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Nationale Akademie
der Wissenschaften

NAL-live: The New Online Journal for Open Scientific Exchange

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Director Ephemeridum (Chief Editor) of the Leopoldina





Leopoldina
Nationale Akademie
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1652



1687



1878



2008



2012



2021

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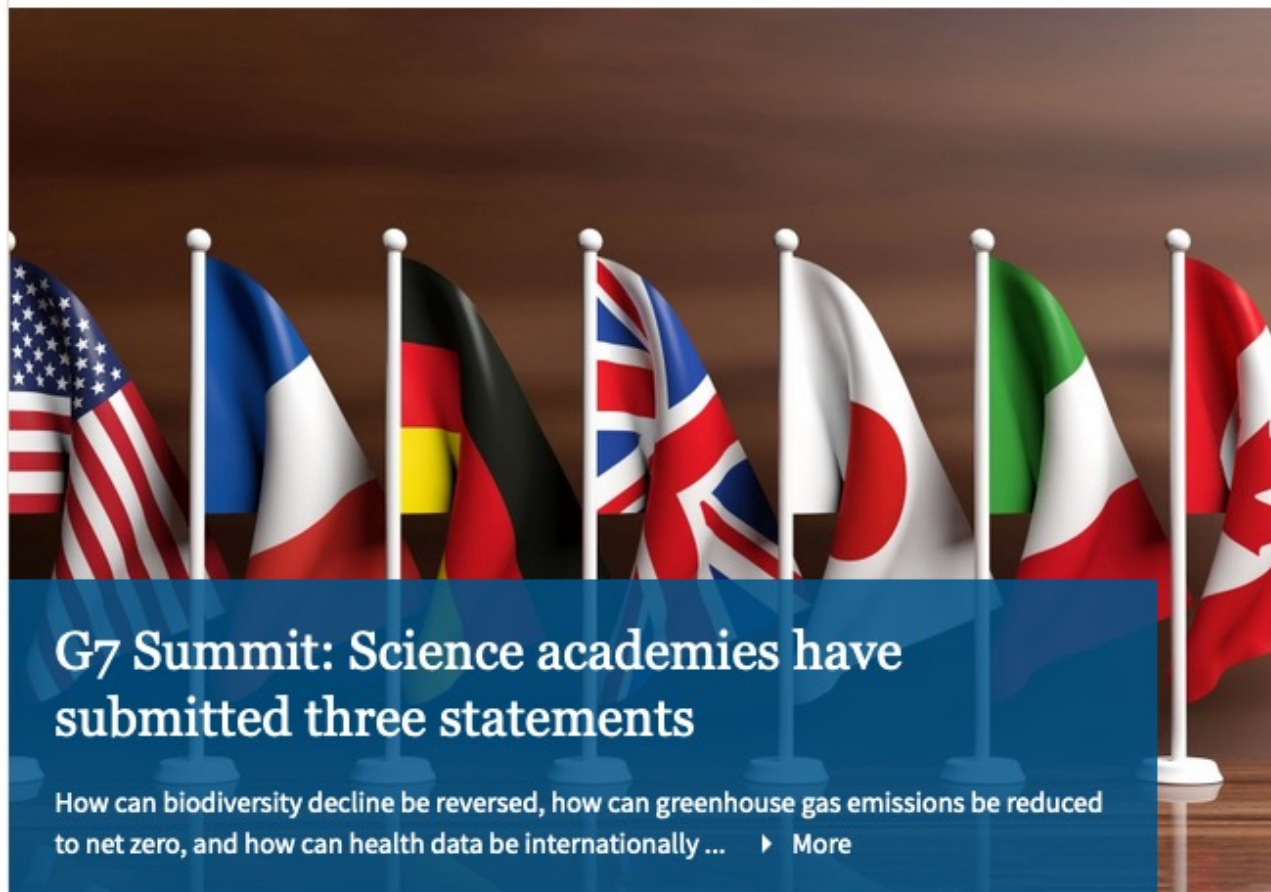
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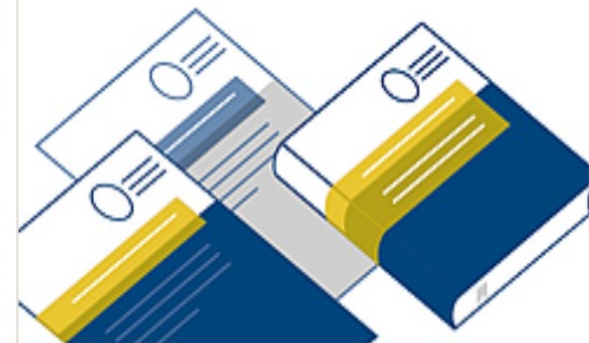
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NAL-LIVE

The Covid-19 Pandemic: Basic Insights from Basic Mathematical Models (2022)



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NOVA ACTA LEOPOLDINA

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The Covid-19 Pandemic: Basic Insights from Basic Mathematical Models

Version 2.0

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Learning Objectives

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Comments and discussions at www.nat-his.org

Frederick A. Gottman
version 1.0. 1994. Rev.



100

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Arne Traulsen, Chaitanya S. Gokhale, Saumil Shah, Hildegard Uecker

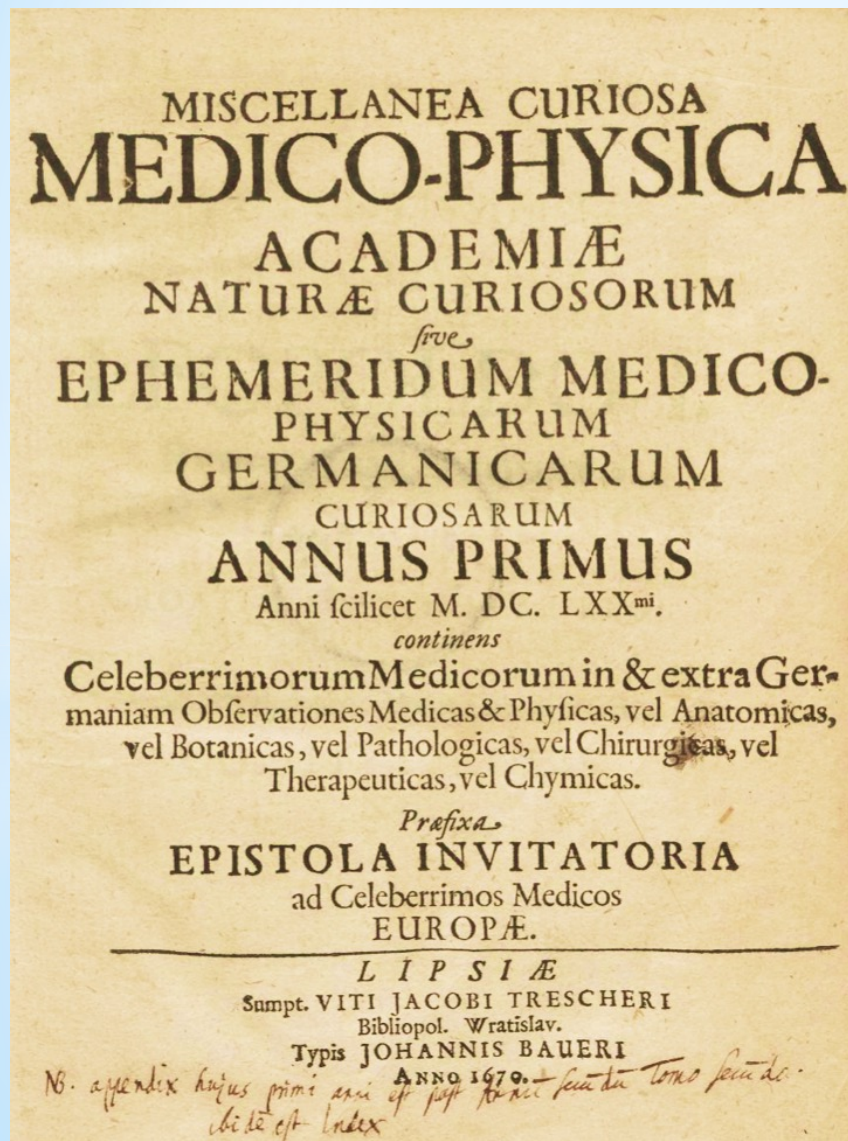
Published by Matthias Beiglböck

(2022, 20 pages, 4 Figures, ISSN: 2699-8955)

DOWNLOADS

► The Covid-19 Pandemic: Basic Insights from Basic Mathematical Models (PDF)

the dawn of scientific publishing



first scientific journals mark
a transition from pure book
publishing to publishing
collections from different
authors

France 1665
Journal des Savants

England 1665
Philosophical transactions
by the Royal Society

Germany 1670
Miscellanea curiosa
by the Leopoldina

Development of business models in scientific publishing: 17th century*

initially run as barter trade (Tauschhandel) at book fairs: printed pages of one product were exchanged for printed pages of other products

Dutch publishers (among them the Elzevier family) were the first to change this: "We are not engaged in printing to exchange books for books, but to make money from them"

(in a letter of Balthasar Moretus to Willem Blaeu of 4 October 1634)*

Unauthorized reprinting and bad translations were rampant: predatory publishers emerged

the first journals needed to recover the printing and paper costs

- establishment of subscription charges

- business interests started to exceed scientific interests

* based on Maclean (2022): *Publishers, book fairs, academies, journals: the dissemination of English medicine and natural philosophy in the second half of the seventeenth century*. *Acta Historica Leopoldina* 81, 37-67.

Development of business models in scientific publishing: today

electronic publishing has changed the business model:

- no need to recover printing and paper costs
- but new costs arise: quality control (Peer Review) and editing

birth of the Open Access idea:

- article processing charges (APC) cover the service costs
- subscription charges can be abandoned

predatory
publishers have
emerged again

birth of the Preprint concept:

- articles are initially made available without peer review checks

birth of the Open Review model:

- Peer Review happens publically
- Peer Review comments are published with the articles

Development of the *scientific* "business model" in publishing

published papers have become the currency for scientific careers:

- positions and financial support depend on numbers of published papers and their impact factors

bibliographic services created to support literature searches

- became converted into bibliometric services that determine the currency value of published papers

scientific publishing has become an "economic game" between authors, peer reviewers and bibliometric manipulators

- this game leaves little room for Open Science contributions from the public

scientific economy first - science second

Establishment of

Living Documents

could trigger a major change in
scientific publishing

Development of Leopoldina publications

1670 – 1706: *Miscellanea curiosa sive ephemeridum medico-physicarum Germanicarum Academiae Caesareo-Leopoldinae Naturae Curiosorum*

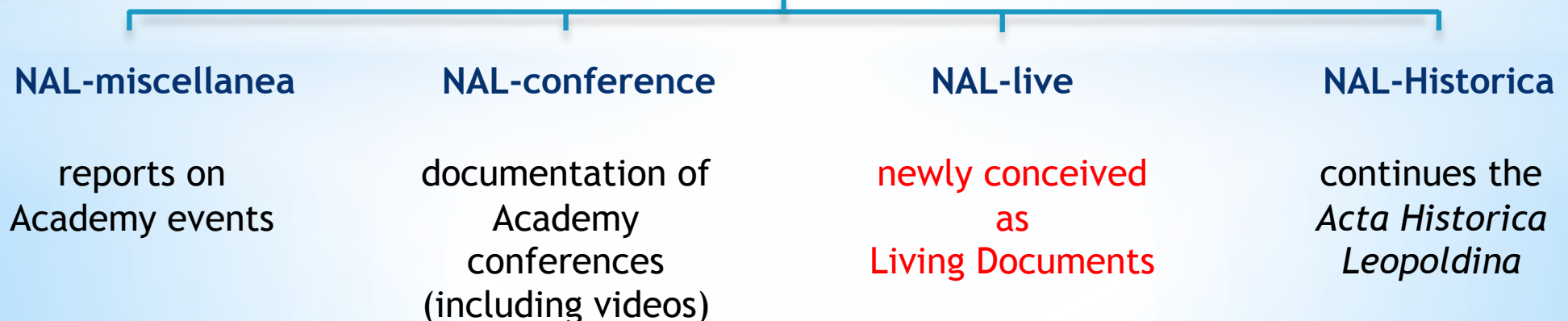
1712 – 1722: *Academiae Caesareo-Leopoldinae Naturae Curiosorum ephemerides, sive, Observationum Medico-Physicarum à Celeberrimis Viris tum Medicis, tum Aliis Eruditis in Germania & extra eam communicatarum*

1727–1754: *Acta Physico-Medica Academiae Caesareae Leopoldino-Carolinae Naturae Curiosorum exhibentia Ephemerides, sive, Observationes Historias et Experimenta Celeberrimis Germaniae et Exterarum Regionum Viris Habita & Communicata, Singulari Studio Collecta*

1757–1842: *Nova Acta Physico-Medica Academiae Caesareae Leopoldino-Carolinae Naturae Curiosorum*

1843–1928: *Nova acta Academiae Caesareae Leopoldino-Carolinae Germanicae Naturae Curiosorum*

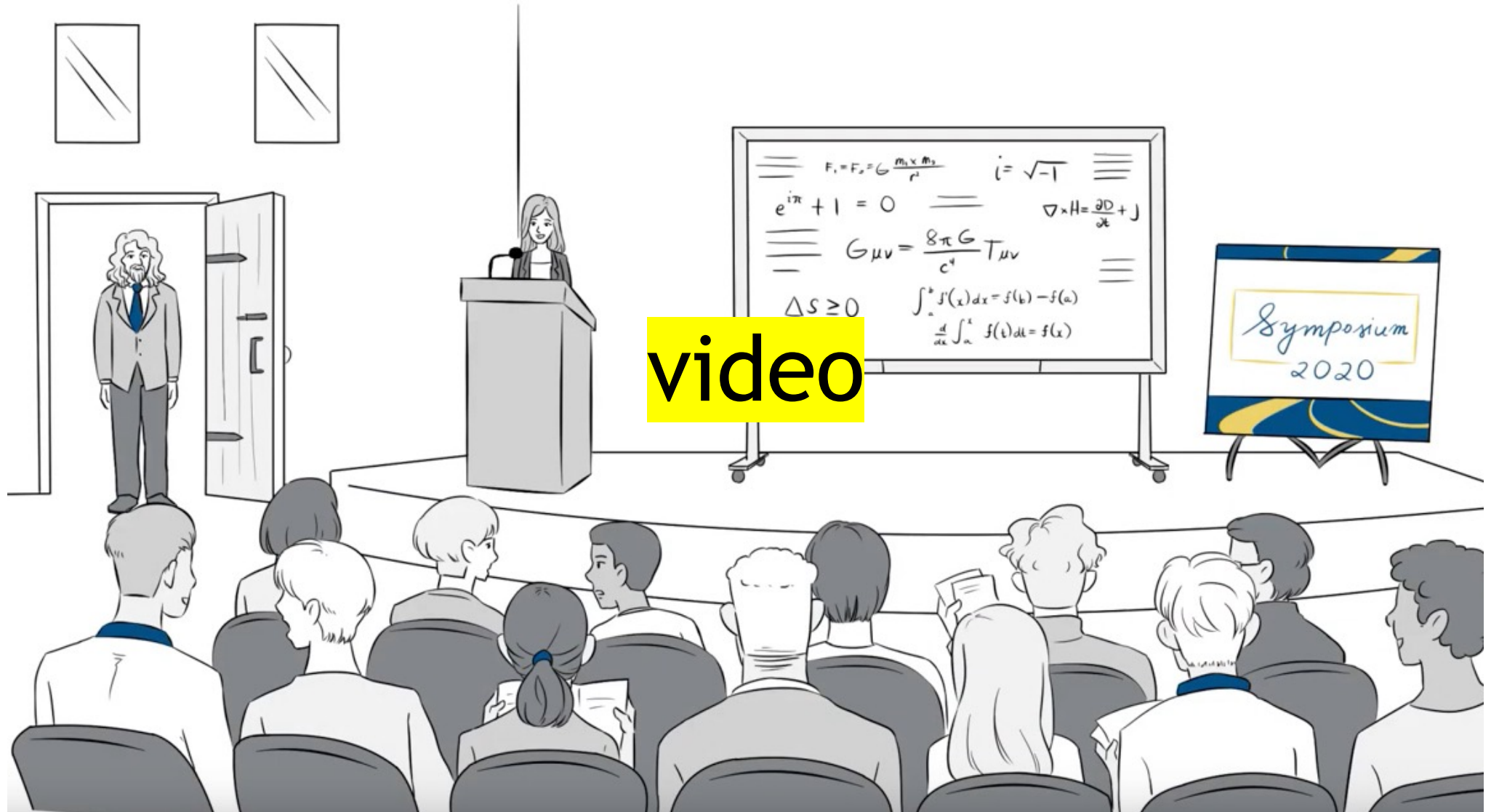
Nova Acta Leopoldina NAL



➤ Platinum Open Access (no APC) and



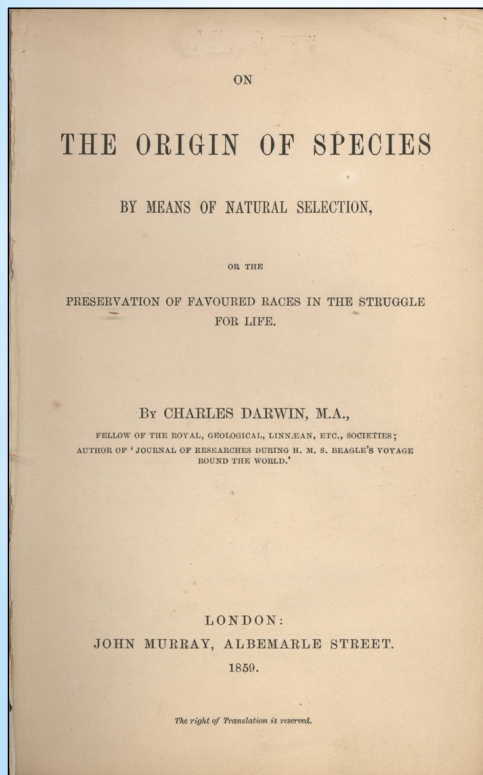
NAL-live: Living Documents



NAL-live: Living Documents

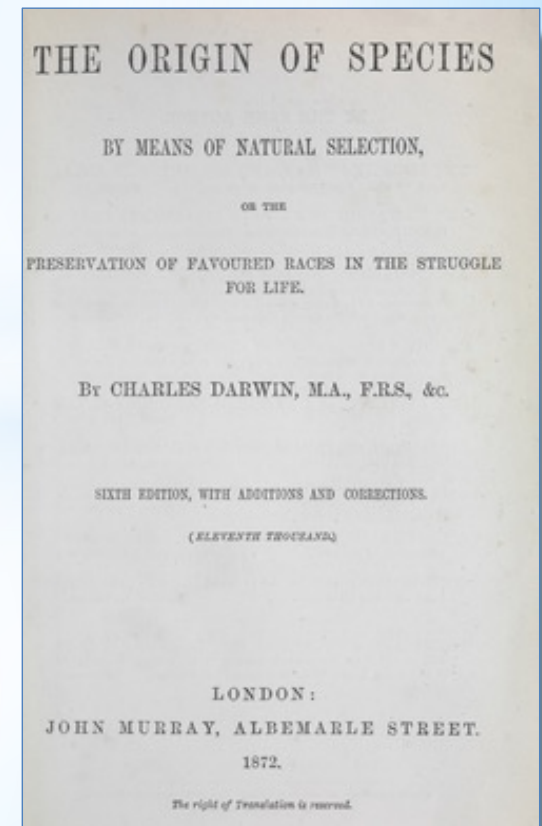
Living Documents are not new

Example: Darwin's *The Origin of Species*



1st edition

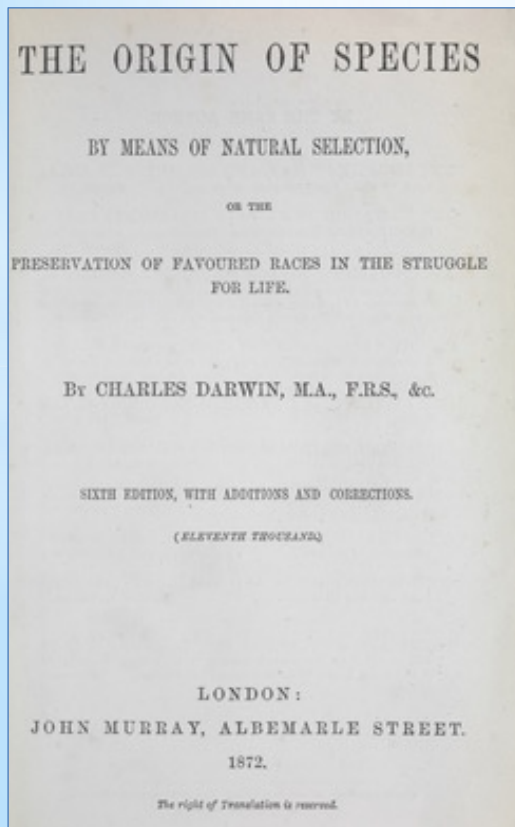
- corrections and responses to readers and public discussion in every new edition



6th edition

Living Documents are not new

Example: Darwin's *The Origin of Species*



6th edition

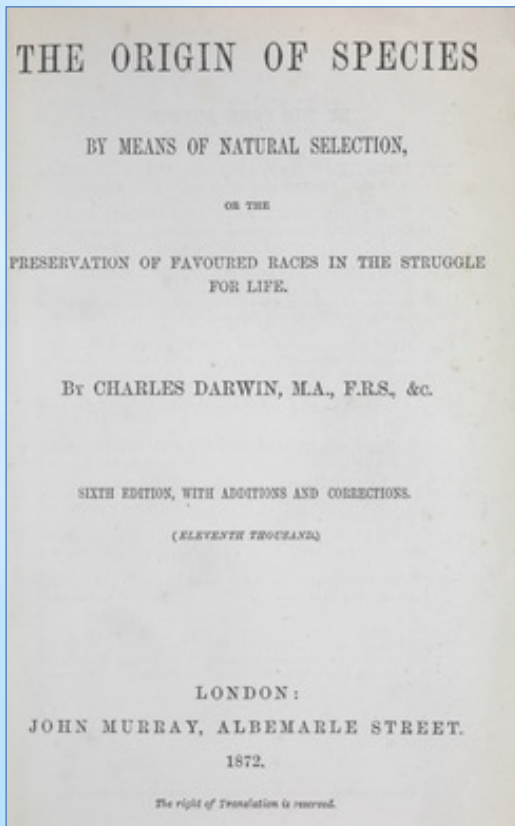
- large number of changes in the 6th edition - includes also a list of all changes

xii		Additions and Corrections.	
Fifth Edition.	Sixth Edition.	Chief Additions and Corrections.	
Page	Page		
100	68	Influence of fortuitous destruction on natural selection.	
158	101	On the convergence of specific forms.	
220	142	Account of the Ground-Woodpecker of La Plata modified.	
225	145	On the modification of the eye.	
250	149	Transitions through the acceleration or retardation of the period of reproduction.	
251	150	The account of the electric organ of fishes added to.	
253	151	Analogical resemblance between the eyes of Cephalopods and Vertebrates.	
254	153	Clapnet on the analogical resemblance of the hair-claspers of the Acridæ.	
248	162	The probable use of the rattle to the Rattle-snake.	
248	163	Helmholtz on the imperfection of the human eye.	
255	168	The first part of this new chapter consists of portions, in a much modified state, taken from chap. iv. of the former editions. The latter and larger part is new, and relates chiefly to the supposed incompetency of natural selection to account for the incipient stages of useful structures. There is also a discussion on the causes which prevent in many cases the acquisition through natural selection of useful structures. Lastly, reasons are given for disbelieving in great and sudden modifications. Gradations of character, often accompanied by changes of function, are likewise here incidentally considered.	
268	214	The statement with respect to young cuckoos ejecting their foster-brothers confirmed.	
270	215	On the cuckoo-like habits of the Molothrus.	
307	249	On fertile hybrid moths.	
319	248	The discussion on the fertility of hybrids not having been acquired through natural selection condensed and modified.	
326	252	On the causes of sterility of hybrids, added to and corrected.	
377	284	Pyrgoma found in the chalk.	
402	301	Extinct forms serving to connect existing groups.	
440	328	On earth adhering to the feet of migratory birds.	
463	343	On the wide geographical range of a species of Galaxias, a fresh-water fish.	
505	373	Discussion on analogical resemblances, enlarged and modified.	
516	382	Homological structure of the feet of certain marsupial animals.	
518	384	On serial homologies, corrected.	
520	385	Mr. E. Ray Lankester on morphology.	
521	387	On the asexual reproduction of Chironomus.	
541	401	On the origin of rudimentary parts, corrected.	
547	405	Recapitulation on the sterility of hybrids, corrected.	
552	409	Recapitulation on the absence of fossils beneath the Cambrian system, corrected.	
568	421	Natural selection not the exclusive agency in the modification of species, as always maintained in this work.	
572	424	The belief in the separate creation of species generally held by naturalists, until a recent period.	

list of changes

Living Documents are not new

Example: Darwin's *The Origin of Species*



problems

- no further updates after the 6th edition
 - important topics that were already addressed in the book were temporarily forgotten
- many subsequent discussion of evolutionary principles would have been different, if they would have been based on a continuation of the book

6th edition

Living Documents are not new

Example: Wikipedia



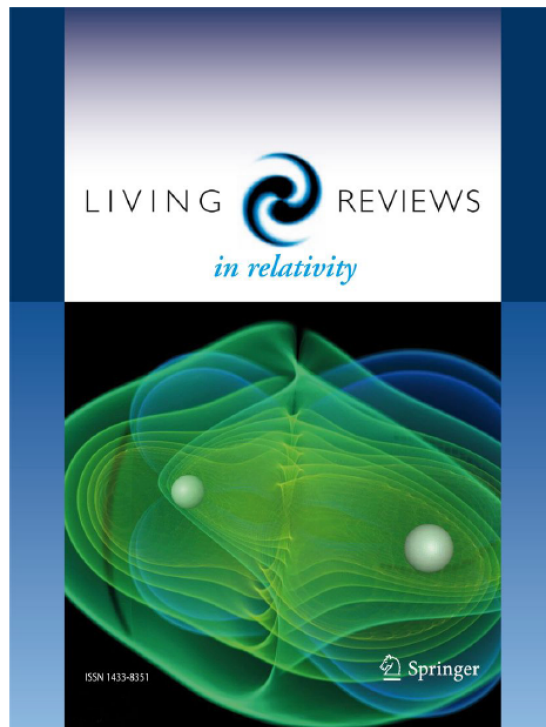
problems

- scientific quality is not the primary goal
- archiving is unclear
- sources of information are not systematically listed
- no peer review
- corrections and recognition of manipulation relies solely on "crowd knowledge"

➤ has been stimulating and has provided important ideas, but is not sufficiently reliable for scientific purposes

Living Documents are not new

Example: Living Reviews in relativity



Living Reviews in Relativity

Editor-in-Chief: B. Iyer

- ▶ Offers critical reviews of research in all areas of relativity
- ▶ “Living” articles are kept up-to-date by their authors
- ▶ Published under the auspices of the Max Planck Society and ISGRG

Living Reviews in Relativity is a peer-reviewed, full open access, and exclusively online journal, publishing freely available reviews of research in all areas of relativity. Articles are solicited from leading authorities and are directed towards the scientific community at or above the graduate-student level. They provide critical reviews of the current state of research and available sources in the fields they cover. All contributions are subject to single-blind peer review by at least two referees.

Living Reviews is unique in maintaining a suite of high-quality reviews, which are kept up-to-date by the authors. This is the meaning of the word “living” in the journal’s title.

but: no commenting function, updates are published as new documents

Concept for *NAL-live*

initial manuscript
version 1.0



commenting



adjustment(s)
version(s) 1.xx



revised manuscript
version 2.0



etc.

starts with a classic Review of a
given scientific topic
including
systematic literature search
and
peer review

edited by editorial staff

publication online als pdf and XML
with a doi number

based on CC BY4.0 license

Concept for *NAL-live*

initial manuscript
version 1.0



commenting



adjustment(s)
version(s) 1.xx



revised manuscript
version 2.0



etc.

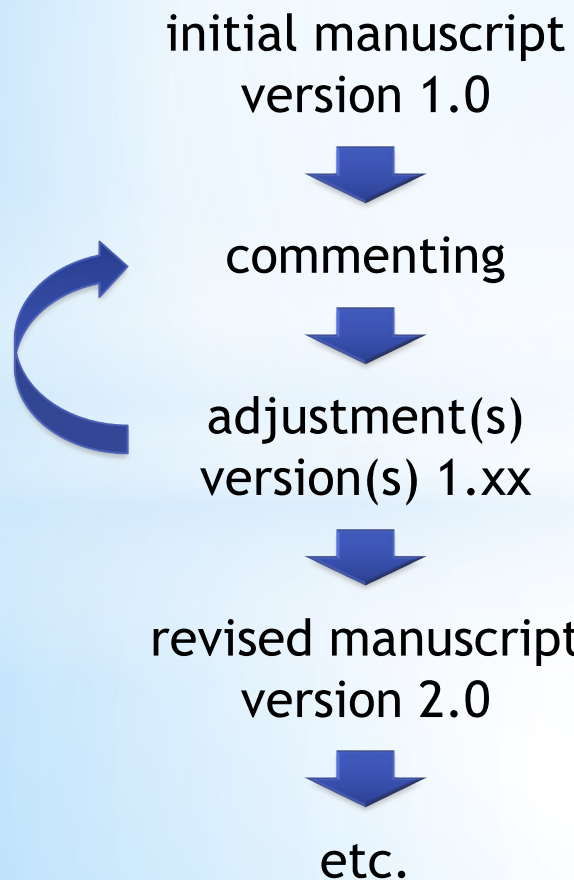
everybody is allowed to comment
(with a moderation filter)

comments receive a doi

Author(s), Editor(s) and peer
reviewer(s) can respond

comments and responses are
provided online

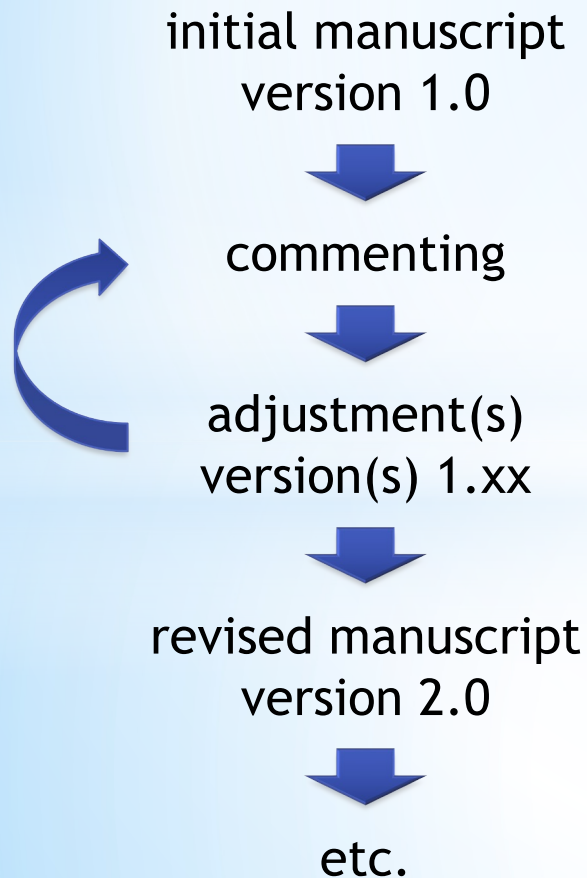
Concept for *NAL-live*



author(s) of the document can
adjust their text on the basis of the
comments

changes are marked to allow
tracing

Concept for *NAL-live*



Original author(s) and/or new
author(s) revise the text and write
new parts

new systematic literature search

new peer review

new editing by editorial staff

publication online as pdf and xml
with new doi number

Concept for *NAL-live*

consequences

- authors can change over time
- elements of the first text can be directly transferred to the new text (CC BY 4.0 license)
- commenters gain a recognized role and can refer to their contributions via doi links
- a "living document could potentially be carried on over decades
- Scientific credence must be guaranteed by an established institution: should be a central task for scientific societies

Living documents are not new, but require a change in publishing culture

active commenting needs to be encouraged

- while many journals are experimenting with commenting options on published papers, these are only rarely used

Why?

- Serious comments need some effort, but there is so far no "payback" for the effort
- when comments receive a doi, there is the chance that that authors of comments see that their efforts have an effect on shaping the content

Living documents are not new, but require a change in publishing culture

requires a new business model

- open access publishers recover currently their costs via APCs on a per article basis
- maintaining a commenting and updating function incurs additional costs, but these are difficult to collect via additional APCs

possible solution:

- publishing needs to be based on general service contracts, rather than APCs

Living documents are not new, but require a change in publishing culture

a revived role for scientific societies

- Scientific journals should be run by scientific societies, who provide also the scientific expertise (*Platinum Open Access Model*)
- Scientific societies should receive public grants to run the journal
- the grants should be subject to peer review in regular cycles (e.g. every 5 years)
- the grant money can be used to establish an own publishing service, or to buy it from private companies

Living documents are not new, but require a change in publishing culture

a new role for the authors

- authors need to pay continued attention to their publication
- authors will directly interact with the public via responses to comments
- however, the "currency" effect of publishing individual papers becomes diluted
- would need to be replaced by a "currency" effect on well maintained living papers, which requires a new bibliometric scoring system

challenges for implementation

- getting authors to engage in the effort
- getting (public) commenters to engage
- getting financing sorted out
- develop a "payback" system that recognizes the efforts of authors and commenters
- develop a suitable software first ...

Living Documents

- can put science first in scientific publishing
- can create new economic and scientific business models
- can allow non-scientists to directly contribute to science