The background features several circular gauges and arrows, suggesting a technical or scientific theme. The gauges have numerical scales, with some showing values like 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, and 260. The arrows are curved, indicating a path or direction. The overall color scheme is a gradient of dark blue and purple.

A ROAD MAP FOR LIVING IN THE ERA OF GLOBAL WARMING

SESSION III

LARRY R. CHURCHILL, PHD
VANDERBILT OLLI, JANUARY 26, 2023
LARRY.CHURCHILL@VUMC.ORG

CLIMATE NEWS AND POLITICS, JAN. 2023

Devos, World Economic Forum

- John Kerry defends Al Jaber, oil executive, UAE to lead COP 28
- Greta Thunberg , Al Gore and Greenpeace Inter. oppose his appointment



U.S. renewable electricity production predicted to exceed 25% by 2023

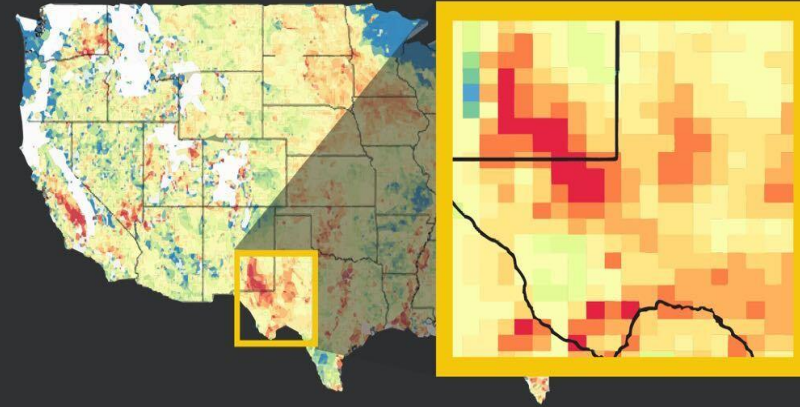


CLIMATE NEWS & POLITICS; JAN. 2023

EPA AND THE METHANE PROBLEM

EPA public hearings on new supplement rule for methane control

- Oil and gas production and leakage are largest source of methane in U.S.
- New rule aims to reduce methane by 87% by 2030 over 2005 levels
- Ineffectiveness of state agencies, who question or oppose the rule
- Focus on the Permian Basin, which produces 40% of all oil and 15% of all gas in U.S.



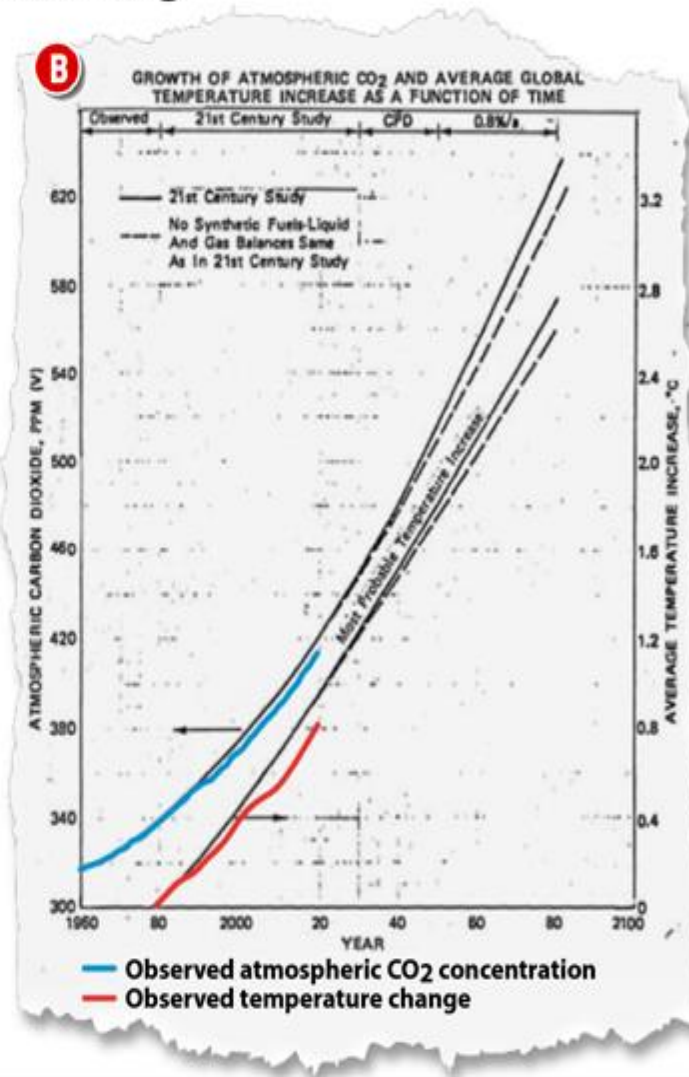
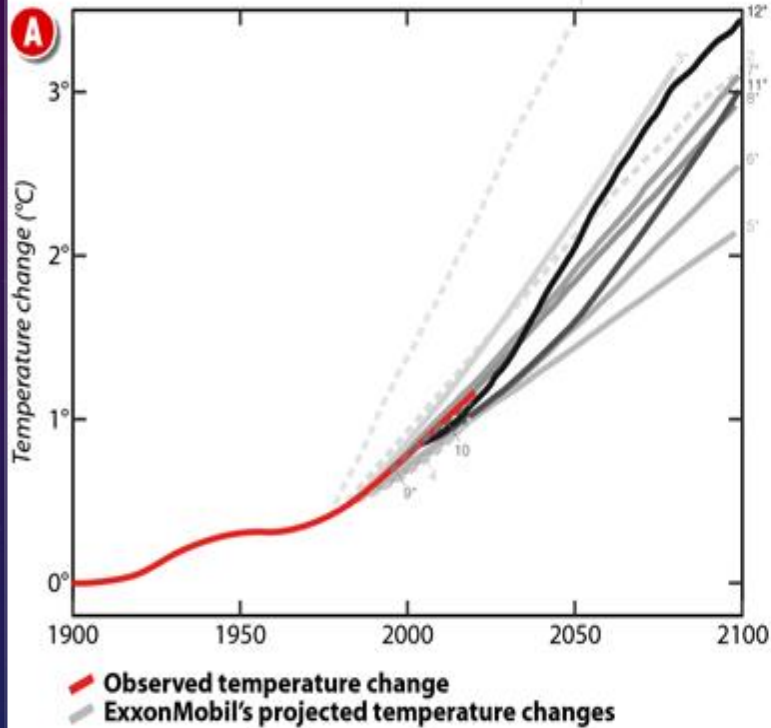
FOLLOW-UPS AND LEFT-OVERS FROM SESSION II

- Exxon and its scientists
- Skepticism and science

- Seaweed as a food additive for cattle
- Interfaith Power and Light
- Current U.S. energy sources
- Possible future sources

ExxonMobil Accurately Predicted Warming

A new academic analysis of Exxon's own climate modeling, dating back decades, shows that those predictions proved to be remarkably accurate. **Figure A** compares all of Exxon's known climate models with actual warming. **Figure B** shows one proprietary model from 1982, compared to actual warming and CO₂ levels.



SOURCE: G. Supran et al., *Science*

Inside Climate News

EXXON'S SCIENTISTS
AND THEIR
REMARKABLE
ACCURACY
SCIENCE, JAN. 19, 2023

Exxon's chief executive says: "never misled the public" despite its decades-long campaign of disinformation and promoting doubt about climate science

GOOD SOURCE FOR DEBUNKING BAD SCIENCE AND
DISINFORMATION

SkepticalScience.com

SEAWEED AS FOOD ADDITIVES FOR CATTLE

Each cow belches 200lbs of methane annually, equivalent of 900 gallons of gas (50 tanks of gas)










- Brominata – red seaweed, can reduce methane emissions in cows by 52%
- Environmental impact of producing the seaweed is high, current energy source for production of Brominata is fossil fuels
- No FDA approval yet
- Reducing high energy cost of production and producing on a large scale are problems yet to be solved

INTERFAITH POWER AND LIGHT

- National lobbying and action network
 - 40 state affiliates
 - 22,000+ faith communities
 - 6,500,000 people
-
- <https://www.interfaithpowerandlight.org/>



U.S. energy consumption by source, 2021

 biomass <i>renewable</i> heating, electricity, transportation	5.0%	 petroleum <i>nonrenewable</i> transportation, manufacturing, electricity	36.0%
 hydropower <i>renewable</i> electricity	2.3%	 natural gas <i>nonrenewable</i> heating, manufacturing, electricity, transportation	32.2%
 wind <i>renewable</i> electricity	3.4%	 coal <i>nonrenewable</i> electricity, manufacturing	10.8%
 solar <i>renewable</i> heating, electricity	1.5%	 nuclear (from uranium) <i>nonrenewable</i> electricity	8.4%
 geothermal <i>renewable</i> heating, electricity	0.2%		

A small amount of sources not included above are net electricity imports and coal coke.
The sum of individual percentages may not equal 100% because of independent rounding.
Data source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 1.3, April 2022, preliminary data

CURRENT U.S. ENERGY SOURCES

Possible New Clean Sources

- Ocean currents
- Nuclear fusion

NEW SOURCES OF ENERGY

- Nuclear fusion
- Wave power

Both would require huge start-up costs; there are hazards with nuclear fusion; wave energy generation is low

DOES LIVING IN THE ERA OF GLOBAL WARMING
REQUIRE A NEW ETHICS, AND/OR REVIVING OLD
ETHICS?



THE SHAPE OF OUR CURRENT, DOMINANT VALUES

1. Moral individualism, the ethics of “I,” independence
2. Individual self-interest as the driving force
3. Focus on what differentiates & distinguishes us
4. Caring for others as philanthropy; generosity as extraordinary
5. Justice as grounded in contracts made by self-interested individuals in an ahistorical and asocial state (Locke, Rousseau, Kant, Jefferson, Rawls)

VALUES NEEDED FOR THE ANTHROPOCENE

1. Moral solidarity, the ethics of “We”, interdependence
2. Collective self-interest, shared vulnerability as the driving force
3. Focus on what unites and bonds us
4. Caring for others from sense of solidarity; reciprocity and generosity as more intuitive
5. Justice as grounded in communal awareness, in historical, social and ecological self-consciousness

VALUES COMPARED


1. Moral individualism, the ethics of “I,” independence
2. Individual self-interest as the driving force
3. Focus on what differentiates & distinguishes us
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POPE FRANCIS ON CLIMATE CHANGE

“We must regain the conviction that we need one another, that we have a shared responsibility for others and the world, and that being good and decent are worth it.”

Laudato Si, 2015

The background features a glowing lightbulb with a blue and purple gradient. Overlaid on the lightbulb are various technical diagrams, including circular gauges with numerical scales (e.g., 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260) and circular patterns. The overall aesthetic is futuristic and scientific.

THE VALUES NEEDED FOR THE
ANTHROPOCENE ARE THE SAME
ONES NEEDED FOR COVID-19,
AND FUTURE PANDEMICS

5 TOXIC ASSUMPTIONS & HABITS OF MODERN LIFE

1. Short Horizon Thinking
2. Political Incompetence
3. Humans as the Crowning Endpoint of Evolution
4. Consumerism as the Dominant Measure of Well-Being
5. Fantasies of Rescue: Theological and Technological

Adapted from L. R. Churchill, *Ethics for Everyone* (Oxford, 2020)

ANTIDOTES TO OUR TOXIC MODERN LIFE

1. Legacy Thinking
2. Becoming Trustworthy Locally and Internationally
3. Relocating the Human Place in Nature
4. Common Stewardship
5. Global Citizenship

from King, Henderson & Churchill, *Bioethics Reenvisioned* (UNC Press, 2022)

ETHICAL NORMS ARE ALWAYS ROOTED IN DEEP HUMAN EXPERIENCES, NOT IN ABSTRACTIONS, OR FORMAL SYSTEMS

Experiences we need to seek and nurture (a sampling)

- Love in form of Biophilia
- Wonder & Awe, especially as related to nature
- Reverence, opposite of hubris

LOVE AS A MOTIVE FOR SAVING THE PLANET



STEPHEN J. GOULD (1941-2002)

“We cannot win this battle to save species and environments without forging an emotional bond between ourselves and nature --- for we will not fight to save what we do not love.”



KINDS OF LOVE: THE GREEKS HAD A WORD FOR (MOST OF) IT

Eros ἔρως--passionate, physical love, longing and desire, “falling in love”

Philia φιλία--love between friends, high-minded affection of people who recognize something valuable in each other

Agape ἀγάπη--spiritually-inspired, egoless love, mystical love

Storge' στοργή-- the affection that emerges from the mutual care of daily life, as in a family; not “falling in love” but “residing in a place of love.”

Biophilia – love of humanity for nature; innate need to find connections between humans and other forms of life -- Erich Fromm; E. O. Wilson



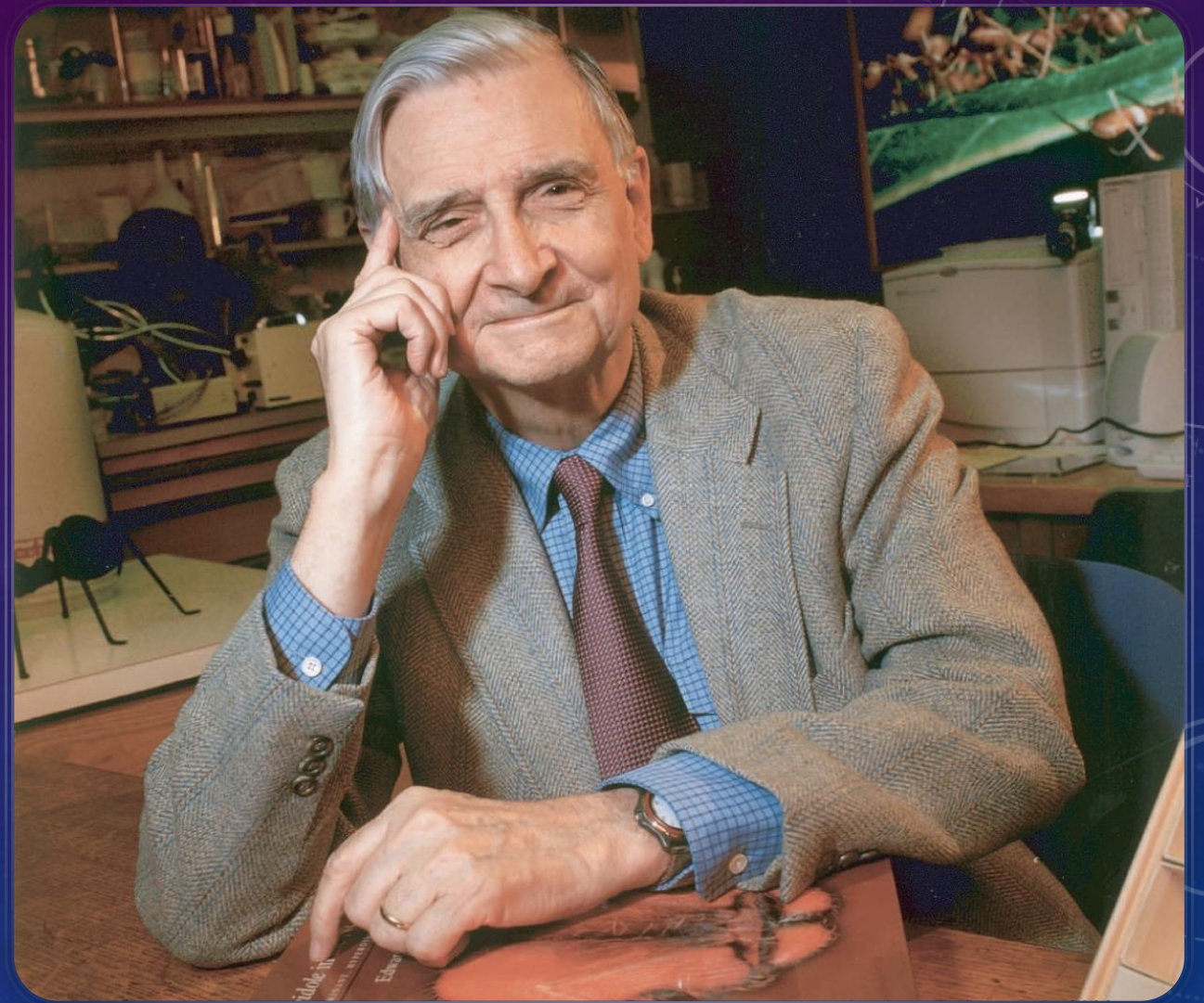
ERIC FROMM'S (1900-1980) 'BIOPHILIA'

- The opposite of necrophilia, which is a “psychic crippledness”
- “A reverence for life that enhances life, growth, and unfolding”
- Rethink Judeo-Christian traditions

--from *The Anatomy of Human Destructiveness*, 1973

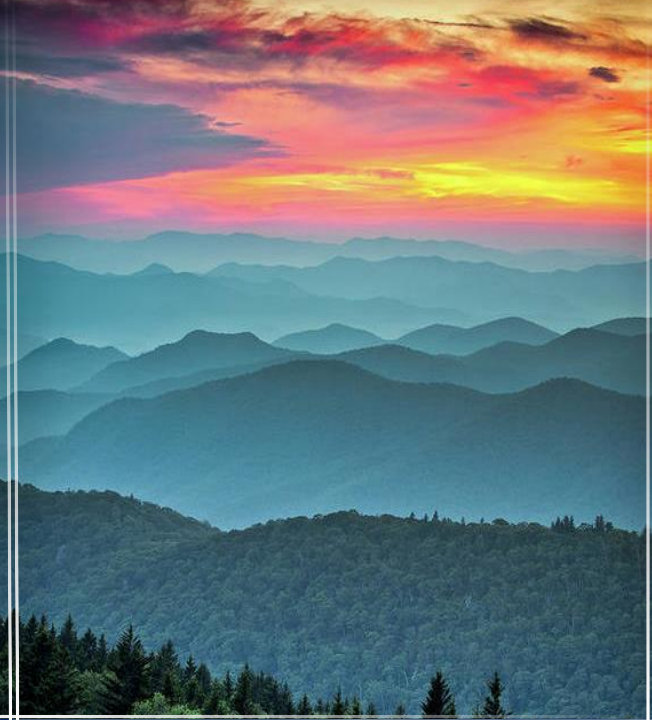
E.O. WILSON'S (1929-2021) 'BIOPHILIA'

- “the innately emotional affiliation of human beings to other living organisms. Innate means hereditary and hence part of ultimate human nature.”
- “we are human in good part because of the particular way we affiliate with other organisms. They are the matrix in which the human mind originated and is permanently rooted.”



BIOPHILIA, WHERE IT LEADS

- The most amazing fact about us is that we are here at all.
- The immense improbability of you and me, here and now . . .
- Sense of Earth as our only home; a creaturely love for habitat; this yields. . .
- A kind of knowledge only possible through love, like the knowledge of other people, like the knowledge of myself--a knowledge of myself residing in (not on) the Earth, a place that I learn to care for. . .



WONDER AND AWE, ESPECIALLY AS RELATED TO NATURE



RITUAL EXPRESSIONS OF WONDER AND AWE

FROM "PATRICK'S
BREASTPLATE" (CELTIC
HYMN)

I bind unto myself today
The virtues of the starlit heaven
The glorious sun's life-giving rays
The whiteness of the moon at even
The flashing of the lightning free
The whirling winds tempestuous shocks
The stable earth, the deep salt sea
Around the old eternal rocks



AWE IN DARWIN---THE PROFOUND INTERDEPENDENCE OF ALL SPECIES

*Whilst this planet has gone cycling on
according to the fixed law of gravity, from so
simple a beginning endless forms most
beautiful and most wonderful have been,
and are being, evolved.*

--Charles Darwin, *The Expression of Emotions in Man and Animals*,
1872.

GETTING GROUNDED

“We come into being in and through the Earth, simply put, we are Earthlings. The Earth is our origin, our nourishment, our educator, our healer, our fulfillment. At its core, even our spirituality is Earth derived. If there is no spirituality in the Earth, then there is no spirituality in ourselves.”

Thomas Berry, *The Sacred Universe*, p. 69.

“Physical degradation of the natural world is also the degradation of the interior world of the human.”

Thomas Berry, “The New Political Alignment,” in *The Great Work*, p. 110.

THE HEALING FROM BEING IN THE WORLD

When despair for the world grows in me
and I wake in the night at the least sound
in fear of what my life and my children's lives may be,
I go and lie down where the wood drake
rests in his beauty on the water, and the great heron feeds.
I come into the peace of wild things
who do not tax their lives with forethought
of grief. I come into the presence of still water.
And I feel above me the day-blind stars
waiting with their light. For a time
I rest in the grace of the world, and am free.

“The Peace of Wild Things”

[Wendell Berry](#)

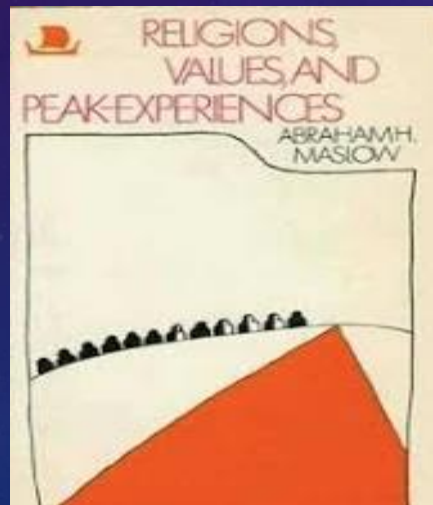
REVERENCE

- May or may not be related to formal religion
- In presence of the sacred, and one's insignificance in the face of it. . .
- Opposite of hubris, a mistaken, inflated sense of one's importance or power
- *Reverence*, Paul Woodruff, Oxford, 2001



PEAK EXPERIENCES: *A SOURCE OF LOVE, WONDER, AWE AND REVERENCE*

Abraham Maslow, 1908-1970



Features

1. Universe as sublimely beautiful
2. Ordinary concerns fall away; ego-transcending, egoless
3. Being part of an integrated whole
4. Glimpse into a reality where evil is reconciled
5. Non-comparing acceptance of everything
6. Other people and things seen as intrinsically valuable
7. Feeling of being lucky, very fortunate, graced,
8. Responses of awe, wonder, gratitude, reverence, humility, worship

CULTIVATING THE AWARENESS OF PEAK EXPERIENCES



What experiences of wonder, awe and reverence have you had? In what settings, and what was going on in your life?



What did you do with the insights granted to you then?



How can we live more fully in the light of these insights?