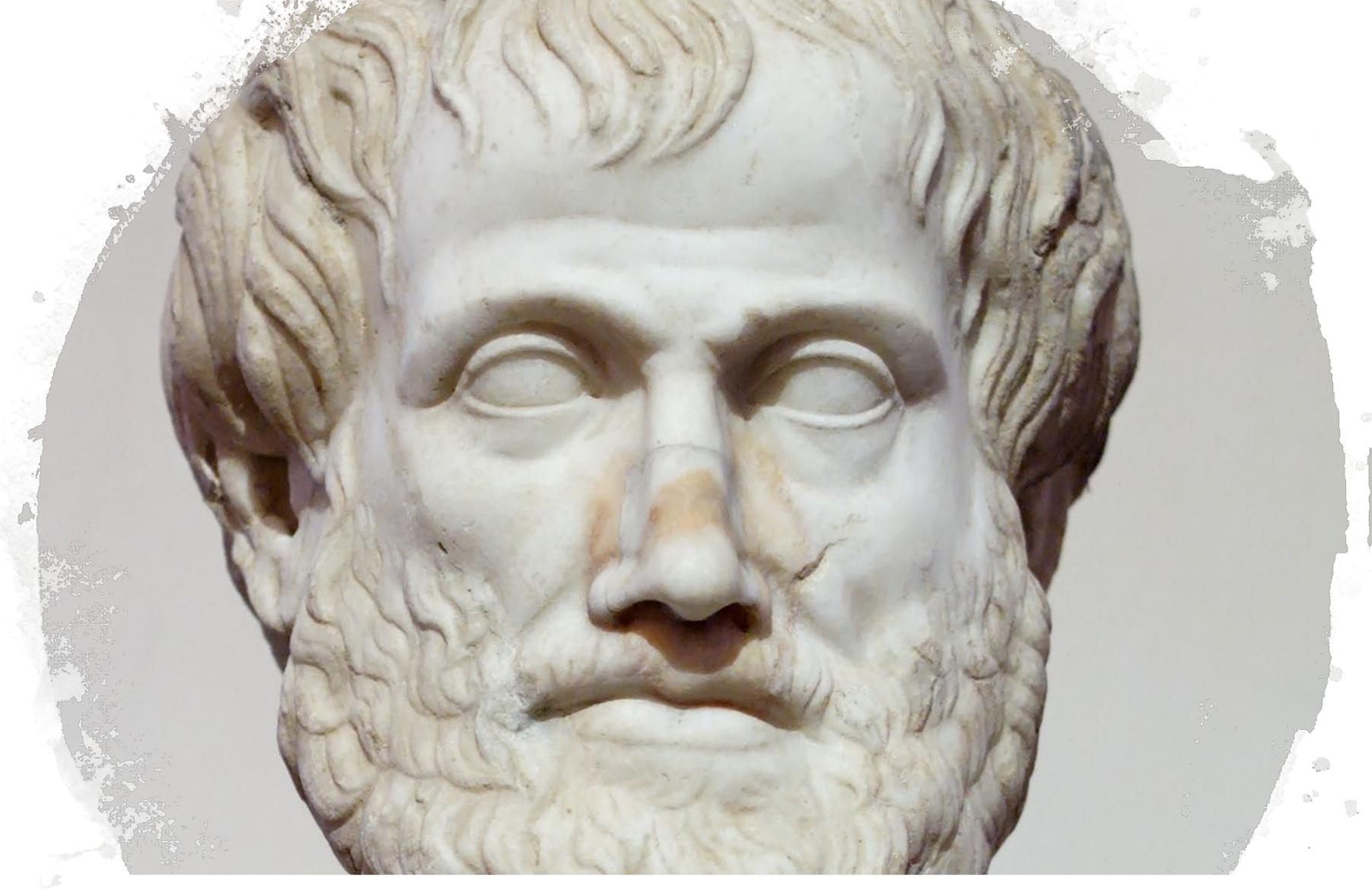


Beyond Open Access

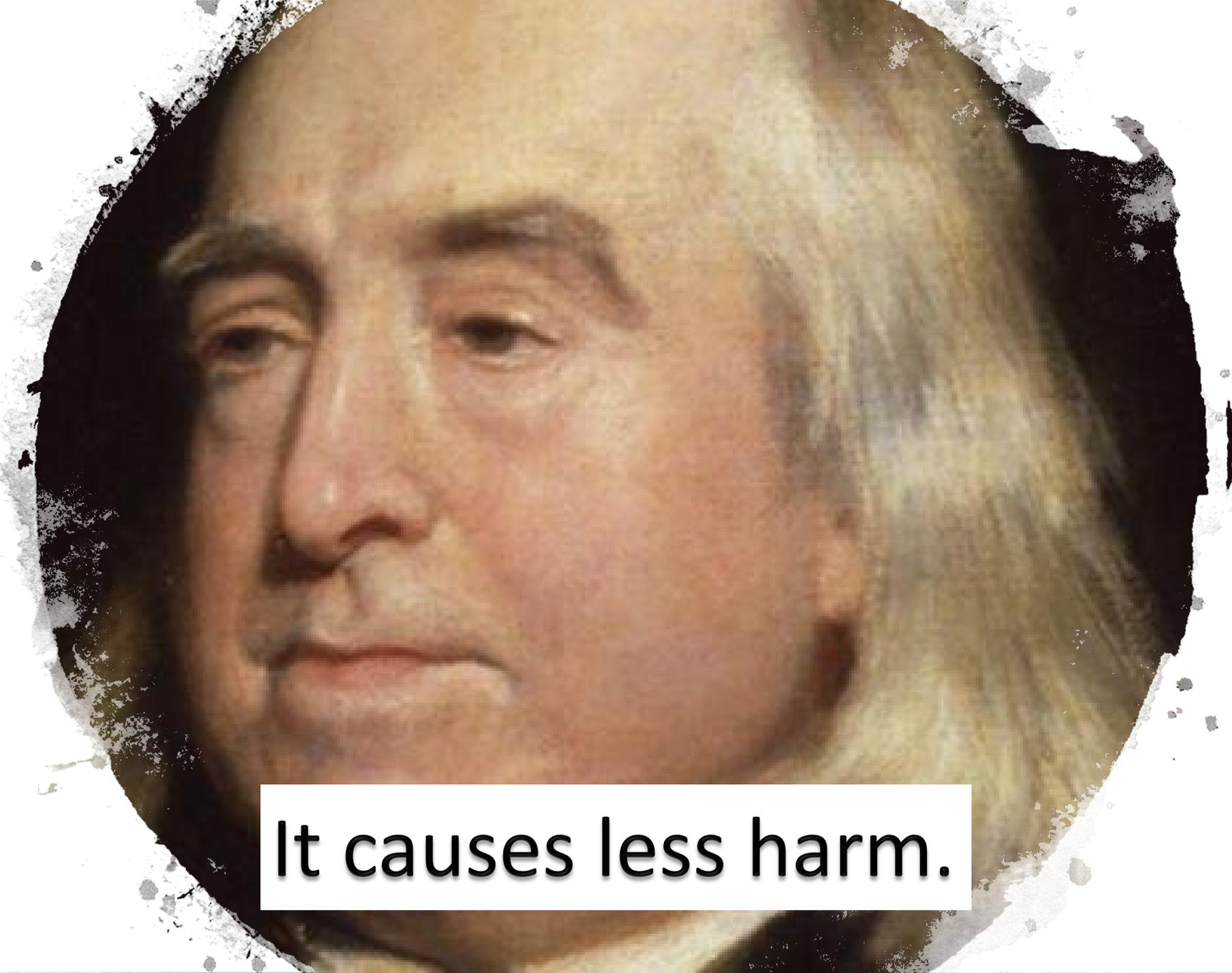
Guidelines for Science in the 21st century



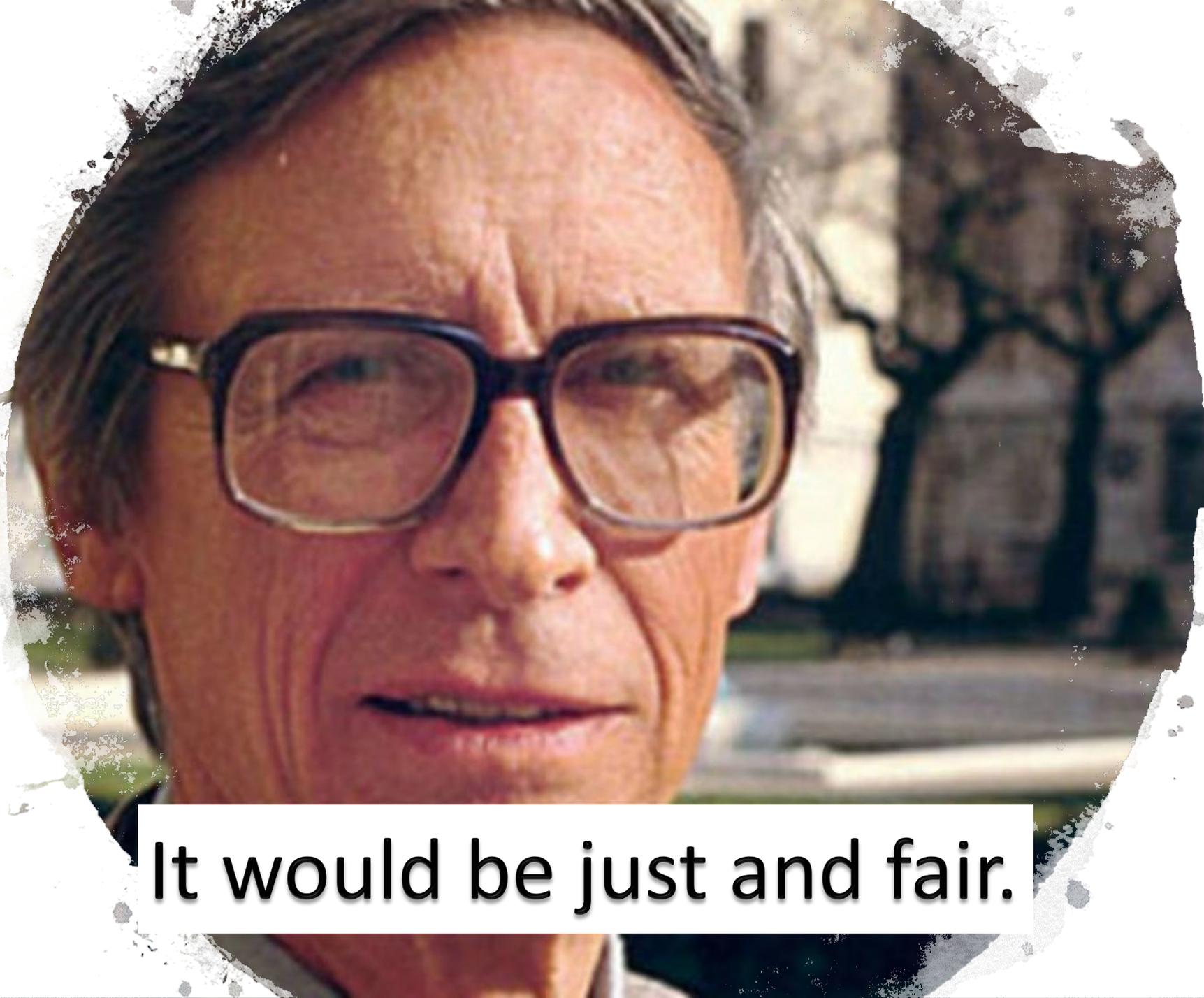
It's good for human flourishing!



If everybody did, we'd live in a better world.



It causes less harm.



It would be just and fair.

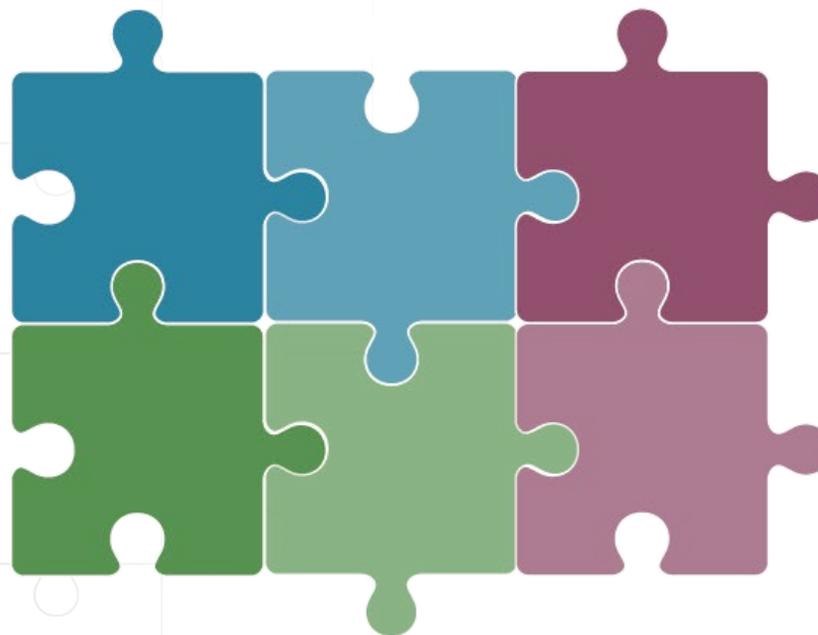
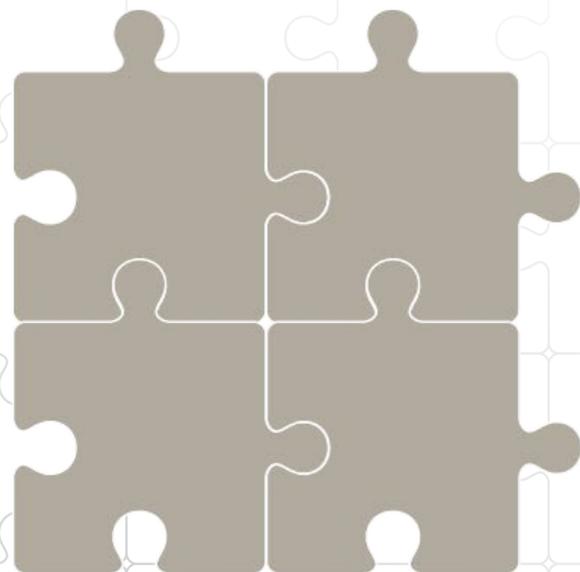


Meetings

Mediatheque

Educational

Publications



Alumni
Network

Stakeholder
Initiatives

Exhibitions



Co-organized by Oliver H. Bruchmann and S. Chingizli

EDUCATE INSPIRE CONNECT
SINCE 1951
LINDAU
NOBEL LAUREATE
MEETINGS

EDUCATE INSPIRE CONNECT
SINCE 1951
LINDAU
NOBEL LAUREATE
MEETINGS

LINDAU
NOBEL LAUREATE
MEETINGS

EDUCATE INSPIRE CONNECT
SINCE 1951
LINDAU
NOBEL LAUREATE
MEETINGS

EDUCATE INSPIRE CONNECT
SINCE 1951
LINDAU
NOBEL LAUREATE
MEETINGS

EDUCATE INSPIRE CONNECT
SINCE 1951
LINDAU
NOBEL LAUREATE
MEETINGS







IMPERATÖRC







LINDAU
NOBEL LAUREATE
MEETINGS



www.lindau-nobel.org



LINDAU
NOBEL LAUREATE
MEETINGS

Sketches of Science



3

LOTZBECKPARK

Hier am Bodensee weht stets ein frischer Wind. Moleküle der Erdatmosphäre bewegen sich. Doch genau diese Atmosphäre ist extrem störungsanfällig und muss geschützt werden.

DIE ATMOSPÄRE VERLETZBARE HÜLLE UNSERES LEBENSRAUMS



NOBELPREIS
CHEMIE
1995

Für ihre Arbeiten zur Chemie der Atmosphäre insbesondere über Bildung und Abbau von Ozon

Die Atmosphäre bietet den Lebewesen Luft zum Atmen. Aber nicht nur das. Sie schützt vor harter Strahlung, zum Beispiel vor ultravioletter Strahlung von der Sonne und kosmischer Strahlung aus den Tiefen des Weltalls. Die Ozonschicht spielt dabei eine bedeutende Rolle, denn sie absorbiert die krebserregende UV-B-Strahlung. Sie befindet sich in einer Höhe von 15 bis 30 Kilometern.





CLOSING PANEL DISCUSSION (2017)
 What Could and Should We Do About Inequality? Panellists: Rong Hai, James J. Heckman, Daniel L. McFadden, Christopher A. Pissar...



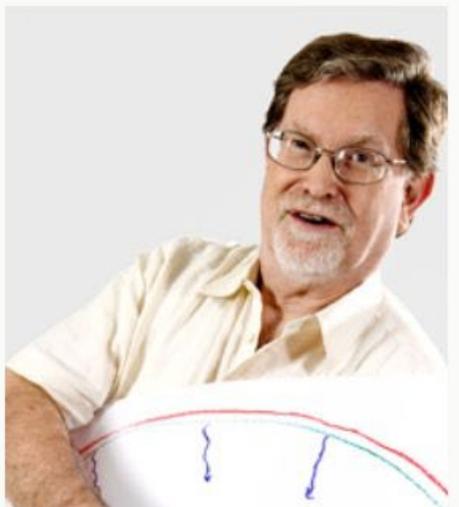
PANEL DISCUSSION (2017)
 New Conditions for Monetary and Fiscal Policy? Panellists: Peter A. Diamond, Chiara ...



ERIC S. MASKIN (2017)
 A Better Way to Choose Presidents



CLOSING PANEL DISCUSSION (2017)
 What Could and Should We Do About Inequality? Panellists: Rong Hai, James J. ...





PANEL DISCUSSION (2019)
How Can Science Change the World for the Better?



PANEL DISCUSSION (2019)
Student, Postdoc, and Then? - Aiming for a Career in Science



PANEL DISCUSSION (2019)
The Dark Side of the Universe



PANEL DISCUSSION (2018)
Science in a Post-Factual World; Steven Chu,
Peter C. Doherty, Arunima Roy, Brian Malow ...



PANEL DISCUSSION (2018)
Publish or Perish; Maria Leptin, Daniel Ropers,
Randy W. Schekman, Amy Shepherd, Harold ...



PANEL DISCUSSION (2018)
Challenges in Personalised Medicine; Erwin
Böttinger, Ruairi Robertson, Gintvile ...



CLOSING PANEL DISCUSSION (2017)
Ethics in Science; Panelists Martin Chalfie,
Jeffrey Kovac, Ahmet Üzümcü (Organisation ...



PANEL DISCUSSION (2017)
Science Careers; Panelists Dan Shechtman,
John E. Walker, Thomas L. Gianetti (ETH ...



PANEL DISCUSSION (2017)
Current and Future Game Changers in
Chemistry; Stefan Hell, Richard R. Schrock, ...

Mainau Declaration 2015 on Climate Change

We undersigned scientists, who have been awarded Nobel Prizes, have come to the shores of Lake Constance in southern Germany, to share insights with promising young researchers, who like us come from around the world. Nearly 60 years ago, here on Mainau, a similar gathering of Nobel Laureates in science issued a declaration of the dangers inherent in the newly found technology of nuclear weapons—a technology derived from advances in basic science. So far we have avoided nuclear war though the threat remains. We believe that our world today faces another threat of comparable magnitude.

Successive generations of scientists have helped create a more and more prosperous world. This prosperity has come at the cost of a rapid rise in the consumption of the world's resources. If left unchecked, our ever-increasing demand for food, water, and energy will eventually overwhelm the Earth's ability to satisfy humanity's needs, and will lead to wholesale human tragedy. Already, scientists who study Earth's climate are observing the impact of human activity.

In response to the possibility of human-induced climate change, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to provide the world's leaders a summary of the current state of relevant scientific knowledge. While by no means perfect, we believe that the efforts that have led to the current IPCC Fifth Assessment Report represent the best source of information regarding the present state of knowledge on climate change. We say this not as experts in the field of climate change, but rather as a diverse group of scientists who have a deep respect for and understanding of the integrity of the scientific process.

Although there remains uncertainty as to the precise extent of climate change, the conclusions of the scientific community contained in the latest IPCC report are alarming, especially in the context of the identified risks of maintaining human prosperity in the face of greater than a 2°C rise in average global temperature. The report concludes that anthropogenic emissions of greenhouse gases are the likely cause of the current global warming of the Earth. Predictions from the range of climate models indicate that this warming will very likely increase the Earth's temperature over the coming century by more than 2°C above its pre-industrial level unless dramatic reductions are made in anthropogenic emissions of greenhouse gases over the coming decades.

Based on the IPCC assessment, the world must make rapid progress towards lowering current and future greenhouse gas emissions to minimize the substantial risks of climate change. We believe that the nations of the world must take the opportunity at the United Nations Climate Change Conference in Paris in December 2015 to take decisive action to limit future global emissions. This endeavor will require the cooperation of all nations, whether developed or developing, and must be sustained into the future in accord with updated scientific assessments. Failure to act will subject future generations of humanity to unconscionable and unacceptable risk.

Mainau Island, Germany
3 July 2015

Mainau Declaration 2015 on Climate Change

Handwritten signature

Roy J. Mather

Claude Cohen-Tannoudji

Touh Wünl

Mainau Island, Germany
3 July 2015

Mainau Declaration 2015 on Climate Change

Jules H. Struening

J. M. Bishop

Martin Chaffie

Roger Y. Tsien

Robb McKinn

Gen. Em.

Walter Gilbert

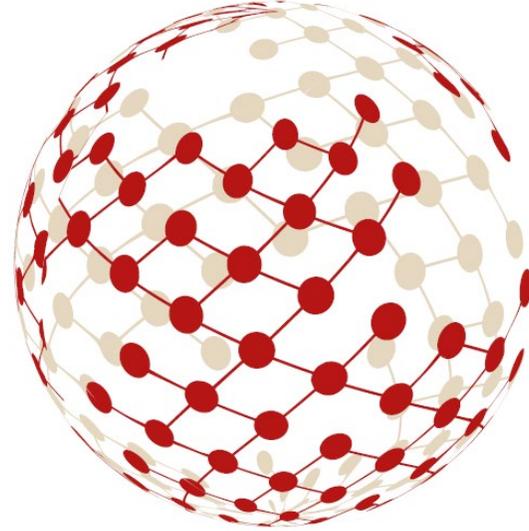
Harold Varma

James W. Cronin

Antonio

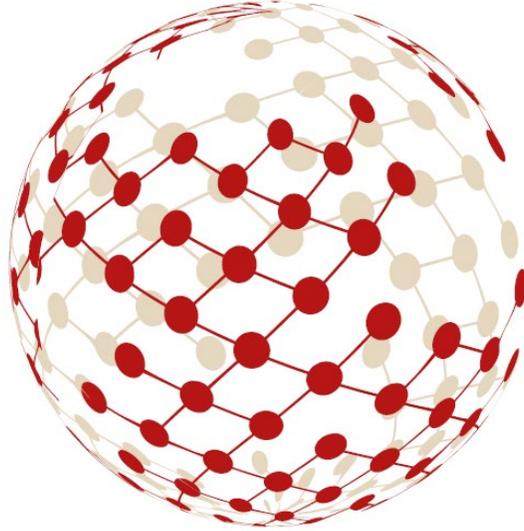
John L. Hall

Mainau Island, Germany
3 July 2015



The Lindau Declaration 2020

on Sustainable Cooperative Open Science



The Lindau Guidelines

*for global, sustainable and cooperative
open science in the 21st century*



Inspiration

Recognizing that climate change represents an urgent and potentially irreversible threat to human societies and the planet and thus requires the widest possible cooperation by all countries, and their participation in an effective and appropriate international response, with a view to accelerating the reduction of global greenhouse gas emissions,

AGREED

Recognizing that sustainable cooperative open science represents an urgent and positive need for benefiting human societies and the planet and thus requires the widest possible cooperation by all countries, and their participation in an effective and appropriate international response, with a view to accelerating the pace and improved quality of sustainable cooperative open science



10 Goals

(instead of 36 pages of stipulations)

GOAL 01

Adopt An Ethical Code

It has often been argued that science is always neutral and cannot be blamed for its abuses stemming from the misapplication of technological advances. And yet, humankind is currently facing very serious challenges that only exist due to scientific progress. Two of these challenges – nuclear weapons and

climate change – have been addressed in the Mainau Declarations 1955 and 2015. Scientific research cannot be divorced from its consequences, and neither can a scientist's actions. An ethical code provides ethical and moral foundations that help one to consider the likely consequences of one's actions.

GOAL 01

The Universal Code of Ethics for Scientists

Rigour

Rigour, honesty and integrity

- Act with skill and care in all scientific work. Maintain up-to-date skills and assist their development in others.
- Take steps to prevent corrupt practices and professional misconduct. Declare conflicts of interest.
- Be alert to the ways in which research derives from and affects the work of other people, and respect the rights and reputations of others.

GOAL 01

The Universal Code of Ethics for Scientists

Respect

Respect for life, the law and the public good

- Ensure that your work is lawful and justified.
- Minimise and justify any adverse effect your work may have on people, animals and the natural environment.

GOAL 01

The Universal Code of Ethics for Scientists

Responsibility

Responsible communication: listening and informing

- Seek to discuss the issues that science raises for society. Listen to the aspirations and concerns of others.
- Do not knowingly mislead, or allow others to be misled, about scientific matters. Present and review scientific evidence, theory or interpretation honestly and accurately.

GOAL 02

Cooperate Globally on Global Problems

The vast majority of the most pressing problems of today are global in nature: They affect large parts of the world's population, they do not stop at borders, and they cannot be solved alone.

Therefore, **scientists, funders and politicians must cooperate globally to increase efficiency, speed, and effectiveness.**

While the creative benefits of differing approaches and the stimulus of competition are to be acknowledged, inefficiency by unnecessary parallelism or obstruction must be avoided.

GOAL 03

Share Knowledge

Knowledge becomes most powerful when it is shared with others. **By sharing information, progress can be achieved faster and more efficiently. This includes sharing information about failures or negative results of studies.**

Thus, all scientific results and data shall be made openly available. Modern technologies allow for systems that can guarantee correct attribution of ideas to their inventors.

GOAL 04

Publish Results Open Access

Scientific results shall be published in an open access mode. Many approaches such as open access journals or pre-print archives as well as new initiatives already exist.

While it is not yet clear which modes and models will ultimately succeed, it remains a requirement that **all relevant scientific findings must be published in an open access mode.**

GOAL 05

Publish Data to Repositories

Publishing is not limited to scientific findings. **Any kind of data found, generated or used shall also be archived in appropriate data repositories.** As this means storing vast amounts of data, the technological and administrative infrastructure must be continuously improved and adapted to guarantee safe and secure long-term storage.

The publication of data, formulas, algorithms and other background used to generate findings will become a new requirement of scientific publishing. All scientific content shall be preserved, connected, and versioned to foster discovery, accumulation of evidence, but also respect for uncertainty.

GOAL 06

Work Transparently and Truthfully

Research must be transparent and truthful:

First, in **methodology, data and findings**, meaning that these have to be performed and documented in the most precise and comprehensible way.

Second, in **communication, and collaboration**, meaning that relevant

findings shall be communicated and provided to others in a precise, timely and constructive manner.

Third, in **disclosure** of funding, affiliations, and political or ideological motivations, meaning that all motivations outside of a pure scientific interest shall be communicated openly.

GOAL 07

Change Reward Systems

Currently, working along the outlined standards and investing in transparency, openness, accessibility etc. is not appropriately rewarded, especially not when it takes capacity from traditional main goals. For the future, **implementation and adherence to the aforementioned practices must be awarded**, e.g in reviewing and job

employment selections. Evaluations of scientists shall be based on both the relevance of their discoveries and the process by which they were discovered, not on where those results are published. Credit will also be given for generating useful data, authoring code or creating resources that can be reused by others.

GOAL 08

Support Talent Worldwide

Scientific talent exists in all parts of the world and all parts of society. All work and research environments as well as all structures related to that shall **support scientific talent regardless of its background in a diverse and non-discriminatory manner**. Equal access and opportunities shall be provided wherever possible.

GOAL 09

Communicate to Society

Science has a distinct responsibility to **communicate its procedures and results to society**. Not only is most basic research funded by tax-payer money, research and its applications have all-pervasive effects on people's lives.

Particularly for global issues such as climate change, proper communication becomes an important duty.

The scientific community must also constructively work on providing usable information to the decision-making process in politics, society, industry and other areas.

GOAL 10

Engage in Education

While research is at the core of the scientific discovery process, **engaging in the education of the next generation** is equally crucial.

Enabling and supporting aspiring young pupils, students and scientists ensures a sustainable process of mutual learning and empowers the subsequent cohort of researchers.

Engaging in education can take multiple forms, from classroom lectures to mentoring, from cooperative lab-work to off-campus activities.

01

Adopt an Ethical Code

02

Cooperate Globally on Global Problems

03

Share Knowledge

04

Publish Results Open Access

05

Publish Data to Repositories

06

Work Transparent and Truthful

07

Change Rewards Systems

08

Support Talent Worldwide

09

Communicate to Society

10

Engage in Education

Discuss & Collaborate

The Lindau Guidelines are open for participation and discussion.

Everyone is invited to contribute ideas!

Website

Ideation
Community

www.lindaudeclaration.org



Join The Discussion On The Science Of Tomorrow.

[PARTICIPATE](#)



Search

MY VIEWS

My ideas

My favorites

CATEGORIES

- General Ideas
- New Goals Suggestions
- Existing Goals Improvements
- Dissemination

STATUSES

- Submit ideas
- Discuss & Develop
- Vote
- Accepted & Integrated



Goal 01: Cooperate Globally on Global Problems

Developing Countries need to be represented properly

Every country should spend a percentage of their GDP for funding.

Involve all Academies of Science

Goal 02: Share Knowledge

Better incorporation of gender issues

Goal 03: Publish Results Open Access

Goal 05: Work Transparent and Truthful

Goal 04: Publish Data to Repositories

Goal 07: Support Talent Worldwide

Goal 08: Communicate to Society

Goal 06: Change Reward Systems

Goal 09: Engage in Education

Feel free to add a new idea!

Goal 10: Ensure Global Funding

01

Adopt an Ethical Code

02

Cooperate Globally on Global Problems

03

Share Knowledge

04

Publish Results Open Access

05

Publish Data to Repositories

06

Work Transparent and Truthful

07

Change Rewards Systems

08

Support Talent Worldwide

09

Communicate to Society

10

Engage in Education