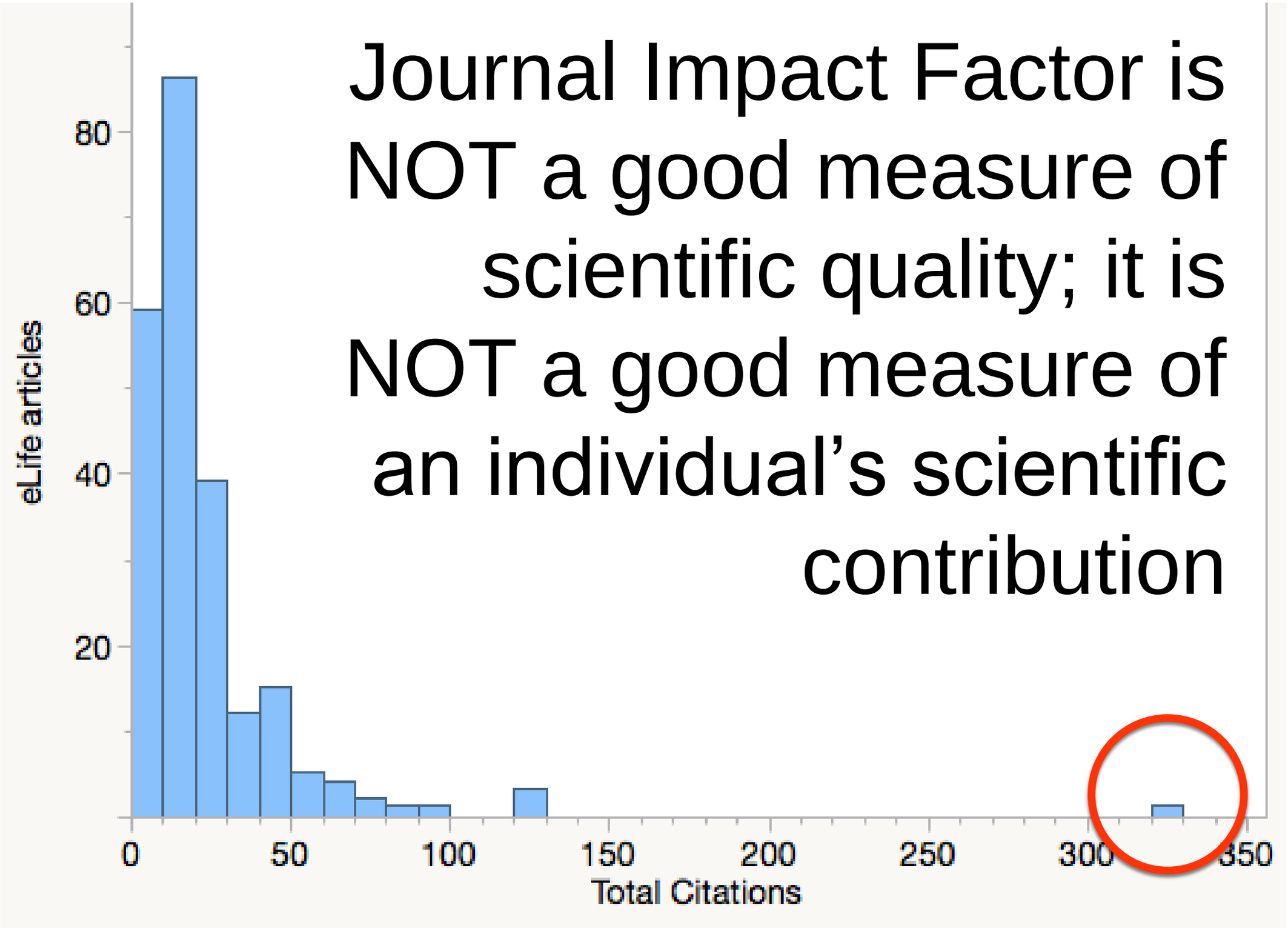
Innovative Space of Scientific Research – Morocco

“The notion of *impact* is incoherent, likely to reward the sensationalist and second-rate ... and risks turning academics into door-to-door salesmen for vulgarised versions of their increasingly market-oriented *products*.”

Paraphrasing Don Marquis, 1878-1937

Stefan Collini, professor of intellectual history and English literature at the University of Cambridge

Journal Impact Factor is NOT a good measure of scientific quality; it is NOT a good measure of an individual's scientific contribution



Scientometrics, Vol. 9. Nos 1–2 (1986) 71–89

THE "MEANING" OF CITATION IN THE CONTEXT OF A SCIENTIFICALLY PERIPHERAL COUNTRY

"To conflate impact/influence with quality [...] is to assume perfect communication in the international scientific community"

The findings presented confirm the view that in this context, citation patterns are significantly influenced by factors 'external' to the scientific realm and, thus, reflect neither simply the quality, influence nor even the impact of the research work referred to.

So why is the impact factor as a measure of quality still so important? After all, it is only just a human people (sometimes randomly selected) on behalf of a journal publisher.

scientifically: a mystery

Is it simply in the nature of Science?

The ease of counting

— something

mpting to infer

quality from quantity

Managerialism?

Which has more quality?

No ivory tower without a foundation of rubble

There is an overload of technical solutions to the problem of access to scientific results

What’s needed is socio-cultural ones.

E.g.: we need to reconsider what is ‘quality’

And how we assess ‘quality’

Clothes…

…make the man


But do they?

Which of these individuals has the highest status, according to their clothes?

We need
jean therapy

That is: judge on substance, not on appearance



A journal makes the scientist

(well, its impact factor, to be exact)

Just a ‘ribbon’

The ‘jeaniuses’ of science publishing

Cornell University Library

arXiv.org

bioRχiv beta

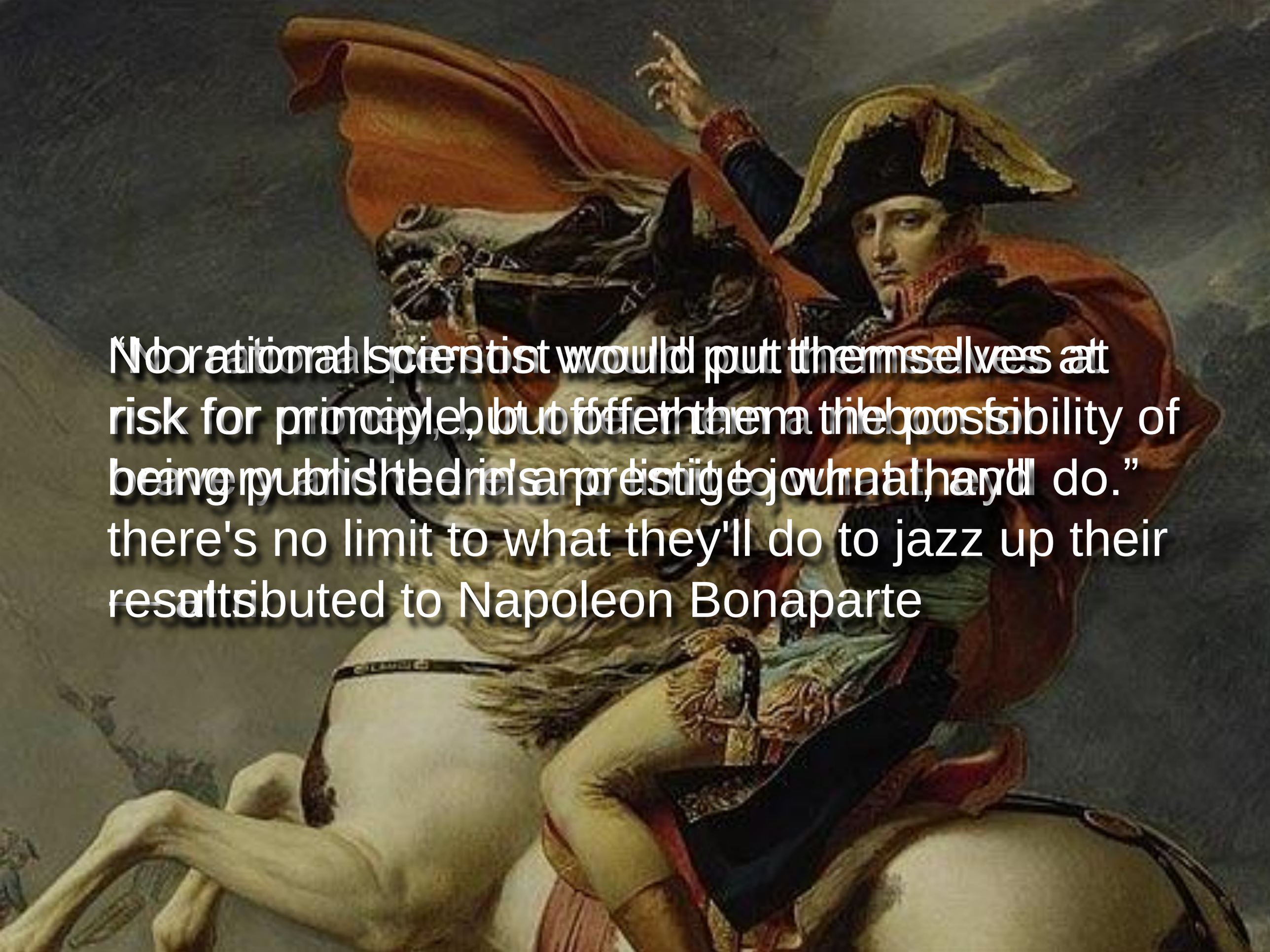
THE PREPRINT SERVER FOR BIOLOGY

and even

PLOS | ONE

‘Ribbons’ do provide incentives

The wrong ones



“No rational scientist would put themselves at risk for principle, but offer them the possibility of being published in a prestige journal, and there's no limit to what they'll do to jazz up their results.”

— attributed to Napoleon Bonaparte

Should the desire – even the need –

for ‘ribbons’ be allowed to hold proper

knowledge-sharing hostage?

The desire for ‘ribbons’ costs billions – every year

Not a problem if we think it’s worth that kind of money

But is it worth it?

What about a different kind of incentive?

The current culture that puts more emphasis on competition than on collaboration – with occasional exceptions – is not very helpful for solving the world’s problems

Competitive quality ranking:

- Journals
- Researchers
- Universities
- Countries

Isn’t this *katataxophilia** killing us?

If we rank at all, shouldn’t we do it by the level of collaboration instead?

* The love of ranking

“Parachute Researchers”

Scientists from weal op in
when a puzzl
deve s,
t
th

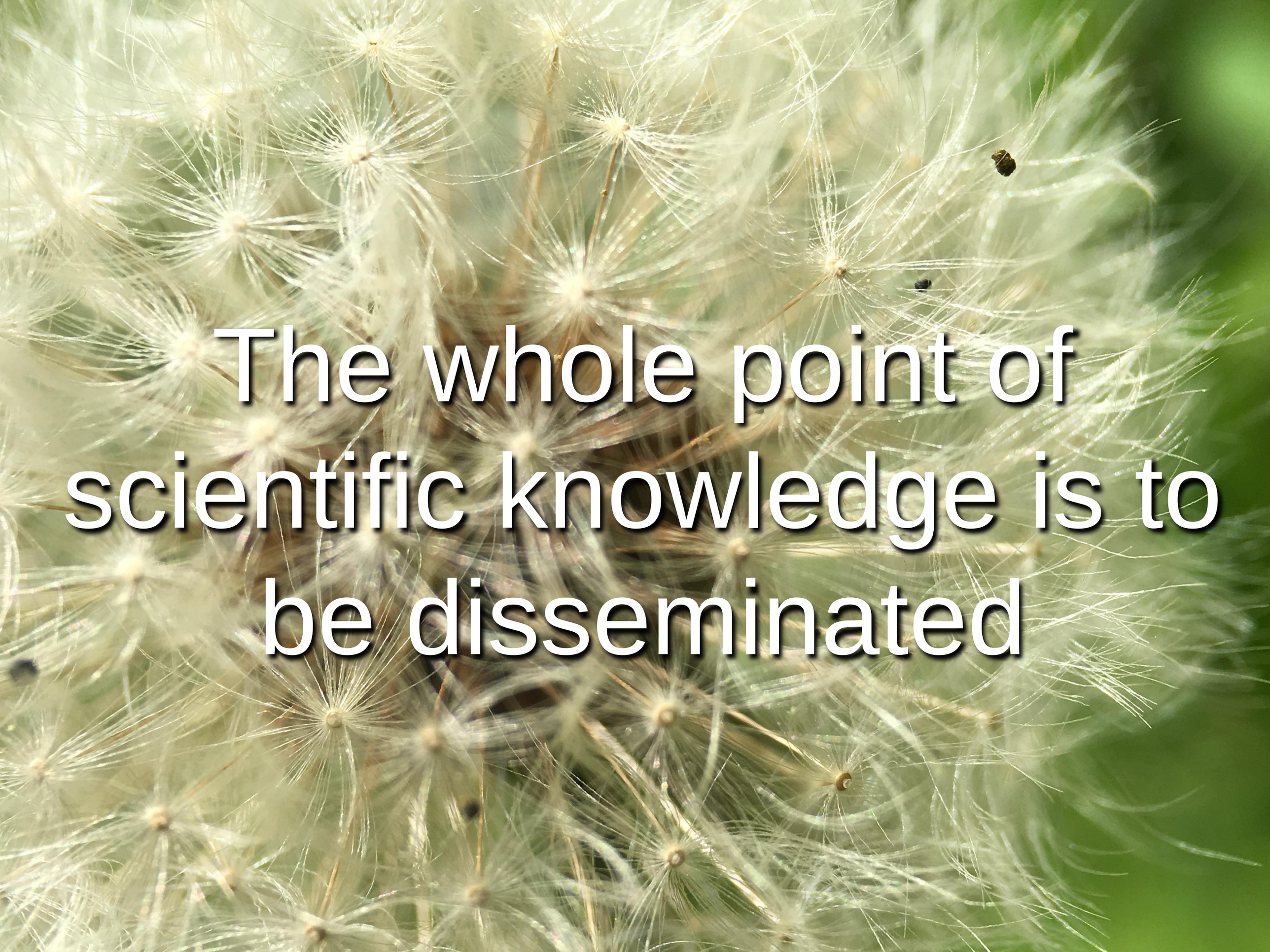
The g the
epide even share
their c ths, if ever.

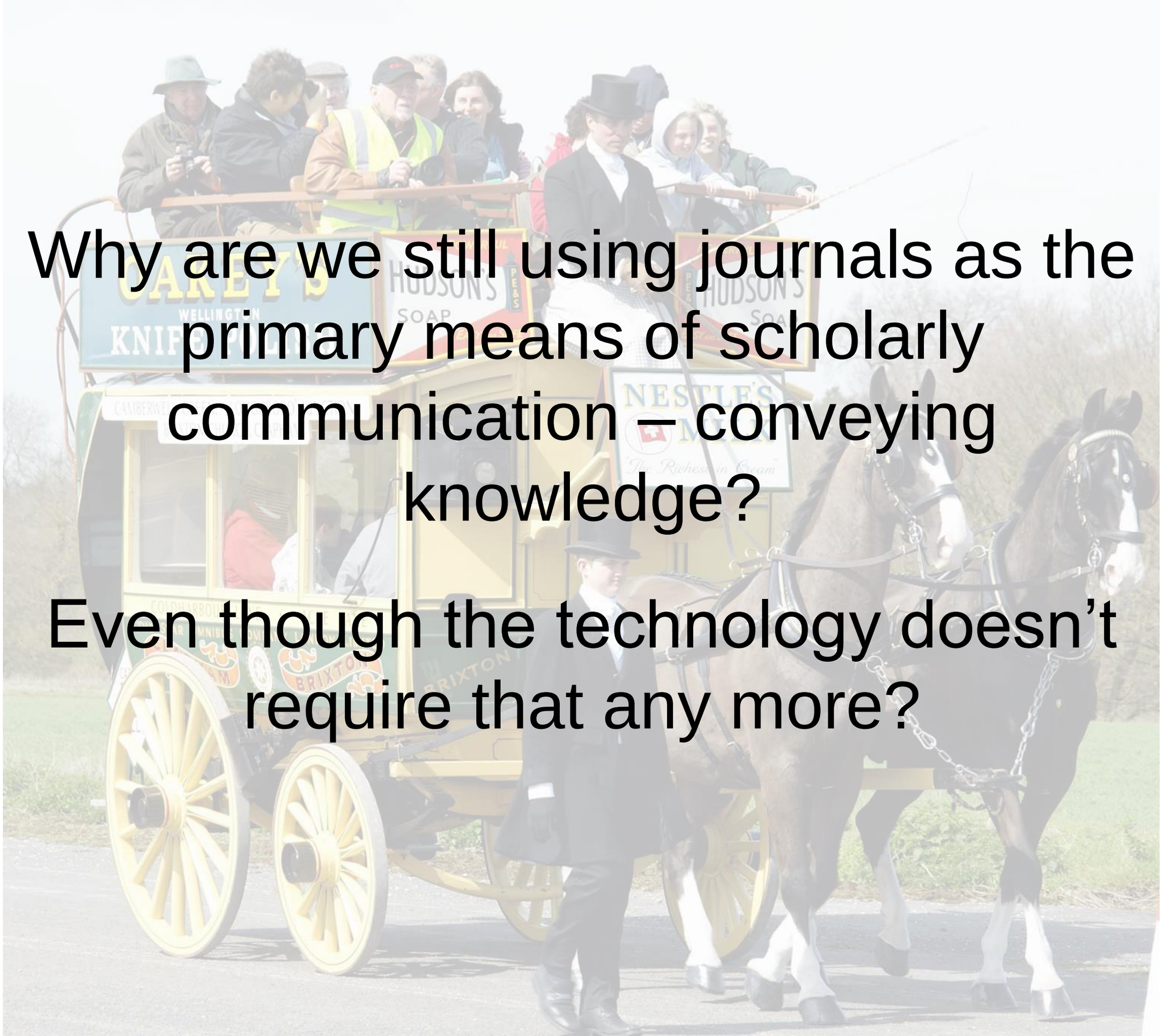
Zika
Ebola
Dengue
etc.

In these circumstances ‘openness’ is a crucial ‘quality’ of research results

Pretty much all diseases fall under ‘these circumstances’

There is an urgent moral imperative – achieving Open Access can't wait


The whole point of
scientific knowledge is to
be disseminated



Why are we still using journals as the primary means of scholarly communication – conveying knowledge?

Even though the technology doesn't require that any more?

Measurable Article Qualities

MAQ

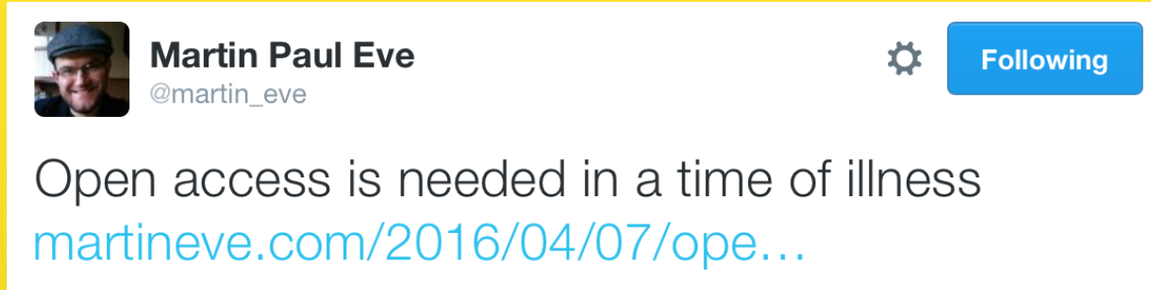
- MAQ Adhering to standards, descriptions, performance, of experiments, statistics, and other analyses
- MAQ Conclusions are properly supported by the data presented
- MAQ Intelligible, ‘standard’ language, without unnecessary jargon
- MAQ Meeting all applicable standards for the ethics of experimentation and research integrity
- MAQ Adhering to appropriate reporting guidelines and community standards for data availability
- MAQ Openness – attribution only, all re-use allowed – CC-BY [ⓐ]

Openness

attribution only, all re-use allowed

CC-BY [ⓐ]

Meaningful ‘impacts’



Open access in a time of illness

I noted, on Twitter, how pleased I was to discover that there was good information available online about my current condition. I want, here though, to offer a few words to the ridiculous arguments that are sometimes brought against open access. Namely, that there isn’t a public for this material because it is specialized in both its wording and its content.

Openness is important because it is a quality:

If the majority of evidence-based scientific information remains hidden behind paywalls, it leaves the field wide open for misleading interpretations of science

It also gives a powerful signal to the public – even to detractors – that we don't really like them to know what science is up to

'Paywalls', anyone?

From: tmbl@info.cern.ch (Tim Berners-Lee)
WorldWideWeb - Executive Summary

```
Message-ID: <6484@cernvax.cern.ch>
Date: 6 Aug 91 14:56:20 GMT
From: timbl@info.cern.ch (Tim Berners-Lee)
Newsgroups: alt.hypertext
Subject: Re: Qualifiers on Hypertext links...

In article <64...@cernvax.cern.ch> I promised to post a short summary
of the WorldWideWeb project. Mail me with any queries.

                    WorldWideWeb - Executive Summary

The WWW project merges the techniques of information retrieval and
hypertext to make an easy but powerful global information system.

The project started with the philosophy that much academic information
should be freely available to anyone. It aims to allow information
sharing within internationally dispersed teams, and the dissemination
of information by support groups.
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H/T @MikeTaylor

Thank you!

Jan Velterop

(@Villavelius on Twitter)