

Learning About Geoethics: A Core Competency for Geoscientists

Vince Cronin



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Resource page for this
talk with link to the
current draft of the
Geoethics Primer.



Vince_Cronin@CroninProjects.org

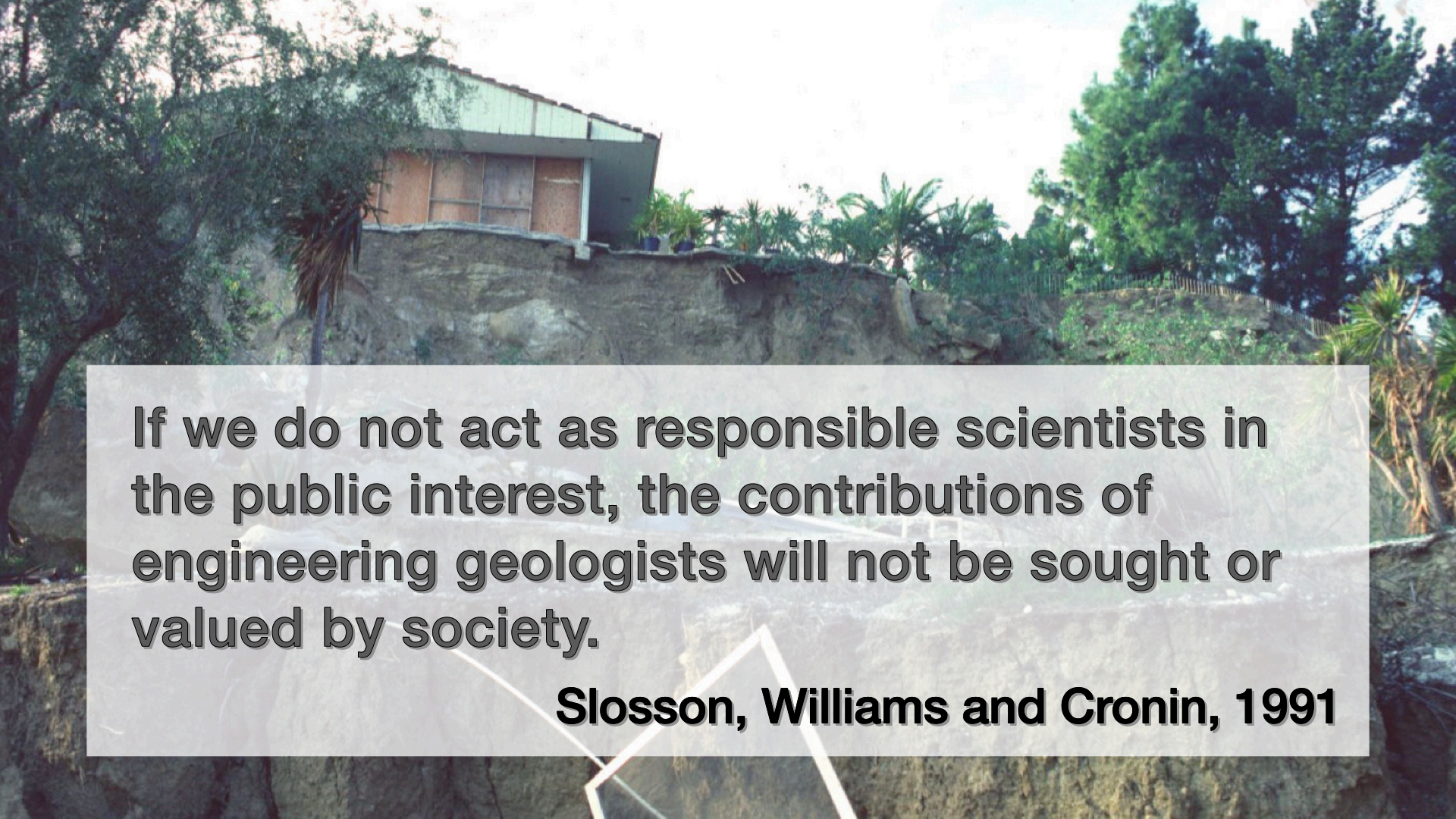
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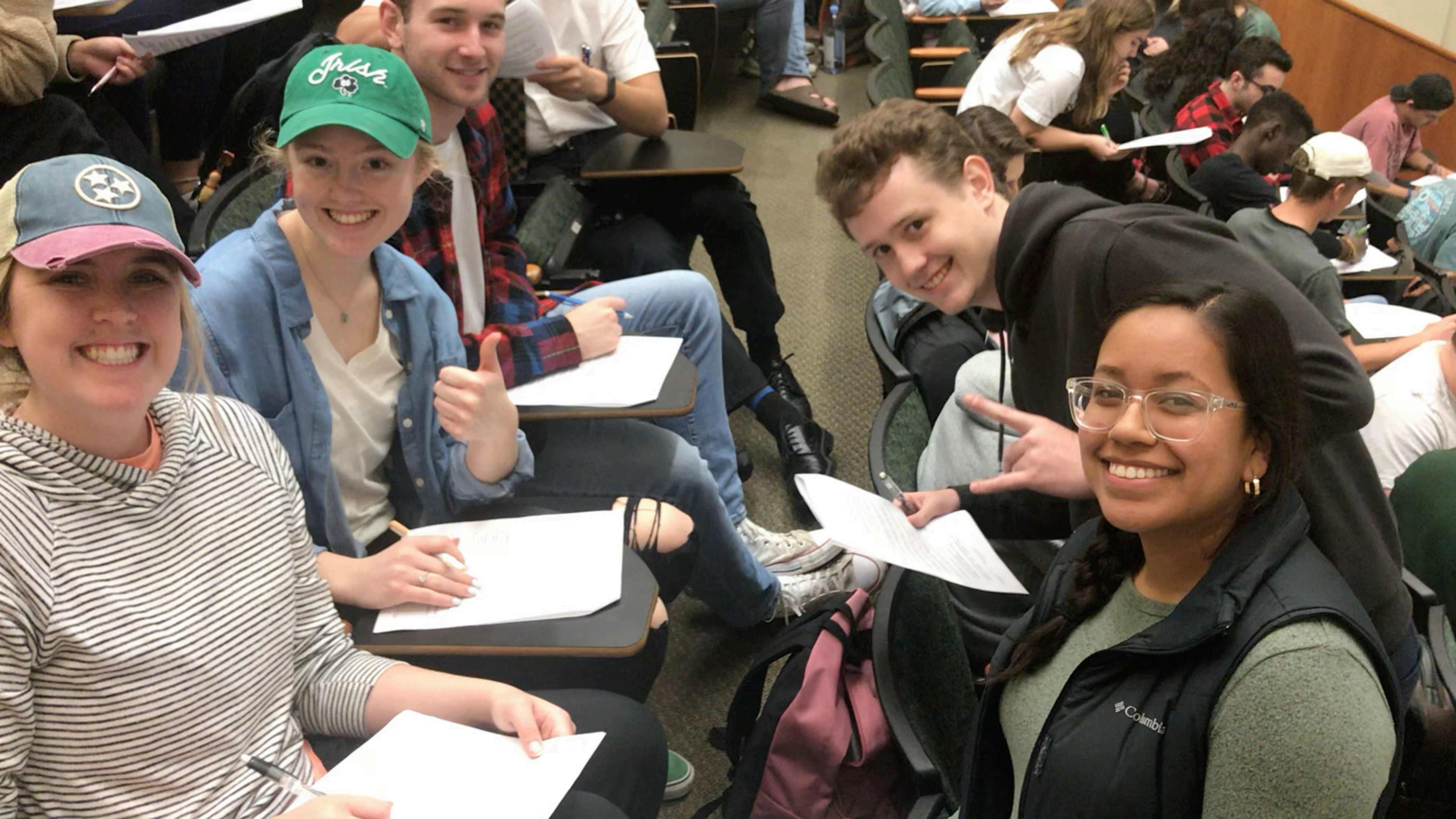


<https://CroninProjects.org/Geoethics/AIPG-2026/>



If we do not act as responsible scientists in the public interest, the contributions of engineering geologists will not be sought or valued by society.

Slosson, Williams and Cronin, 1991





A Geoethics Primer for Geoscientists

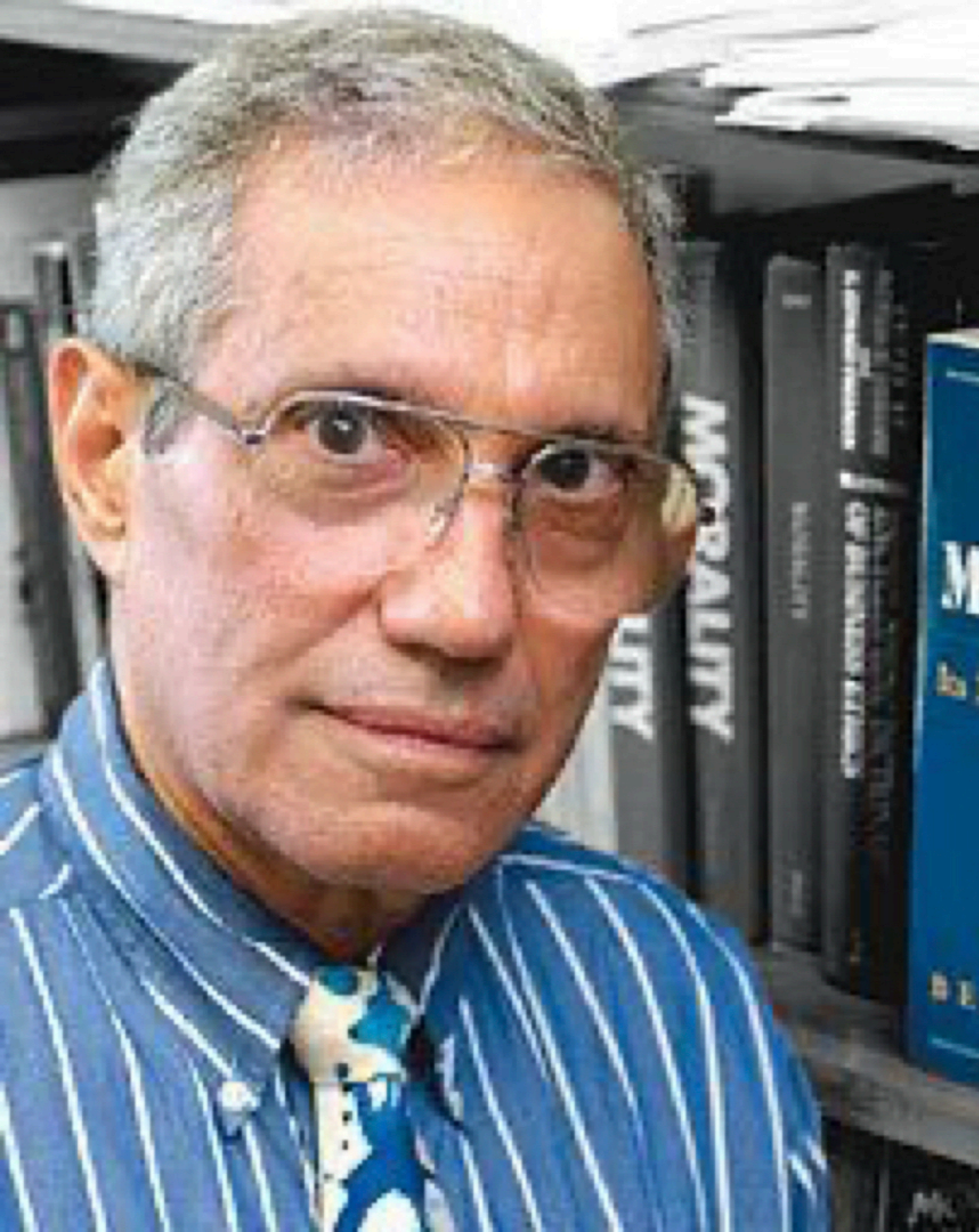
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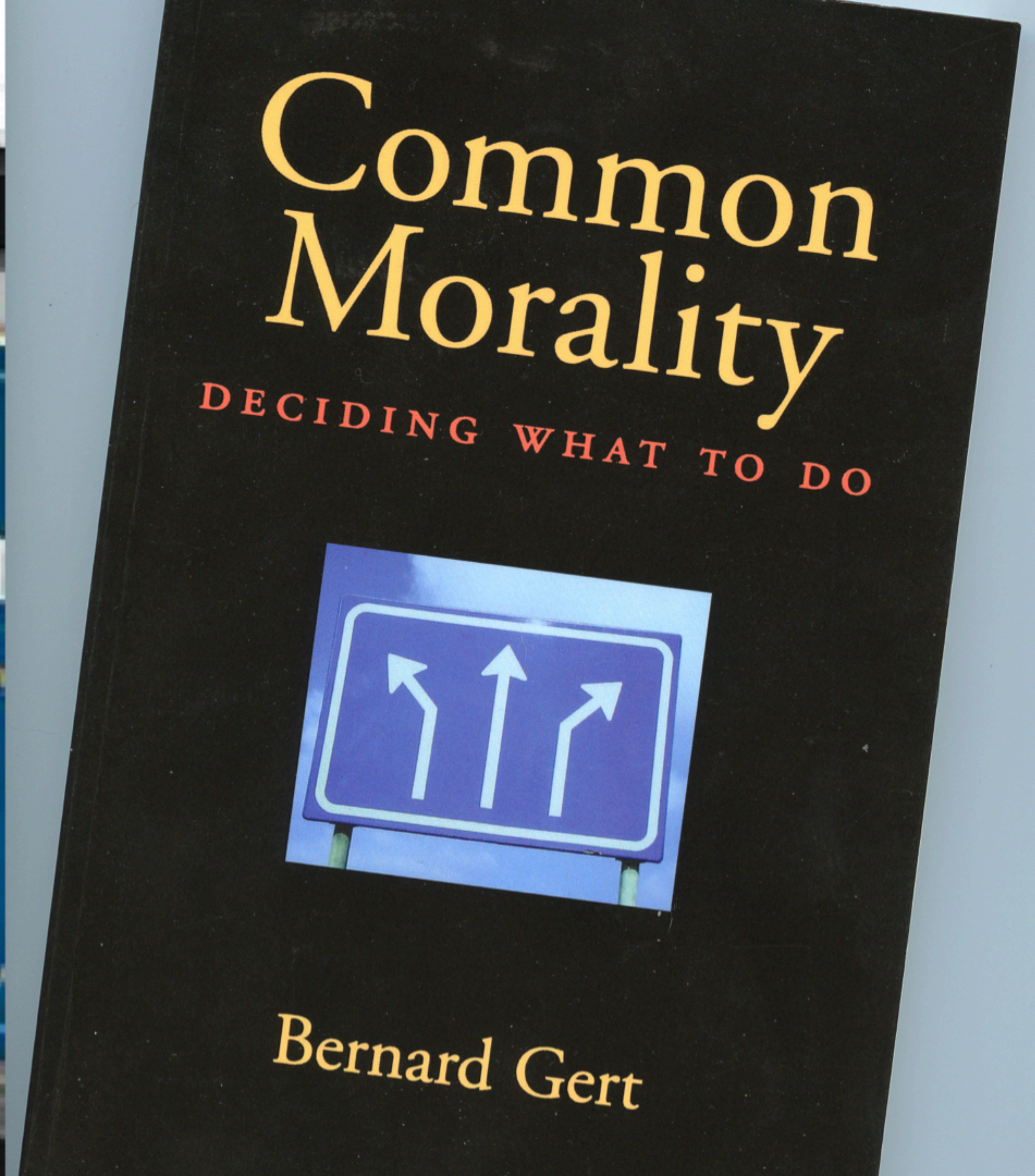
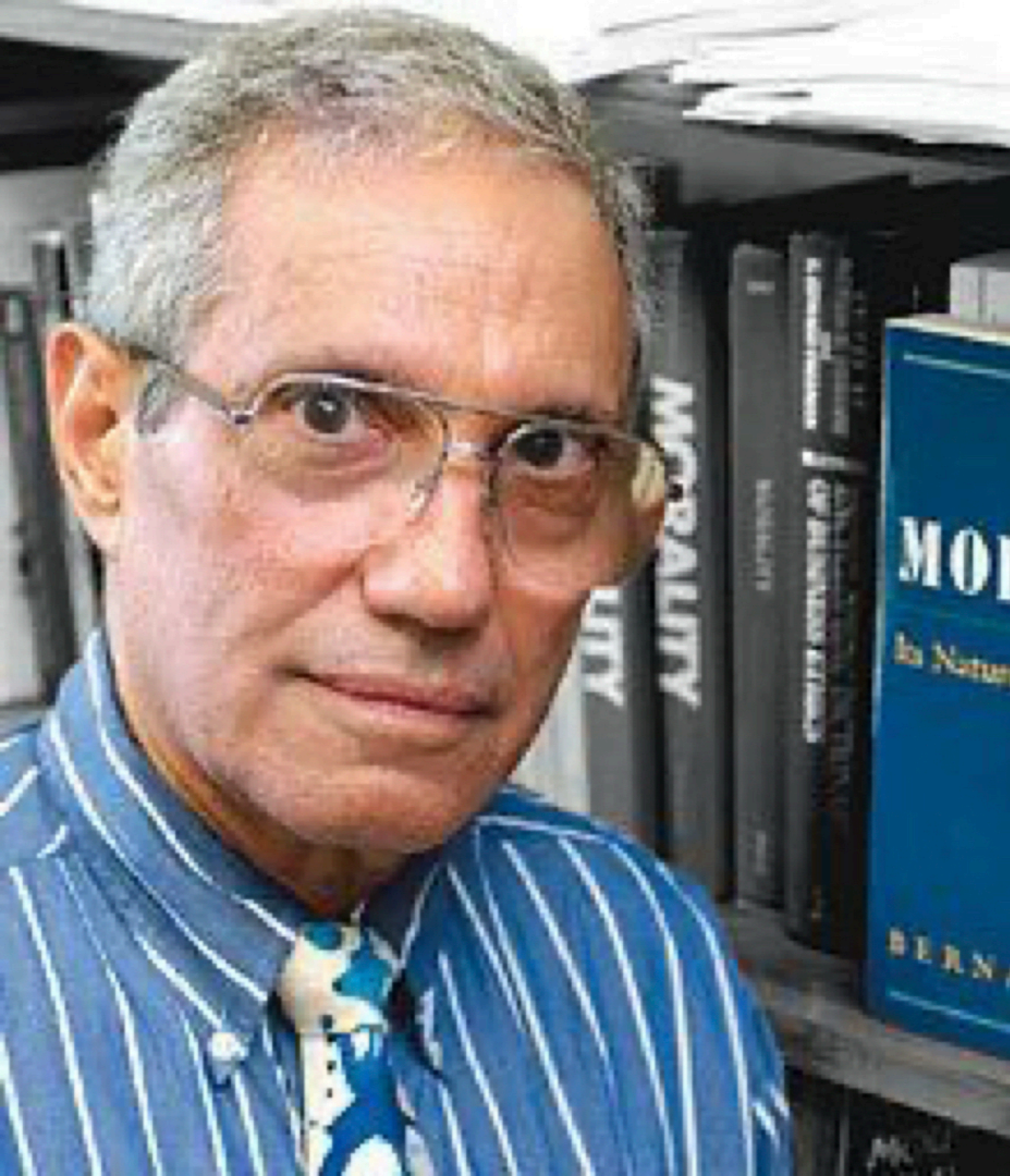
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7. References and selected bibliography for your continued development.
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Common Morality





Gert's definition of “morality”

Morality is an informal public system
applying to all rational persons,

Gert's definition of “morality”

Morality is an informal public system
applying to all rational persons,
governing behavior that affects others,

Gert's definition of “morality”

Morality is an informal public system applying to all rational persons, governing behavior that affects others, and includes what are commonly known as the moral rules, ideals, and virtues,

Gert's definition of “morality”

Morality is an informal public system applying to all rational persons, governing behavior that affects others, and includes what are commonly known as the moral rules, ideals, and virtues, and has the lessening of evil or harm as its goal.

Do Not Kill

**Does the act
violate a
moral rule?**

No

**Is the act
morally
justified?**

Yes

Verdict

Moral

**Does the act
violate a
moral rule?**

No

Yes

**Is the act
morally
justified?**

Yes

No
consensus

Verdict

Moral

Morally weak

**Does the act
violate a
moral rule?**

No

Yes

Yes

**Is the act
morally
justified?**

Yes

**No
consensus**

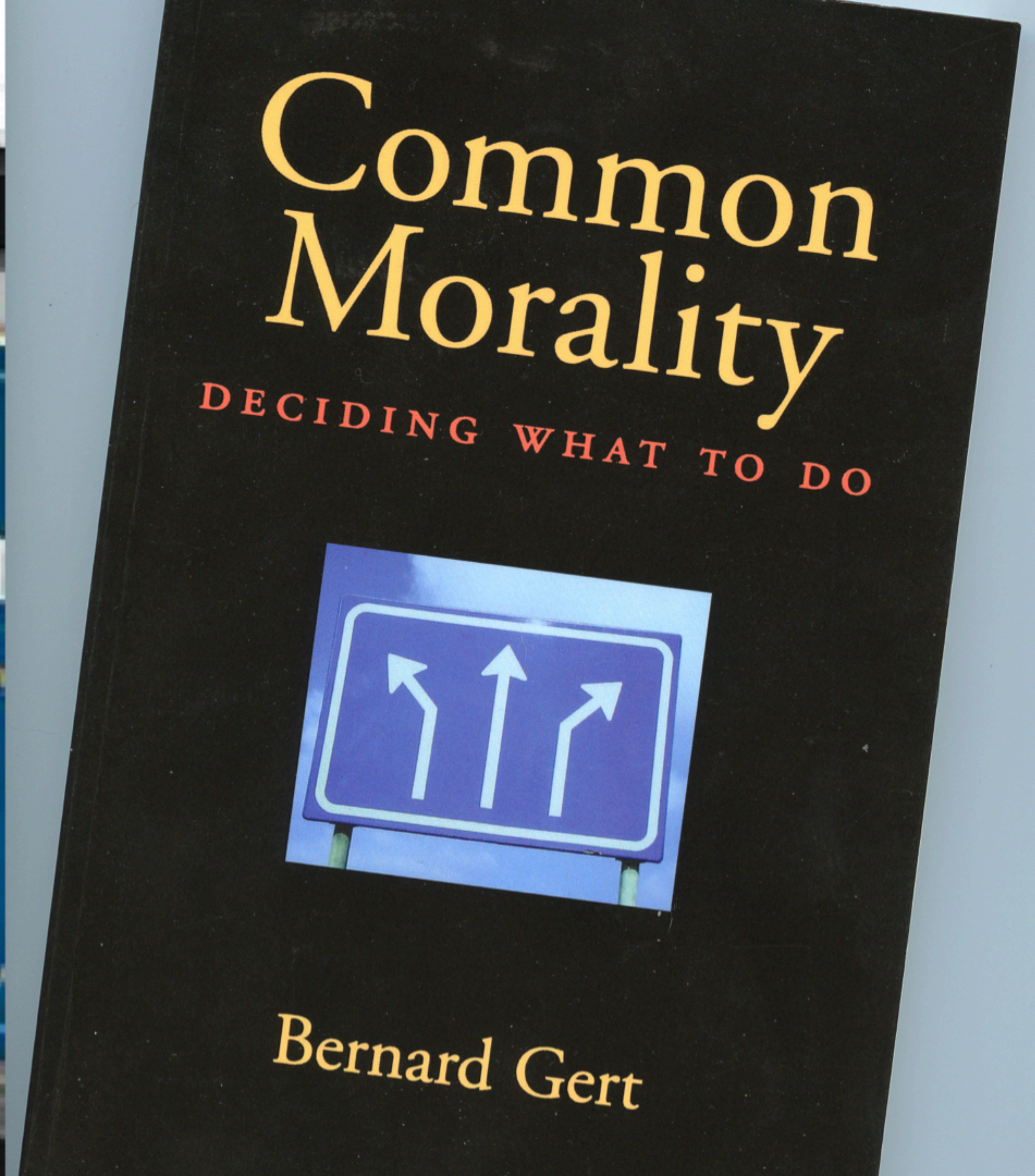
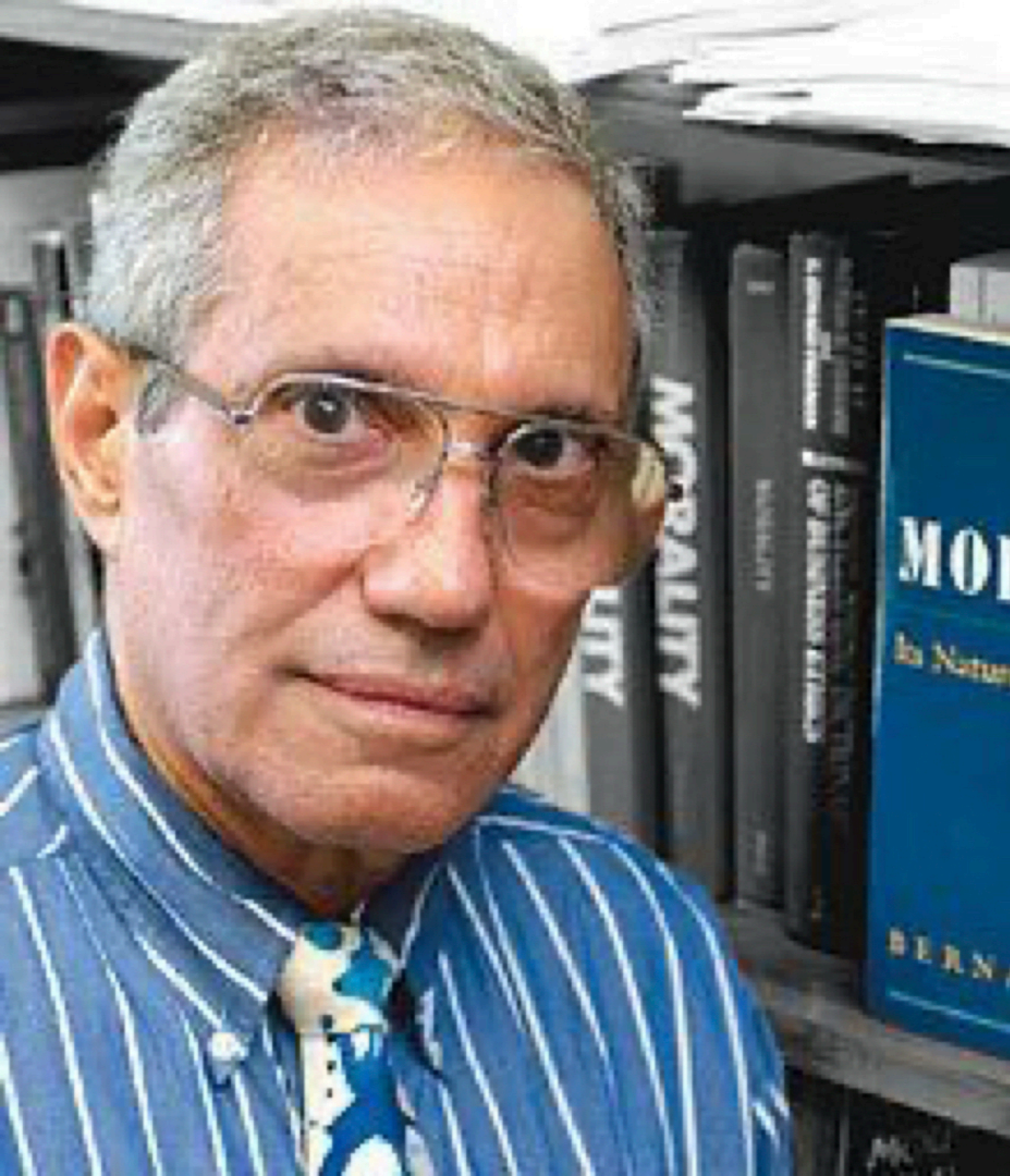
**Consensus:
not justified**

Verdict

Moral

Morally weak

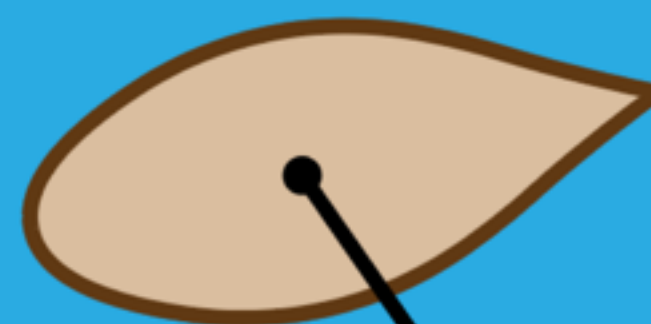
Immoral



*Dry
Land*

Bay

*Open
Water*

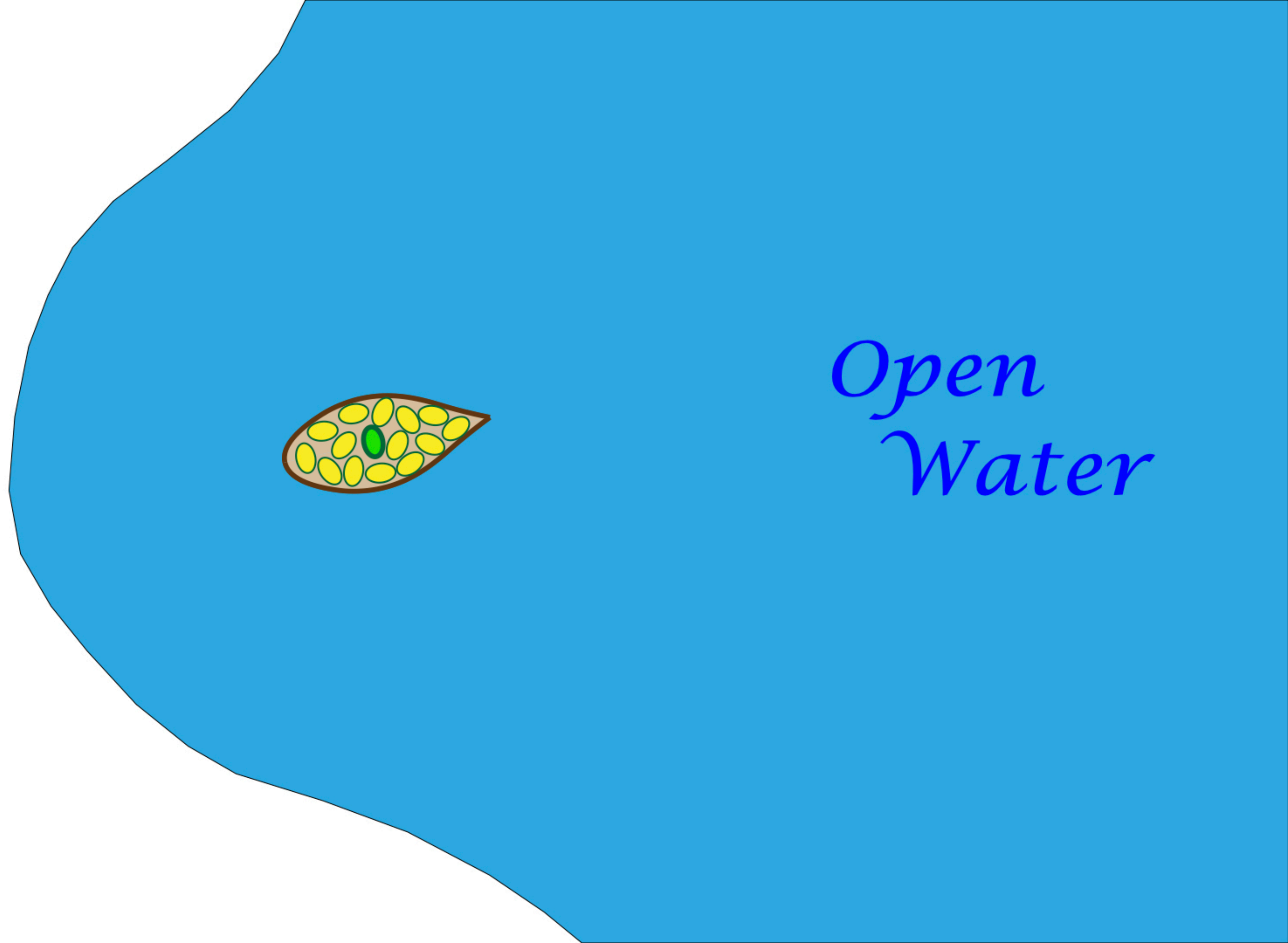


*Your
Boat*

A lovely wooden motor launch

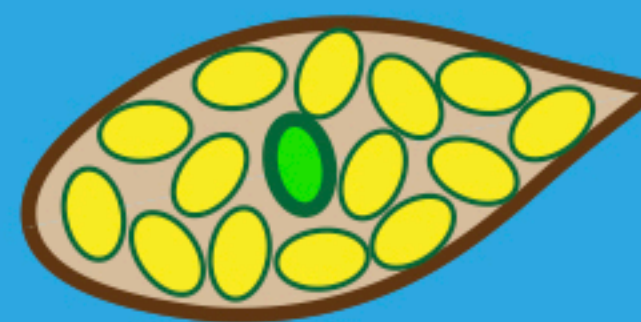


<https://www.pinterest.com/pin/classic-wooden-boat--177610779050718194/>



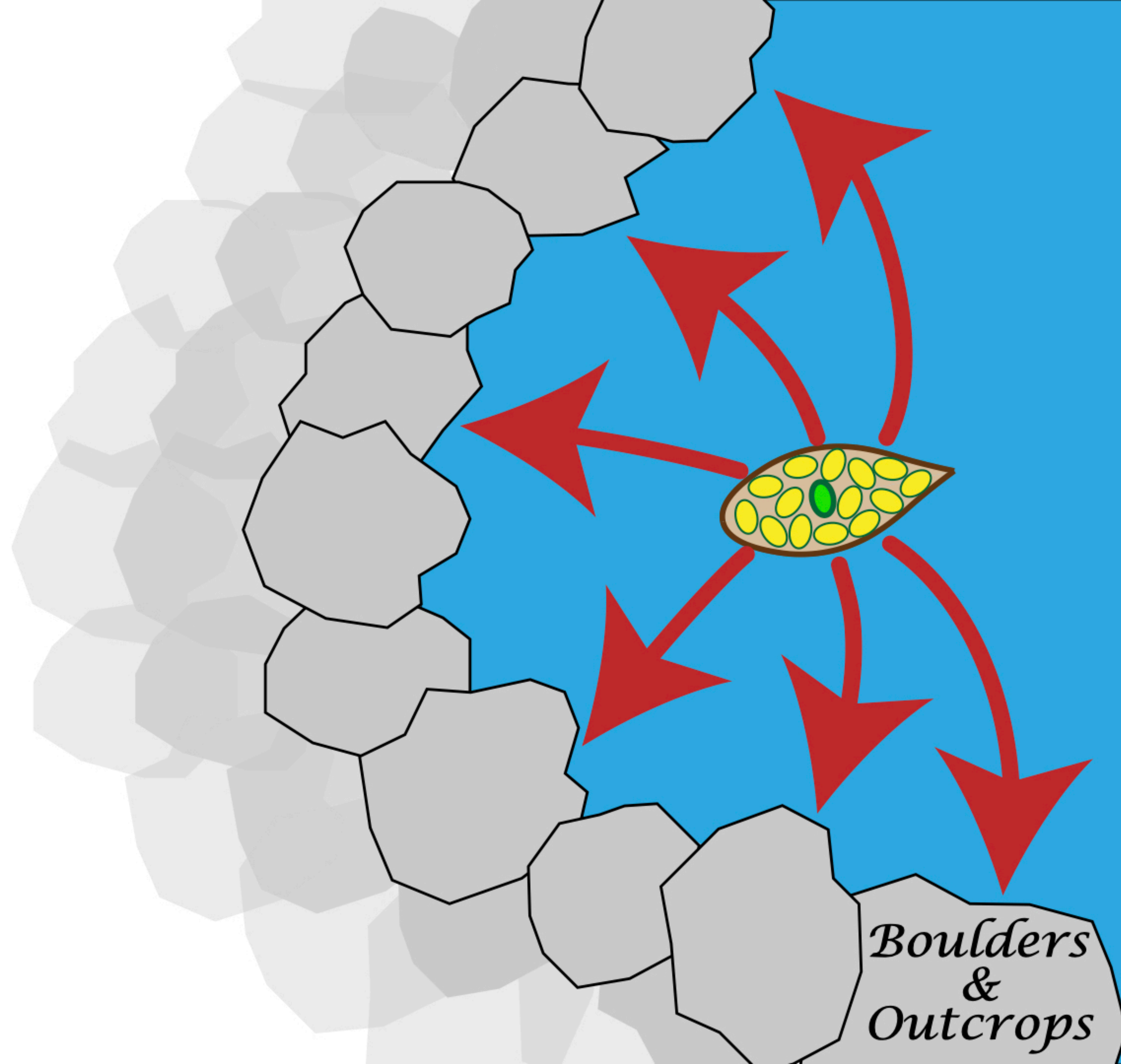
*Open
Water*

*Open
Water*



*Boulders
&
Outcrops*

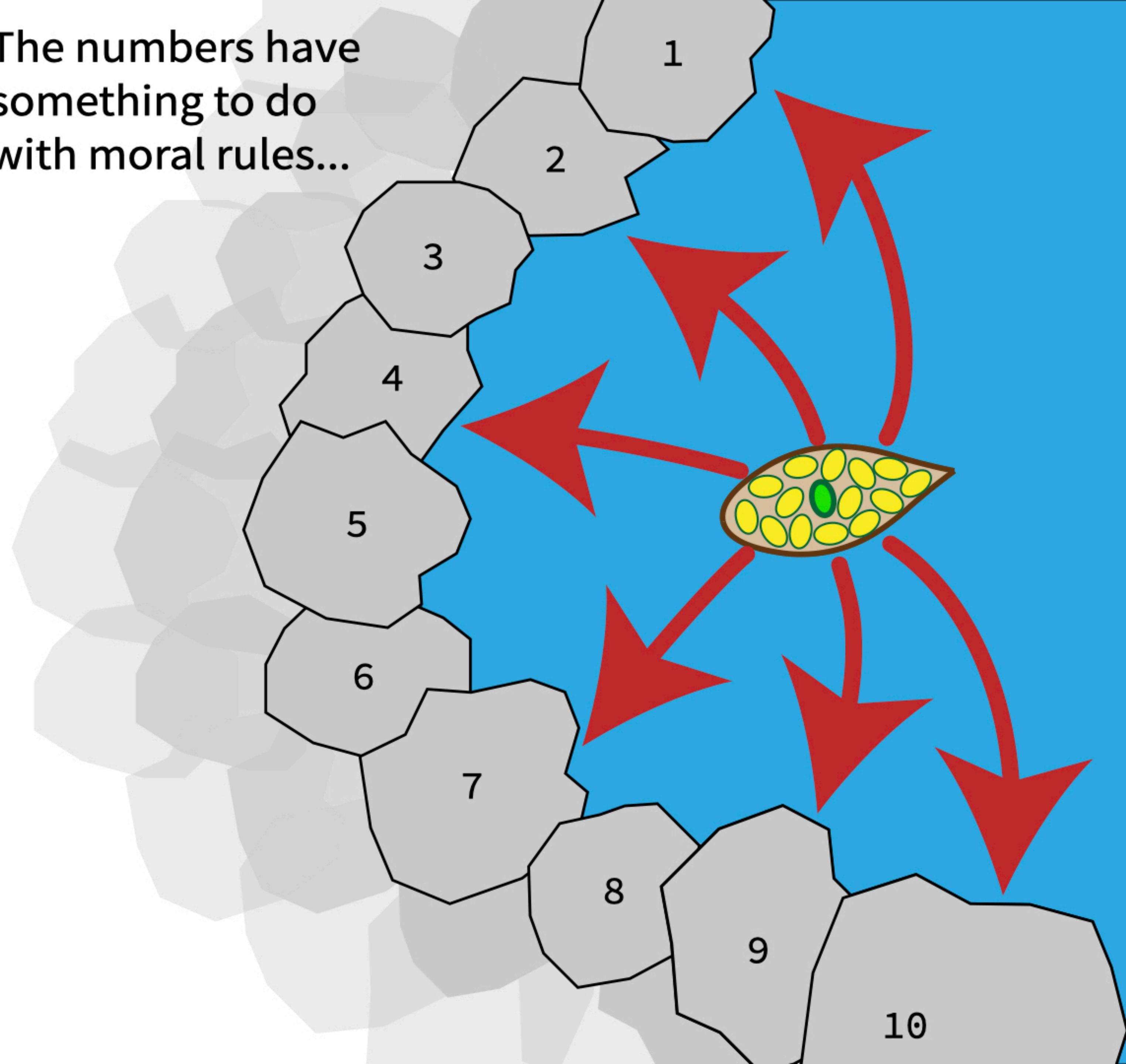




*Open
Water*

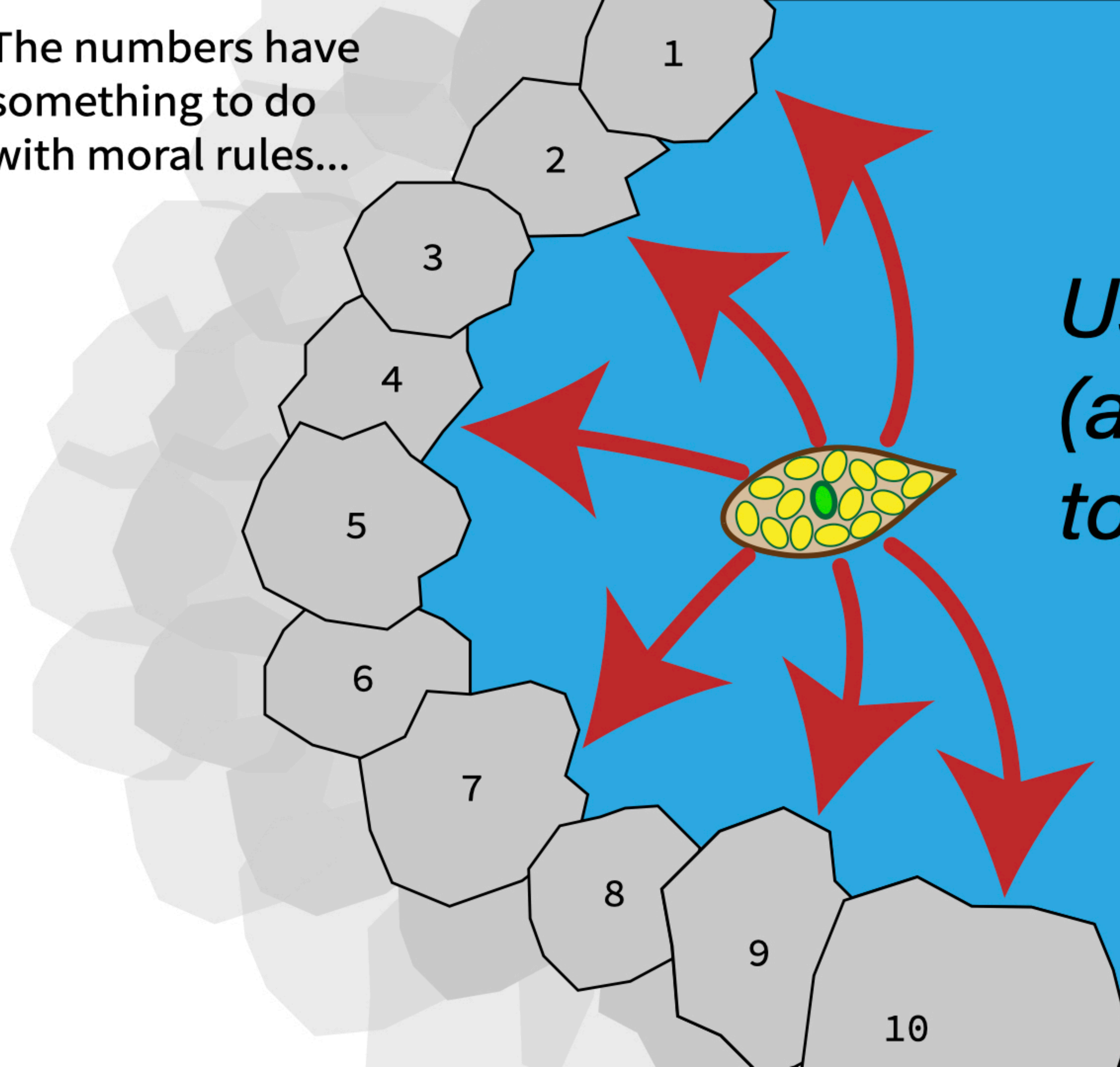
*Boulders
&
Outcrops*

The numbers have
something to do
with moral rules...



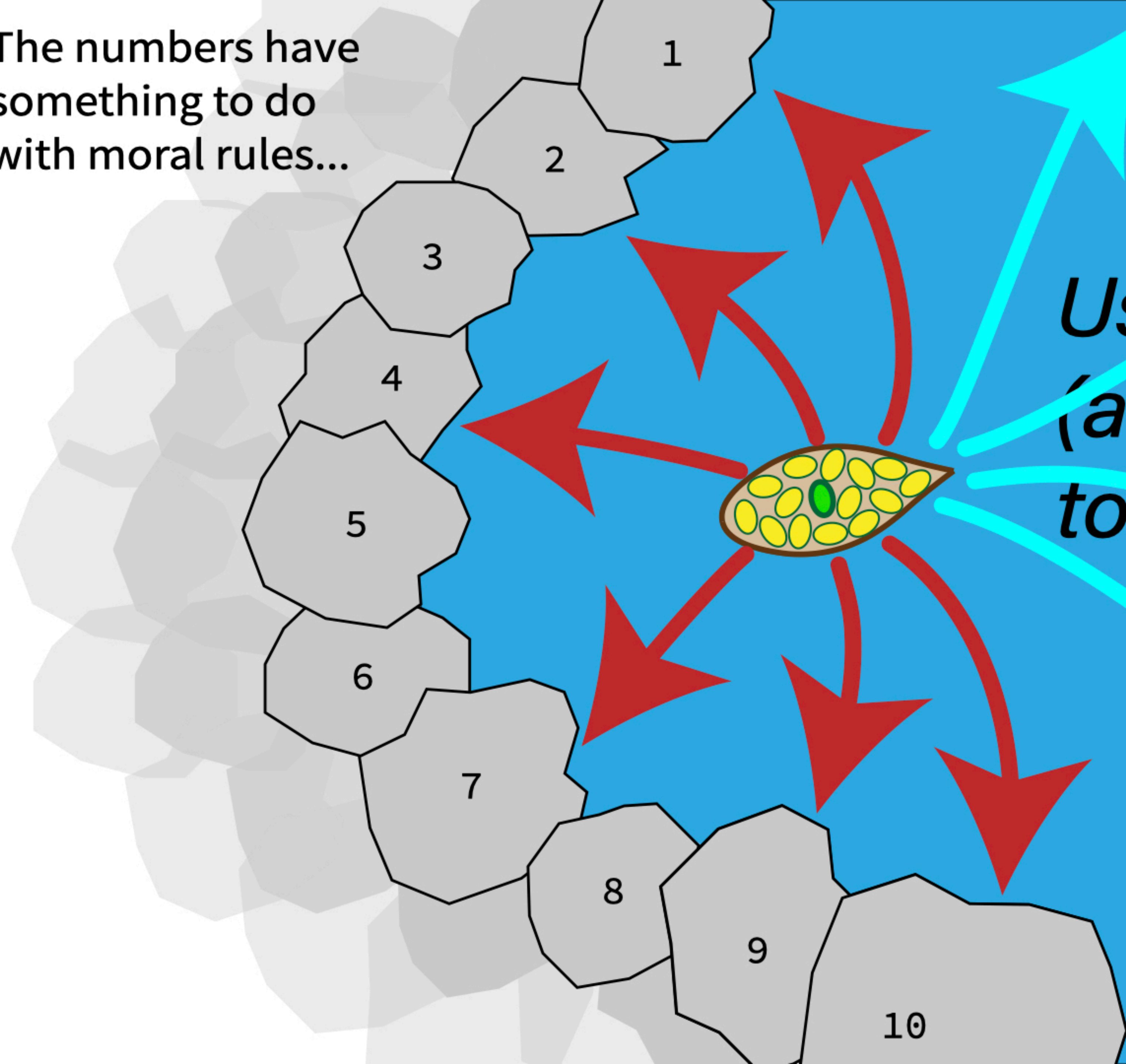
*Open
Water*

The numbers have
something to do
with moral rules...



*Use your judgment
(and moral ideals)
to plot your course*

The numbers have
something to do
with moral rules...



*Use your judgment
(and moral ideals)
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A Geoethics Primer for Geoscientists

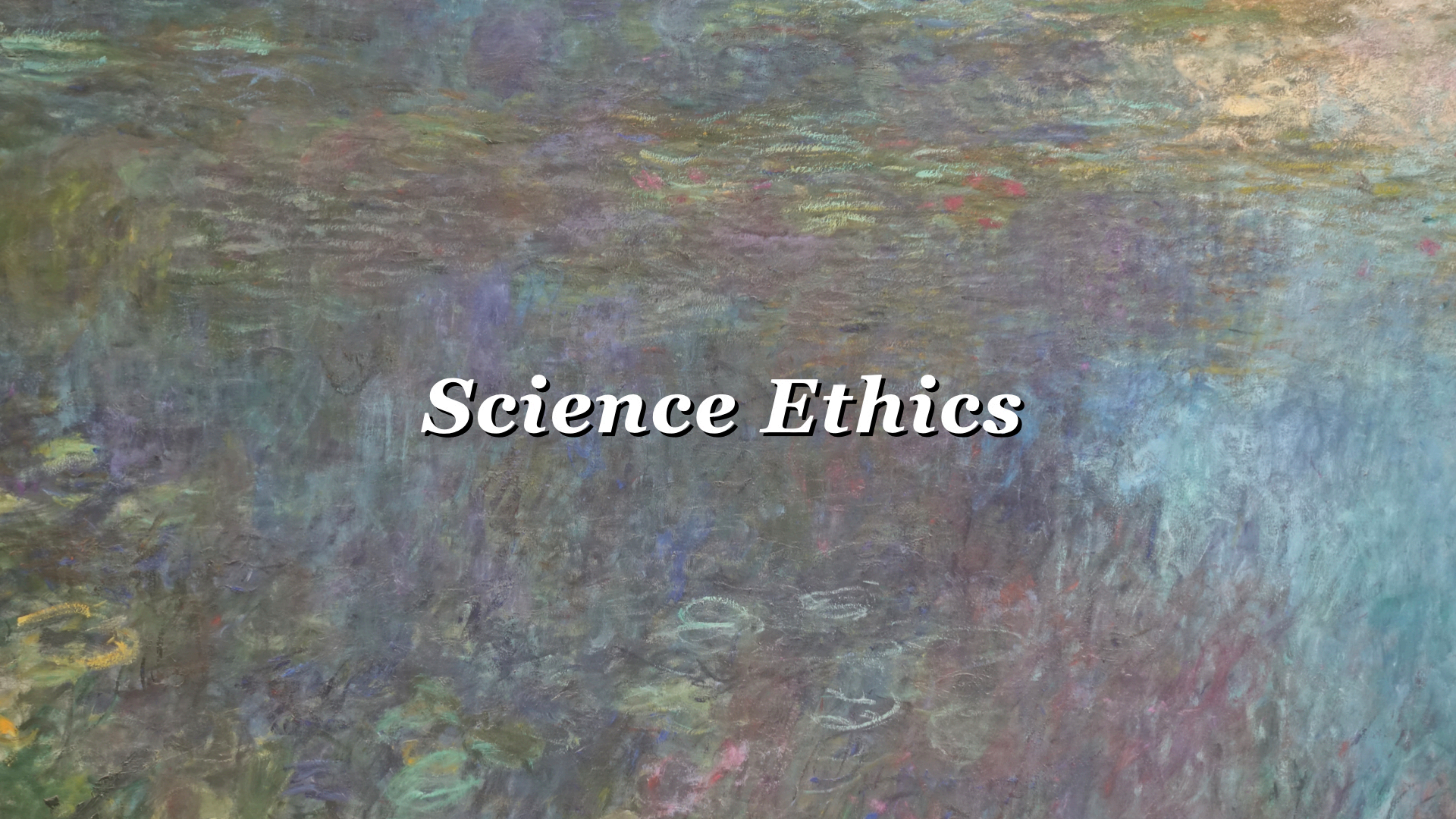
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Chapter 2. Common Morality

2.1 Introduction

The written record that includes accounts of morality, ethics, and wisdom extends back more than 4,500 years, with early examples in Sumer (ancient Mesopotamia) and in the Middle Kingdom of ancient Egypt.¹⁻⁴ Indeed, the literature on moral philosophy and applied ethics is like a vast and deep ocean with many crosscurrents. Instead of going swimming and risking drowning in that ocean before we reach our destination, we rely on the work of well-informed modern experts on moral philosophy to help guide us.

In particular, the account of common morality in this *Geoethics Primer* is based on the work of philosopher Bernard Gert (1934–2011) and ethicist Deni Elliott (1953–). Bernie Gert was a professor of moral philosophy at Dartmouth College for 50 years, and developed the concept of *Common Morality* as a moral system,^{5,6} as well as contributing to the early development of bioethics⁷ and other areas of applied or practical ethics. He was a member

The background is a complex, abstract texture composed of various pastel shades including purples, blues, greens, and pinks. The texture is grainy and layered, with some areas appearing more saturated than others. Faint, light-colored sketches of what look like small organisms or cells are visible in the lower half of the image, particularly in the center and right. The overall effect is artistic and somewhat ethereal.

Science Ethics

Science Ethics

Introduction: Some Fundamentals of Scientific Methods

Science Ethics

Introduction: Some Fundamentals of
Scientific Methods
Scientific Integrity

Science Ethics

Introduction: Some Fundamentals of
Scientific Methods

Scientific Integrity

Scientific Objectivity

Science Ethics

Introduction: Some Fundamentals of
Scientific Methods

Scientific Integrity

Scientific Objectivity
— Bias

Science Ethics

Introduction: Some Fundamentals of
Scientific Methods

Scientific Integrity

Scientific Objectivity

- Bias

- Conflict of Interest

Science Ethics

Introduction: Some Fundamentals of
Scientific Methods

Scientific Integrity

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Scientific Misconduct

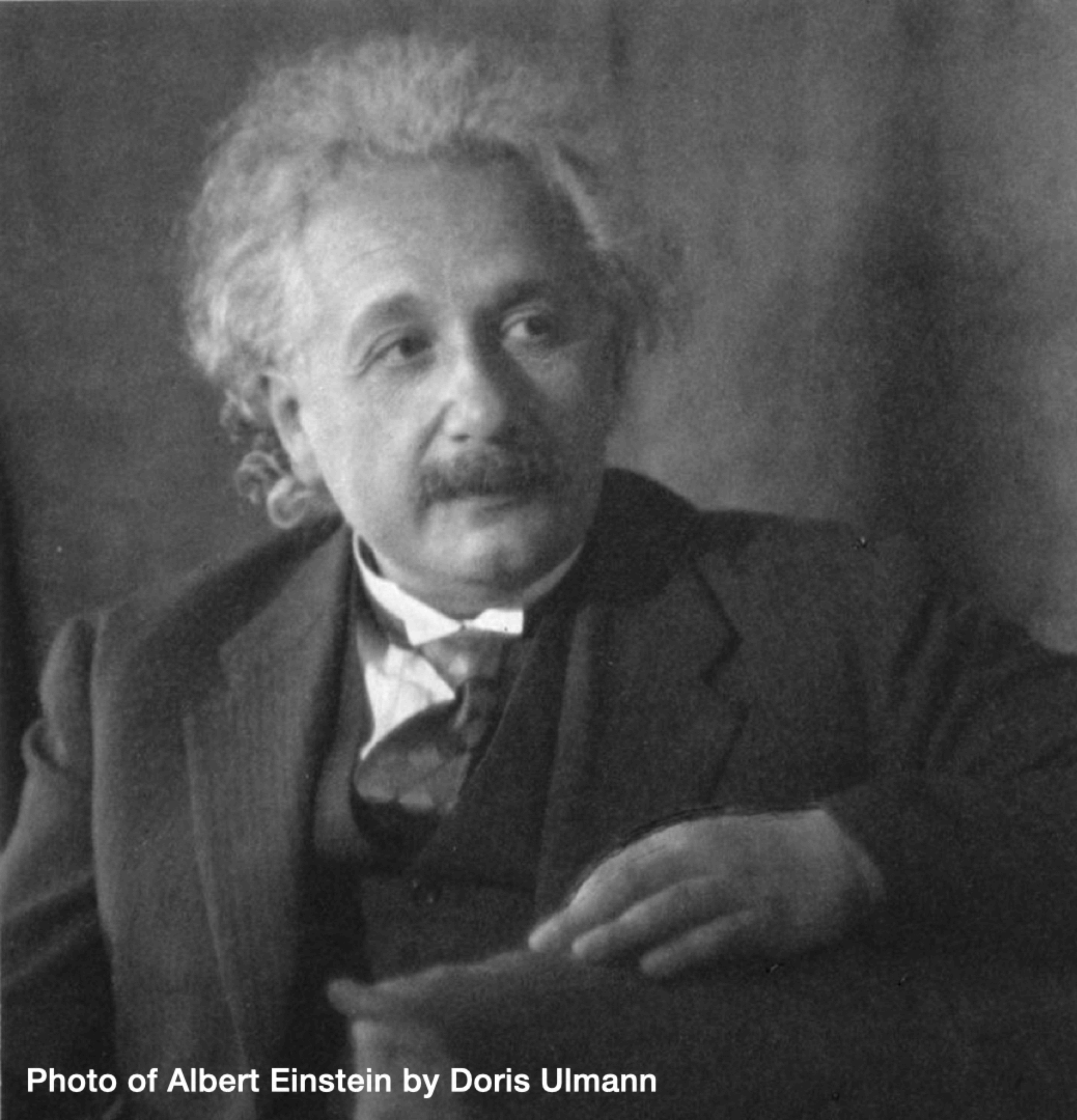
3.4 Scientific Misconduct

A distinguished panel of scientists and other experts was convened in 1989 by the National Academies of Sciences, National Academy of Engineering, and Institute of Medicine, "to examine issues related to scientific responsibility and the conduct of research." (Philosopher Bernard Gert, whose work was introduced in Part 2 of this *Primer*, was a member of that panel.) Their final report, titled *Responsible Science — Ensuring the Integrity of the Research Process*,⁴⁰ included a framework that defined three categories of behaviors that harm the integrity of the research process: [1] misconduct in science (research misconduct), [2] questionable research practices, and [3] other misconduct. The report also provided a succinct definition of research misconduct.⁴¹ With slight adjustment, the first of those three categories formed the basis of the Federal Policy on Research Misconduct, adopted in December 2000.⁴²

Research Misconduct

Research misconduct is defined as fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.

- ***Fabrication*** is making up data or results and recording or reporting them.



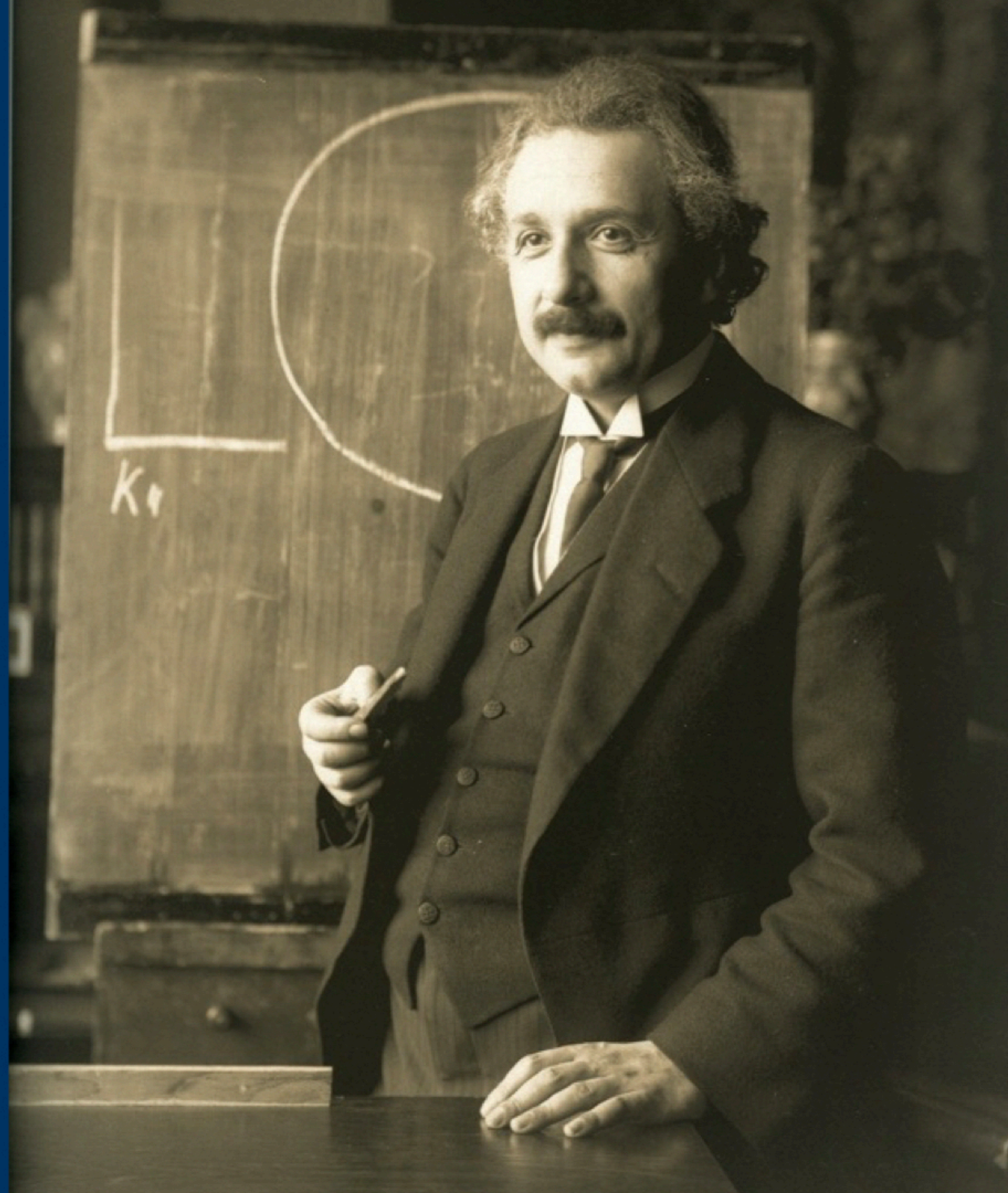
**Truth is what
stands the test
of experience**

**Einstein, 1950, The laws of science
and the laws of ethics**



The right to search
for truth implies also
a duty;
one must not conceal
any part of what one
has recognized
to be true.

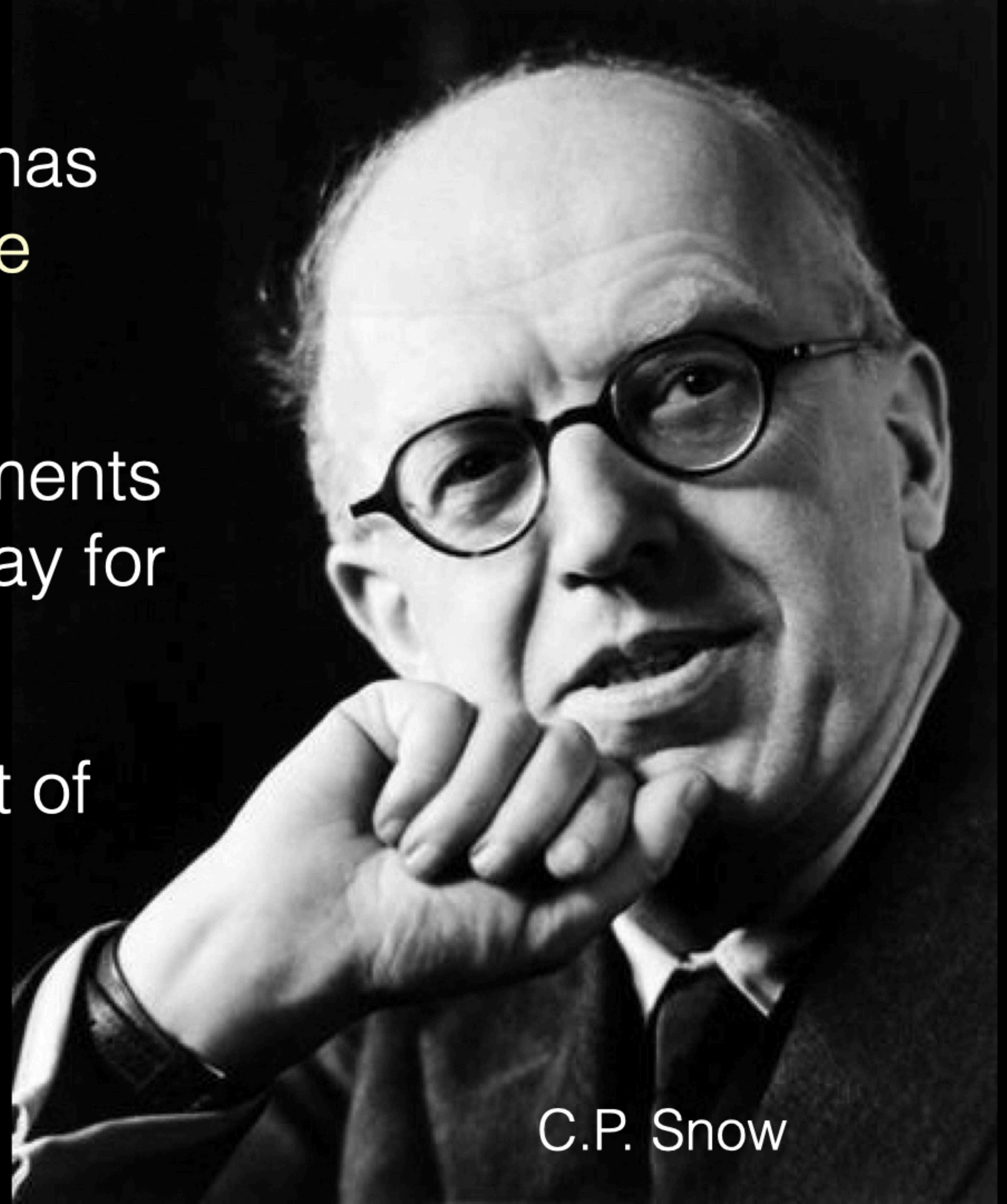
Einstein



The only ethical principle which has made science possible is that the truth shall be told all the time.

If we do not penalize false statements made in error, we open up the way for false statements by intention.

And, of course, a false statement of fact made deliberately is the most serious crime a scientist can commit.



C.P. Snow

Integrity, as I will use the term, requires three steps:

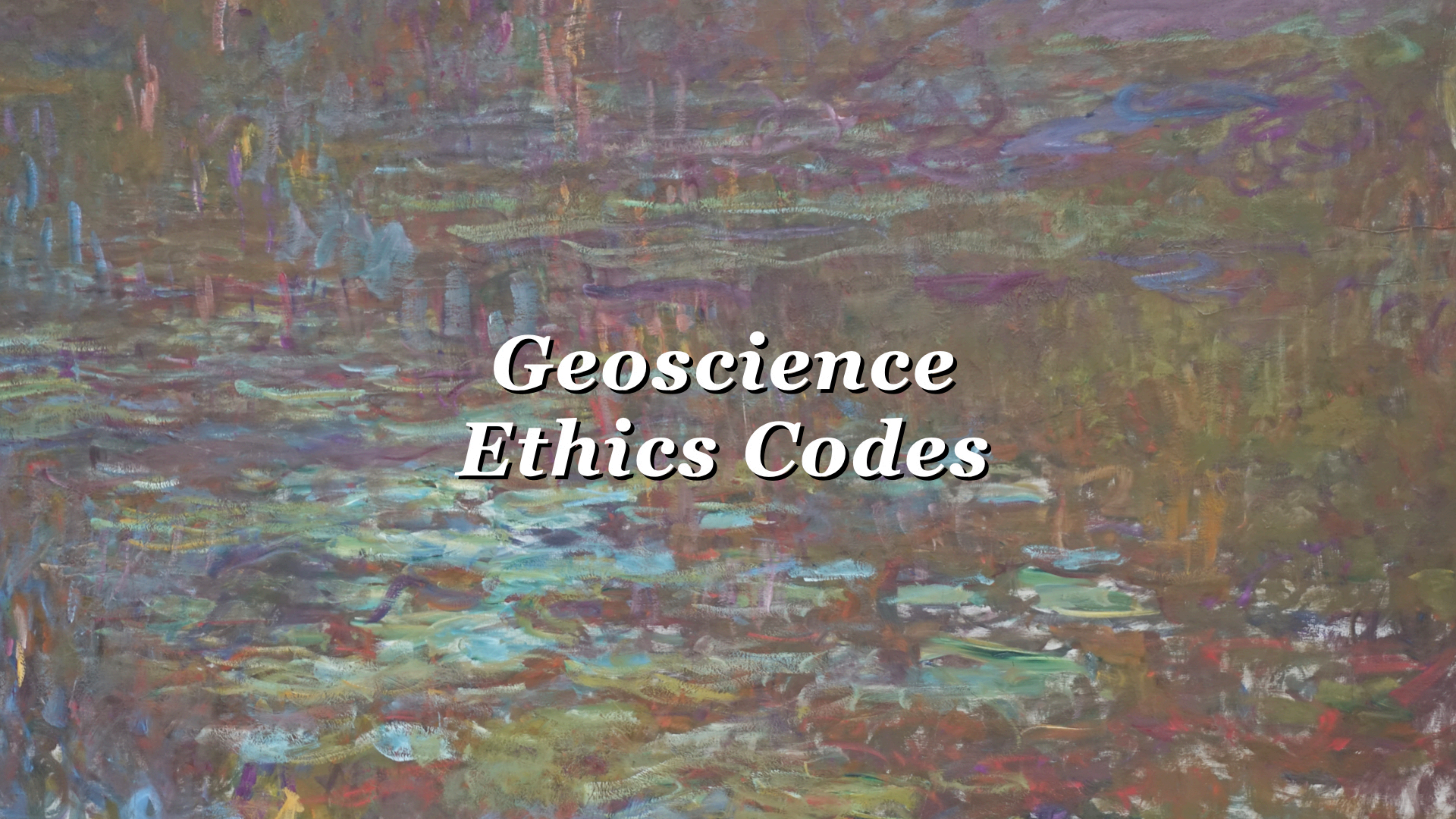
(1) discerning what is right and what is wrong;

(2) acting on what you have discerned, even at personal cost; and

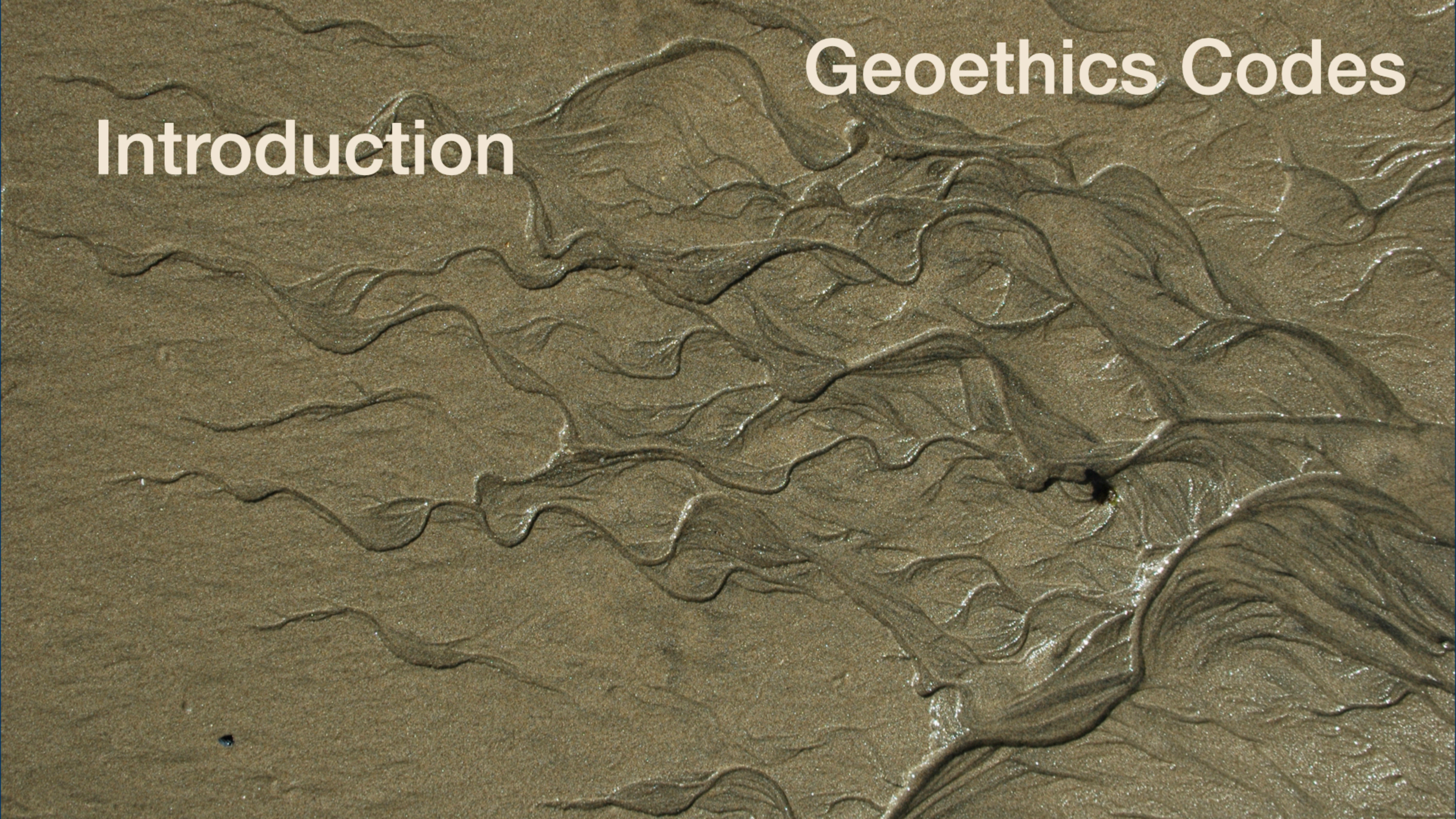
(3) saying openly that you are acting on your understanding of right from wrong.

Scientific integrity is the adherence to professional practices, ethical behavior, and the principles of honesty and objectivity when conducting, managing, using the results of, and communicating about science and scientific activities. Inclusivity, transparency, and protection from inappropriate influence are hallmarks of scientific integrity.

National Science and Technology Council, Executive Office of the President, 2023

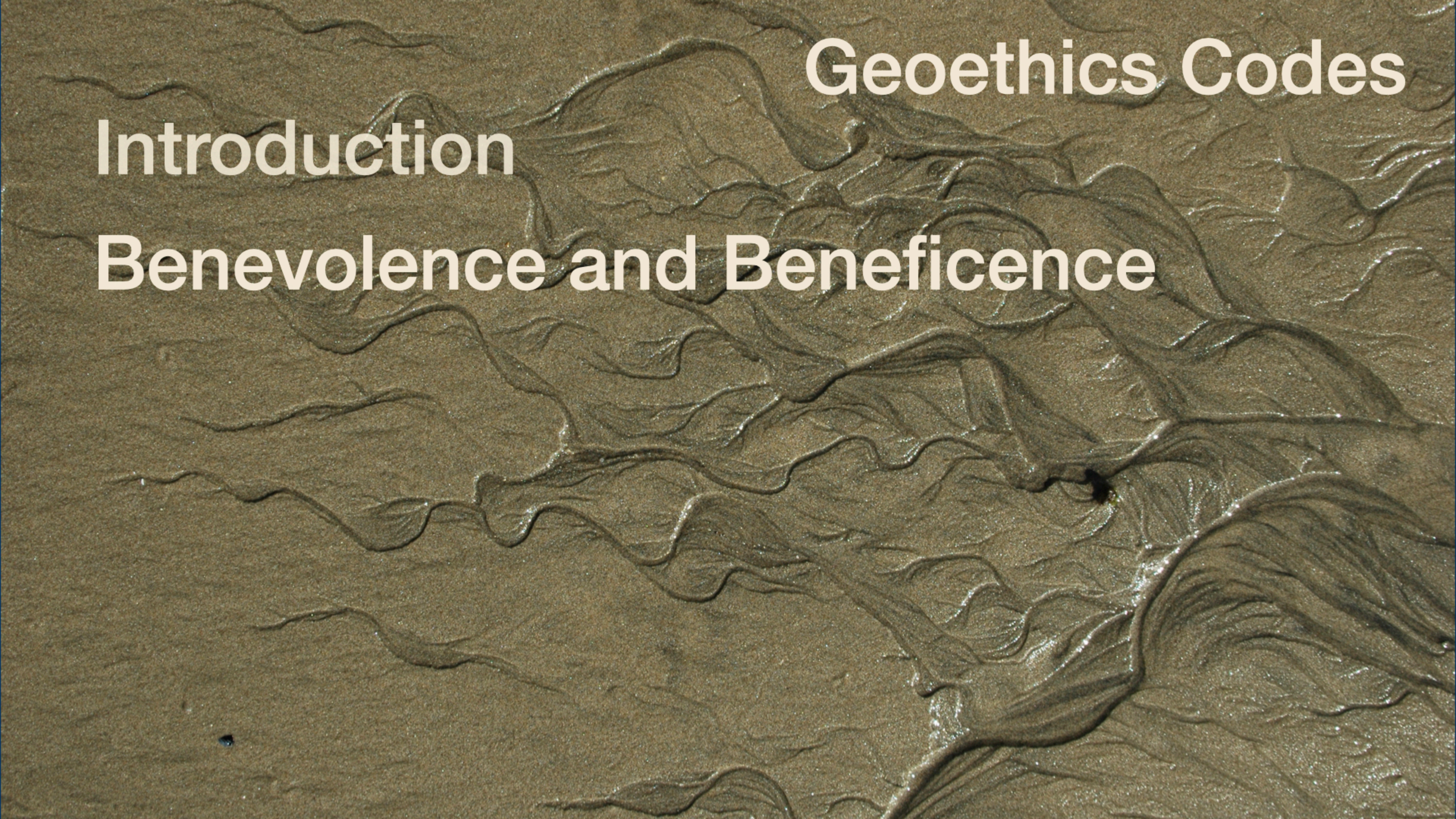


Geoscience Ethics Codes

A close-up photograph of wet sand with intricate, wavy ripples and ridges, creating a textured, undulating surface. The sand is a light brown color, and the lighting highlights the wet, reflective quality of the ripples.

Geoethics Codes

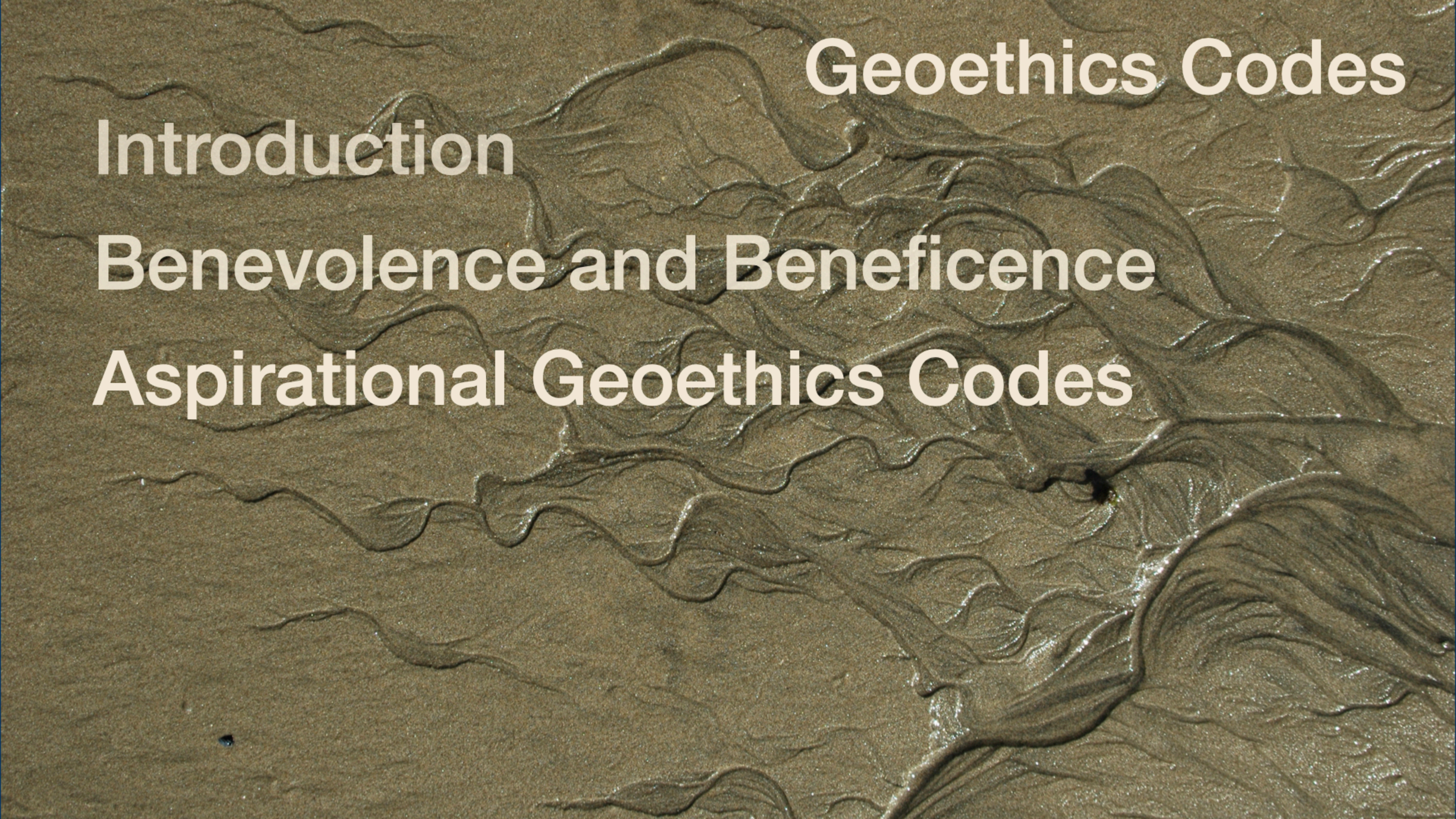
Introduction

The background of the slide is a close-up photograph of wet sand. The sand is a dark, moist brown color and is covered in intricate, wavy ripples that catch the light, creating a shimmering effect. The ripples are formed by the receding water, leaving behind a textured surface of ridges and valleys.

Geoethics Codes

Introduction

Benevolence and Beneficence

The background of the slide is a close-up photograph of wet sand. The sand is a dark, moist brown color and is covered in intricate, wavy ripples that catch the light, creating a textured, undulating surface. The ripples vary in size and direction, giving the background a dynamic, organic feel.

Geoethics Codes

Introduction

Benevolence and Beneficence

Aspirational Geoethics Codes

Geoethics Codes

Introduction

Benevolence and Beneficence

Aspirational Geoethics Codes

Enforceable Codes

Geoethics Codes

Introduction

Benevolence and Beneficence

Aspirational Geoethics Codes

Enforceable Codes

Academic & Commercial Geoethics

Geoethics Codes

Introduction

Benevolence and Beneficence

Aspirational Geoethics Codes

Enforceable Codes

Academic & Commercial Geoethics

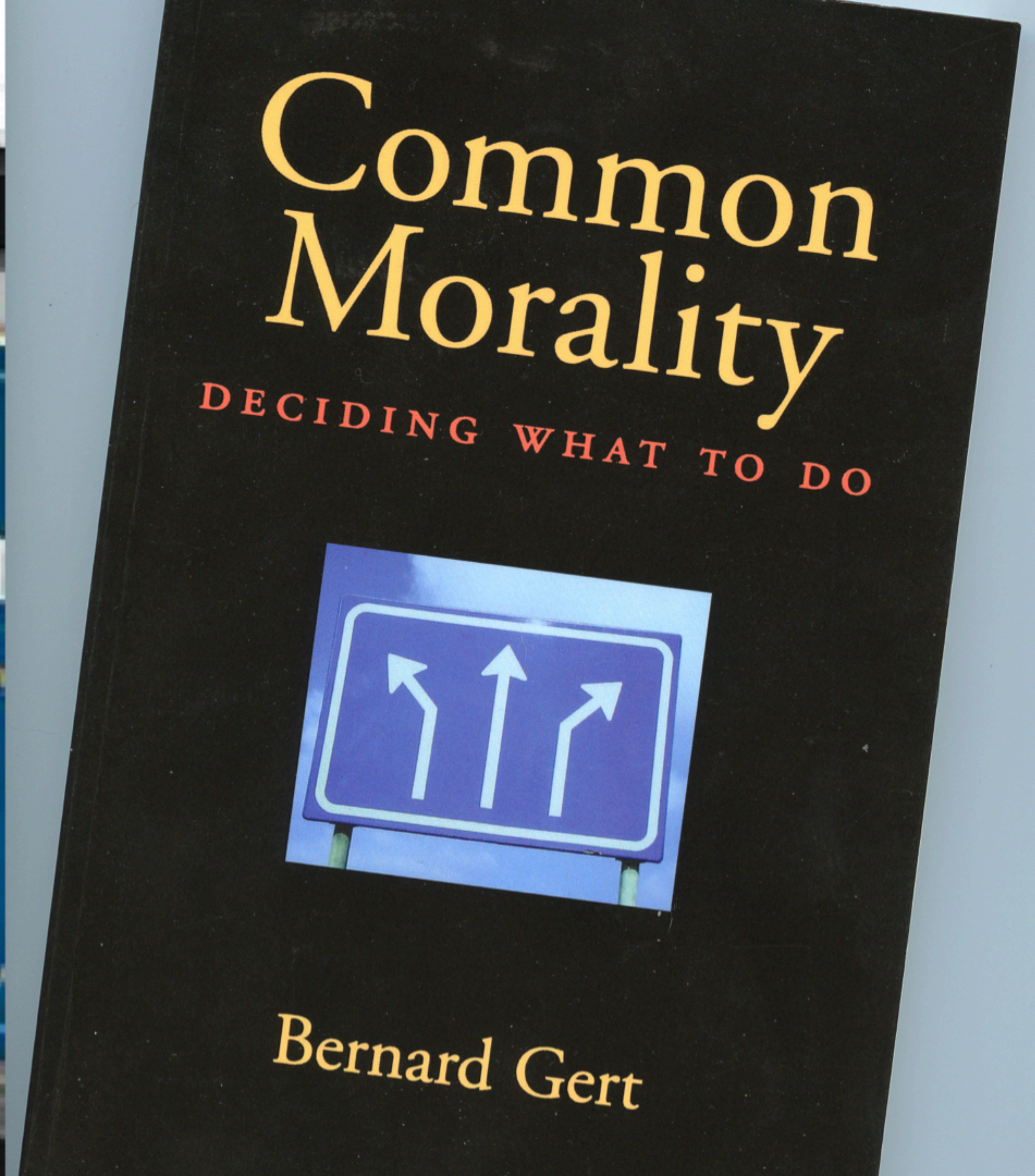
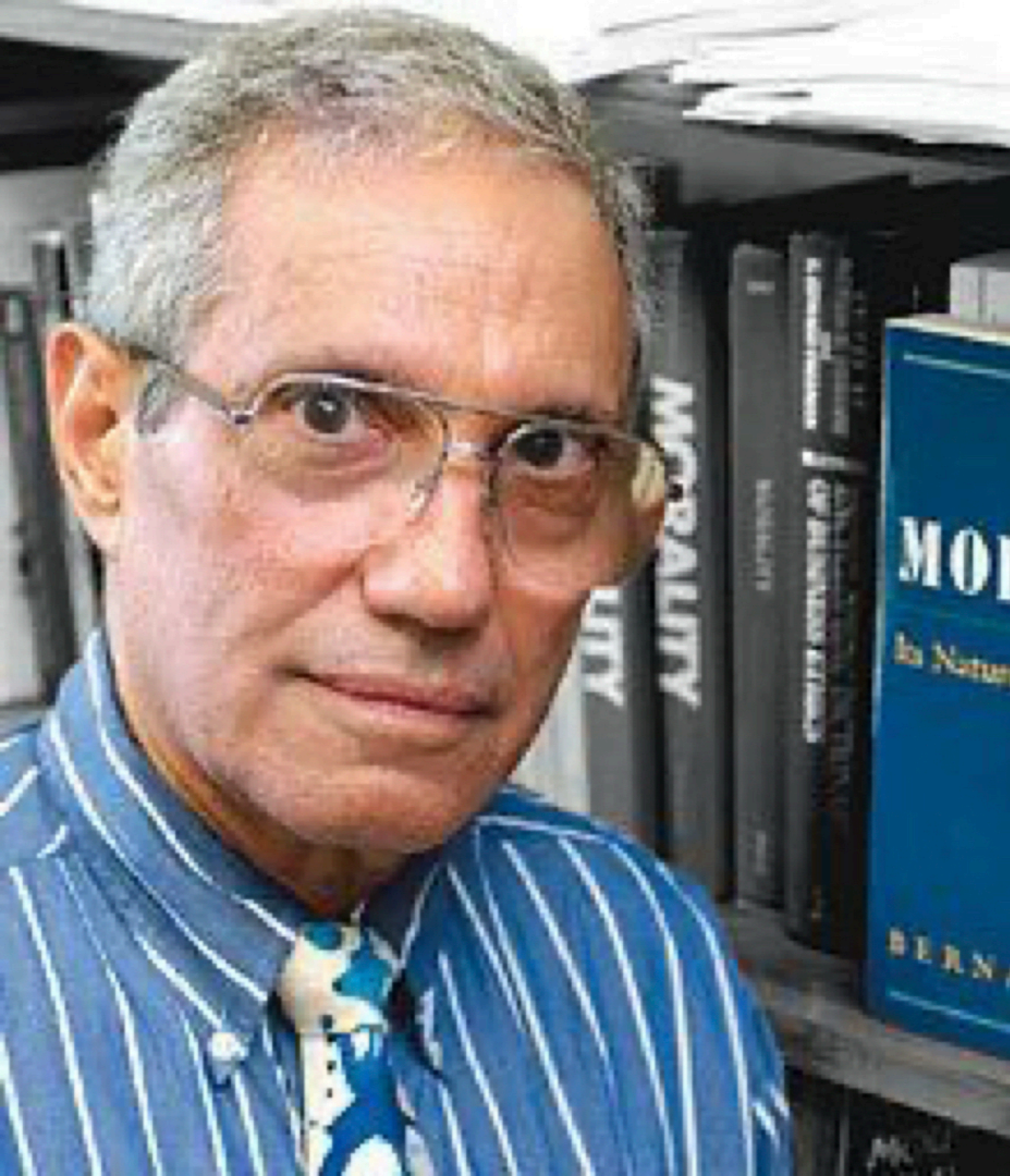
Examples of Code Violations

AIPG Code of Ethics

(Adopted December 11, 1989, with modifications adopted October 5, 2003,
revised June 24, 2017 and last revision on September 14, 2019)

PREAMBLE

Members of The American Institute of Professional Geologists are dedicated to the highest standards of personal integrity and professional conduct. The Institute's Code of Ethics comprises three parts: the Canons, which are broad principles of conduct; the Ethical Standards, which are goals to which Members aspire; and the Rules of Conduct. Compliance with the Rules of Conduct is mandatory and violation of any Rule will be grounds for disciplinary action by the Institute. Under the Bylaws, the Institute may also impose discipline for legal violations and because of the suspension or revocation of registration or licensure, among other grounds. Disciplinary action may take the form of private admonition, public reprimand, suspension of membership, or termination. The Code of Ethics applies to all professional activities of Members and Adjuncts, wherever and whenever they occur. The title "Member" where used in this Code of Ethics includes Adjuncts. A Member shall not be relieved of an ethical responsibility by virtue of his or her employment, because the Member has delegated an assignment to a subordinate, or because the Member was not involved in performing services for compensation.



AGI Guidelines for Ethical Professional Conduct

These guidelines address common ethical topics across the geoscience community; the ethics statements of individual societies may expand beyond these guidelines.

Geoscientists play a critical role in ethical decision making about stewardship of the Earth, the use of its resources, and the interactions between humankind and the planet on which we live. Geoscientists must earn the public's trust and maintain confidence in the work of individual geoscientists and the geosciences as a profession. The American Geosciences Institute (AGI) expects those in the profession to adhere to the highest ethical standards in all professional activities. Geoscientists should engage responsibly in the conduct and reporting of their

In day-to-day activities geoscientists should:

- *Be honest.*
- *Act responsibly and with integrity, acknowledge limitations to knowledge and understanding, and be accountable for their errors.*
- *Present professional work and reports without falsification or fabrication of data, misleading statements, or omission of relevant facts.*
- *Distinguish facts and observations from interpretations.*
- *Accurately cite authorship, acknowledge the contributions of others, and not plagiarize.*
- *Disclose and act appropriately on real or perceived conflicts of interest.*
- *Continue professional development and growth.*
- *Encourage and assist in the development of a safe, diverse, and inclusive workforce.*
- *Treat colleagues, students, employees, and the public with respect.*
- *Keep privileged information confidential, except when doing so constitutes a threat to public health, safety, or welfare.*

As members of a professional and scientific community, geoscientists should:

- Promote greater understanding of the geosciences by other technical groups, students, the general public, news media, and policy makers through effective communication and education.*
- Conduct their work recognizing the complexities and uncertainties of the Earth system.*
- Sample responsibly so that materials and sites are preserved for future study.*
- Document and archive data and data products using best practices in data management, and share data promptly for use by the geoscience community.*
- Use their technical knowledge and skills to protect public health, safety, and welfare, and enhance the sustainability of society.*
- Responsibly inform the public about natural resources, hazards, and other geoscience phenomena with clarity and accuracy.*
- Support responsible stewardship through an improved understanding and interpretation of the Earth, and by communicating known and potential impacts of human activities and natural processes.*

AIPG Code of Ethics

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Member was not involved in performing services for

CANON 1. General Obligations

Members shall be guided by the highest stand

STANDARD 1.1

Members shall pursue honesty, integ
inviolability of confidence, and hon
By applying for or
hold this C



AGI Guidelines for Ethical Professional Conduct

These guidelines address common ethical topics across the geoscience community; the statements of individual societies may expand beyond these guidelines.

Geoscientists play a critical role in ethical decision making about stewardship of the Earth, its resources, and the interactions between humankind and the planet on which we live. Geoscientists must earn the public's trust and maintain confidence in the work of individual geoscientists and the geosciences as a profession. The American Geosciences Institute (AGI) expects those in the profession to adhere to the highest ethical standards in all professional activities. Geoscientists should engage responsibly in the conduct and reporting of their work, acknowledging the uncertainties and limits of current understanding inherent in studies of natural systems. Geoscientists should respect the work of colleagues and those who use and rely upon products of their work.

In day-to-day activities geoscientists should:

- Be honest.
- Act responsibly and with integrity, acknowledge limitations to knowledge and understanding, and be accountable for their errors.
- Present professional work and reports without falsification or fabrication of data, statements, or omission of relevant facts.
- Distinguish facts and observations from interpretations.
- Accurately cite authorship, acknowledge the work of others.
- Disclose and act appropriately on conflicts of interest.
- Continue professional development.
- Encourage others to follow these guidelines.

AGI Guidelines, 2015

In day-to-day activities geoscientists should:

Disclose and act appropriately on real or perceived **conflicts of interest.**

————— ooo —————

AIPG Code of Ethics, 2019

Rule 3.1.1 A Member shall disclose to a prospective employer or client the existence of any owned or controlled mineral or other **interest** which may, either directly or indirectly, have a pertinent bearing on such employee.

Rule 3.1.2 A Member having or expecting to have beneficial **interest** in a property on which the Member reports shall state in the report the fact of the existence of such **interest** or expected **interest.**

Rule 3.1.3 A member employed or retained by one employer or client shall not accept, without that employer's or client's written consent, an engagement by another if the **interests** of the two are in any manner **conflicting.**

***A Geoscientist's
Paramount
Obligations***

Paramount Obligations for Geoscientists

In our professional scientific work, geoscientists must act with *integrity* to...

Paramount Obligations for Geoscientists

In our professional scientific work, geoscientists must act with *integrity* to...

- 1 Safeguard the health, safety, and well-being of other people

Paramount Obligations for Geoscientists

In our professional scientific work, geoscientists must act with *integrity* to...

- 1 Safeguard the health, safety, and well-being of other people
- 2 Adhere to the ethical principles, standards, and norms of science to seek and report faithfully on reliable information — truth — about our world, and

Paramount Obligations for Geoscientists

In our professional scientific work, geoscientists must act with *integrity* to...

- 1 Safeguard the health, safety, and well-being of other people
- 2 Adhere to the ethical principles, standards, and norms of science to seek and report faithfully on reliable information — truth — about our world, and
- 3 Safeguard the viability of Earth's ecosystems.

Paramount Obligations for Geoscientists

In our professional scientific work, geoscientists must act with *integrity* to...

- 1 Safeguard the health, safety, and well-being of other people
- 2 Adhere to the ethical principles, standards, and norms of science to seek and report faithfully on reliable information — truth — about our world, and
- 3 Provide, together with the other members of the geoscience community, intellectual **stewardship** for Earth and its systems, resources, and ecosystems, on which we all depend.



This was just a progress
report on the development
of the *Geoethics Primer*.
Please visit the resource
page for more information.



Vince_Cronin@CroninProjects.org

<https://CroninProjects.org/Geoethics/AIPG-2026/>

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