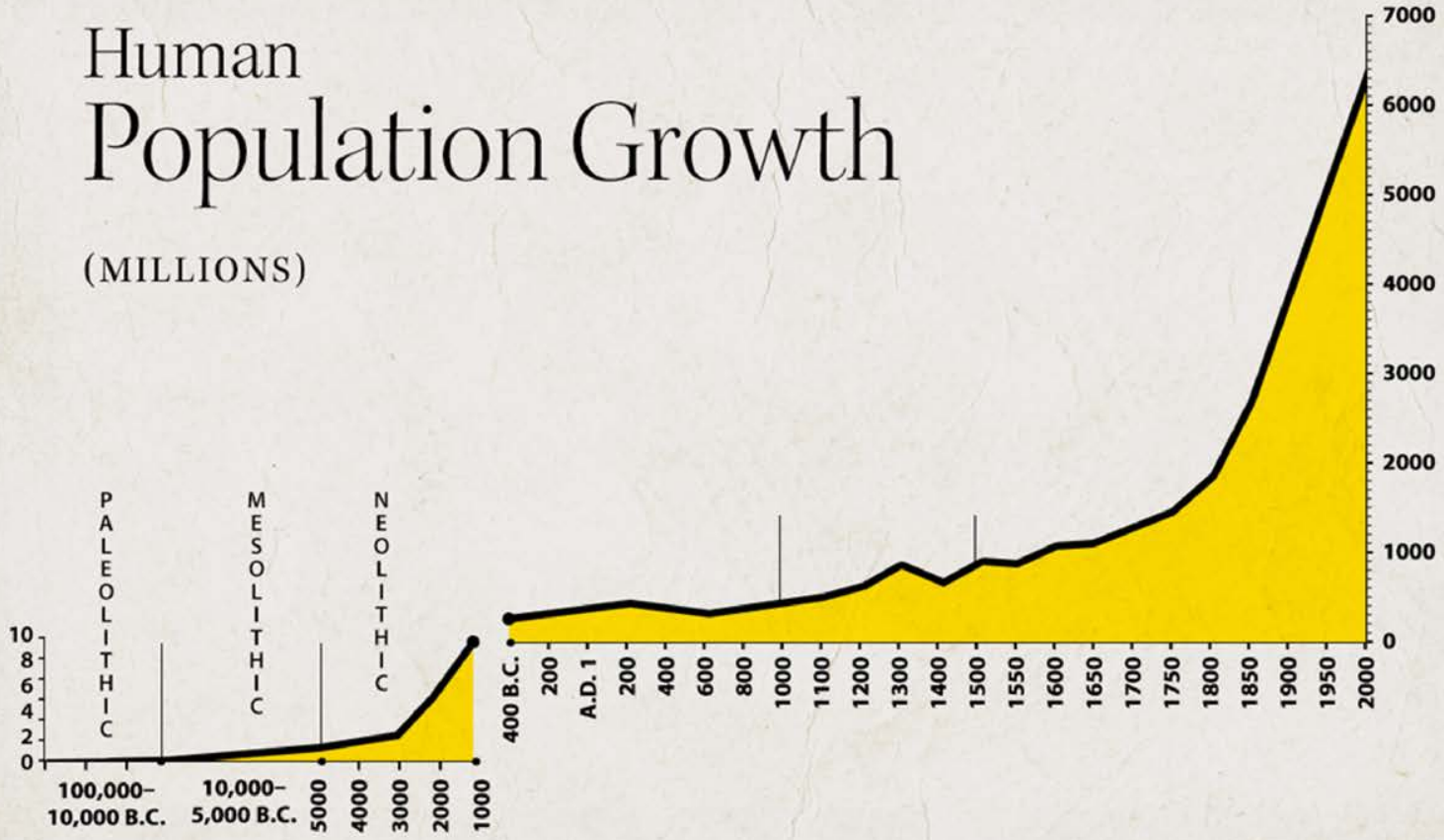
THE VALUE OF PRODUCTIVITY

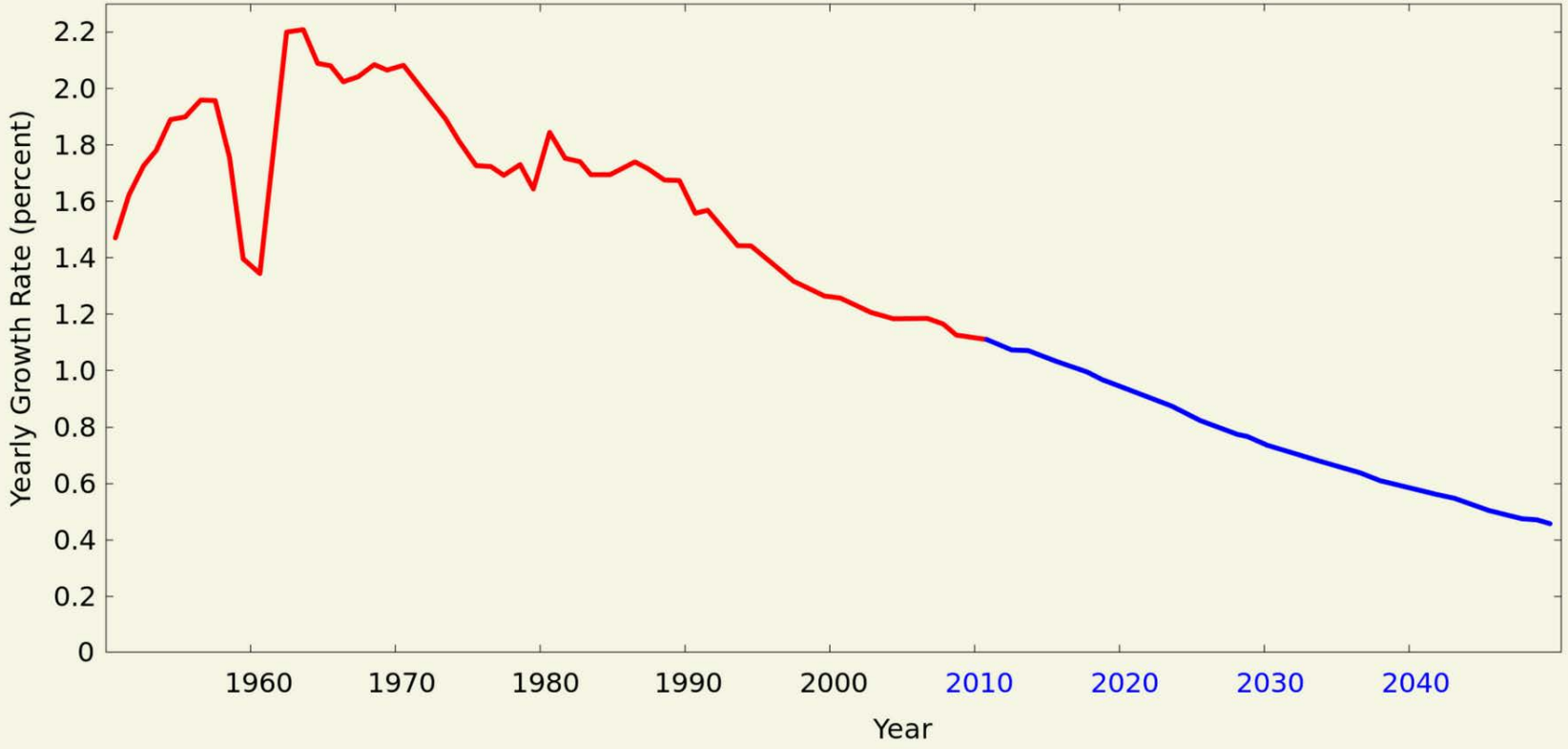
JASON ROSS

LaRouchePAC Science Research Group

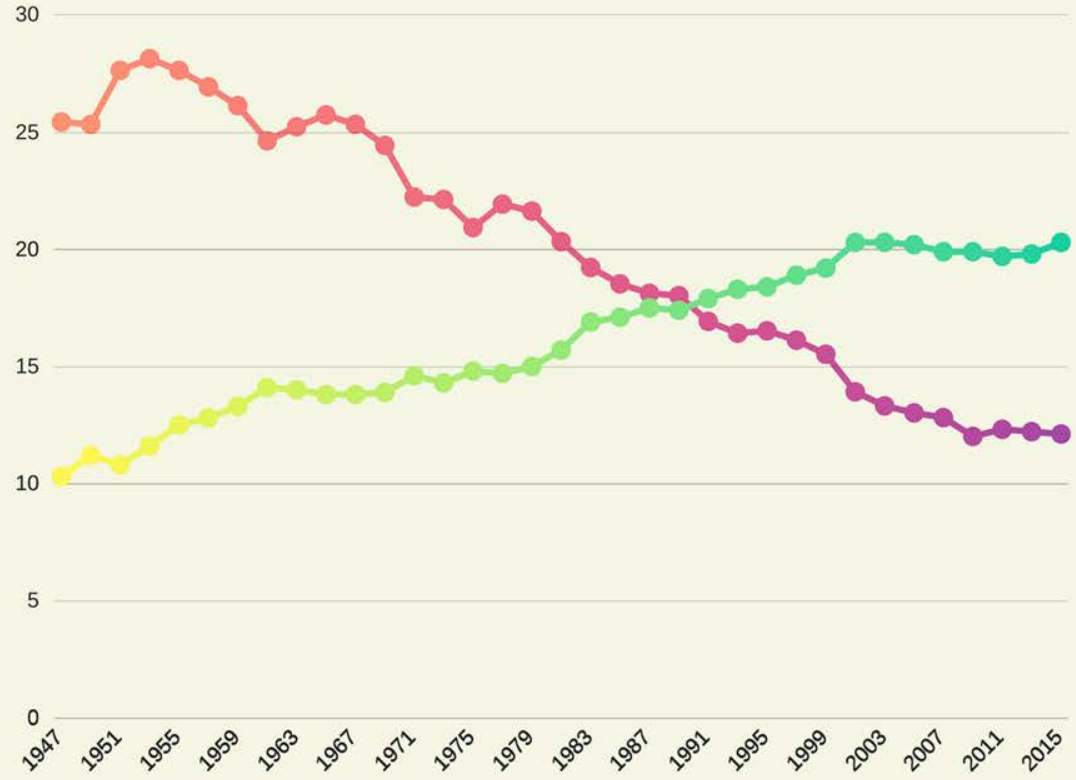
Human Population Growth

(MILLIONS)




Yearly Growth Rate (percent)
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0
1960
1970
1980
1990
2000
2010
2020
2030
2040
Year

Productivity?

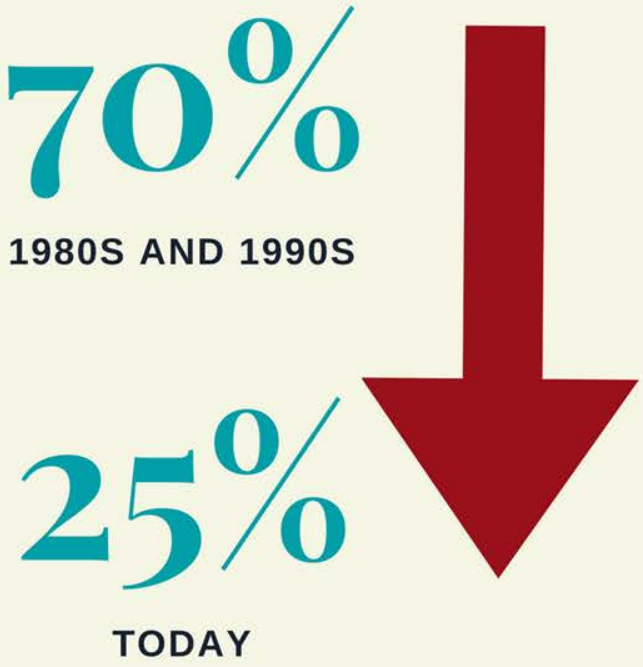


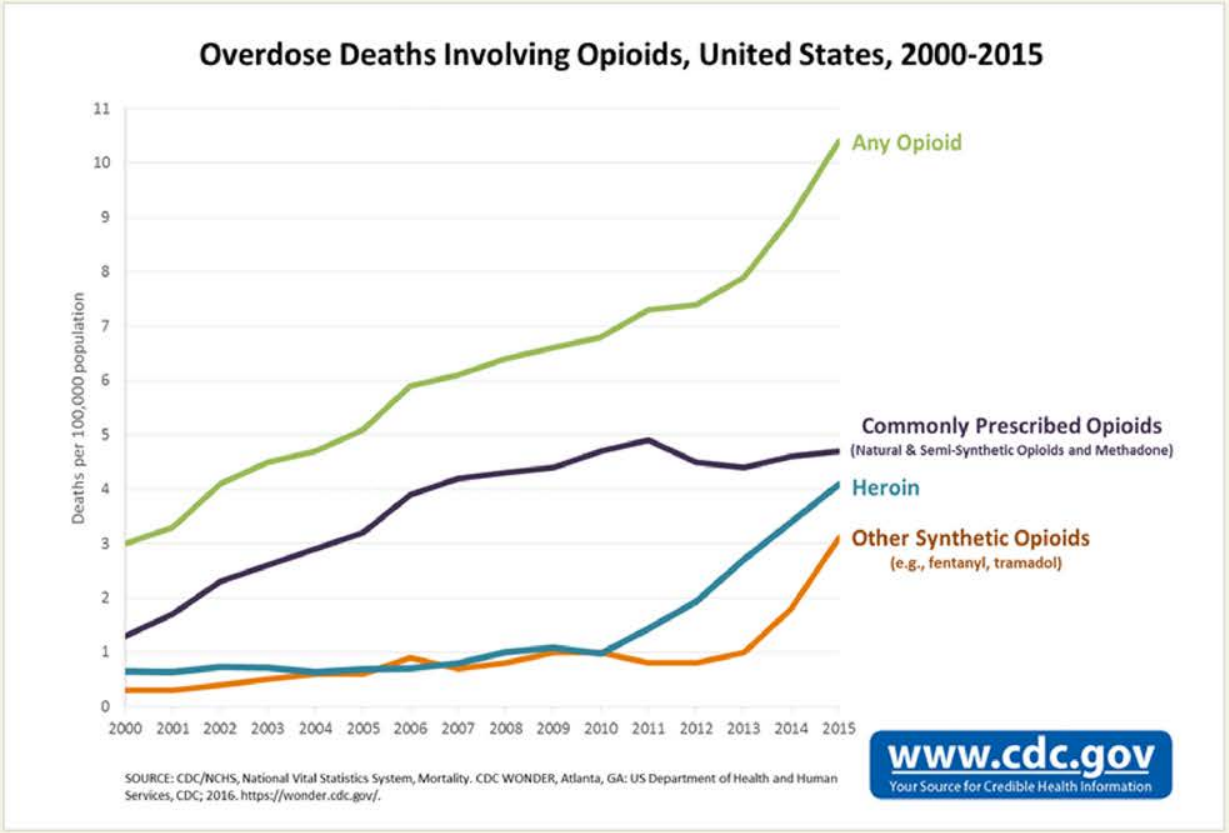
FIRE

Manufacturing

Young people are not working.

They are not joining the labor force.

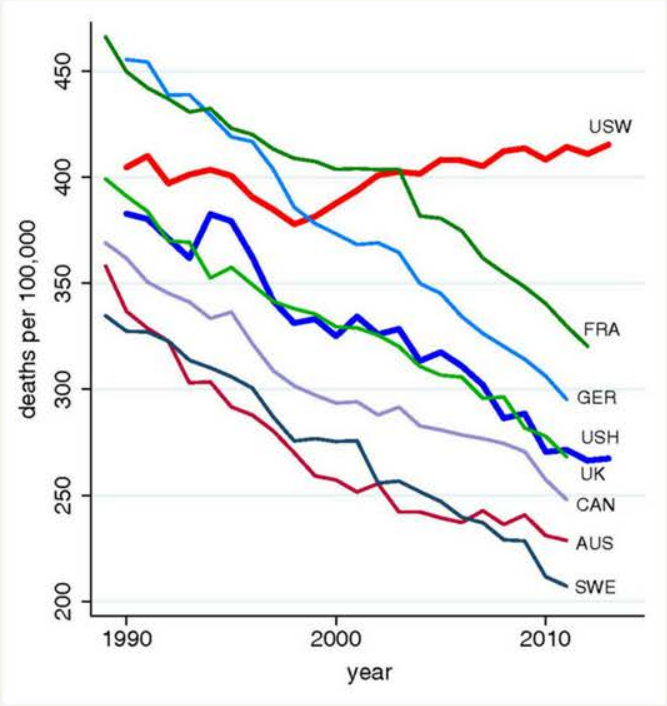


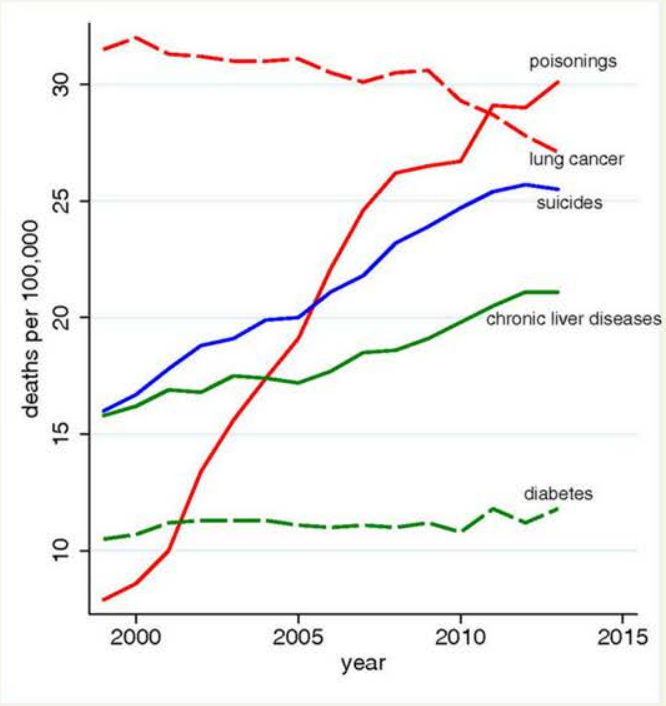


200%

OPIOID DEATHS:
TODAY VS 2008

Americans are dying





Economists are clueless

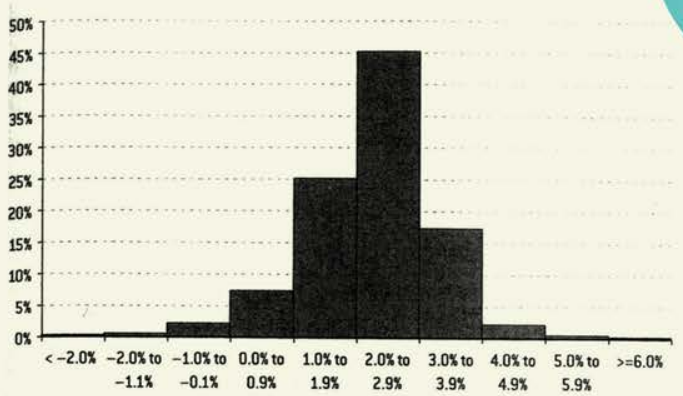
In 2007, economists gave a 3% chance of the economy shrinking in 2008.

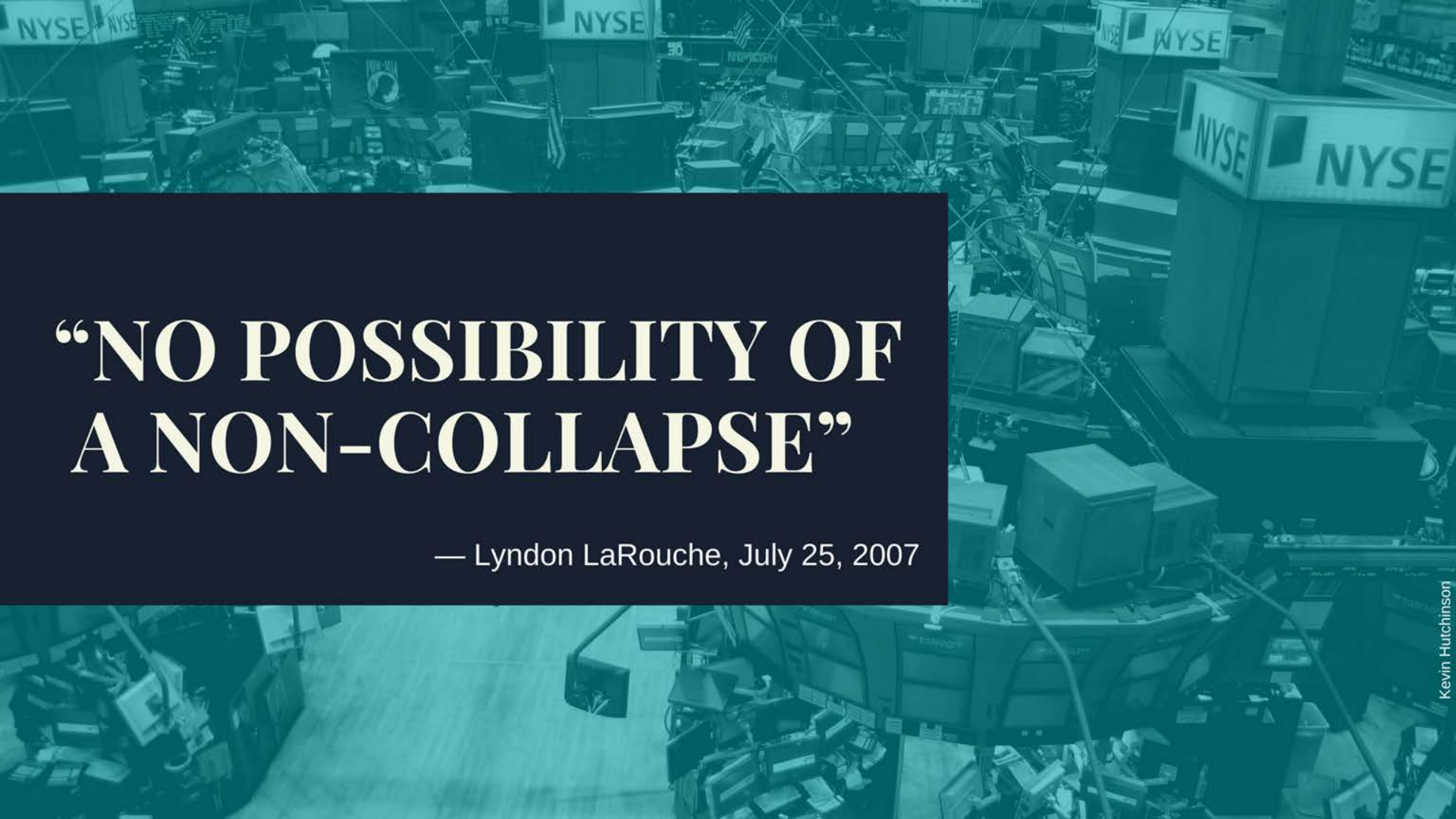
3%

They gave it a less than 1:500 likelihood of decreasing by over 2%.

0.2%

They were very wrong.





"NO POSSIBILITY OF A NON-COLLAPSE"

— Lyndon LaRouche, July 25, 2007

Kevin Hutchinson

International Webcast

KEY CONCEPTS

1. PHYSICAL CHEMISTRY

-

2. ECONOMIC “PLATFORMS”

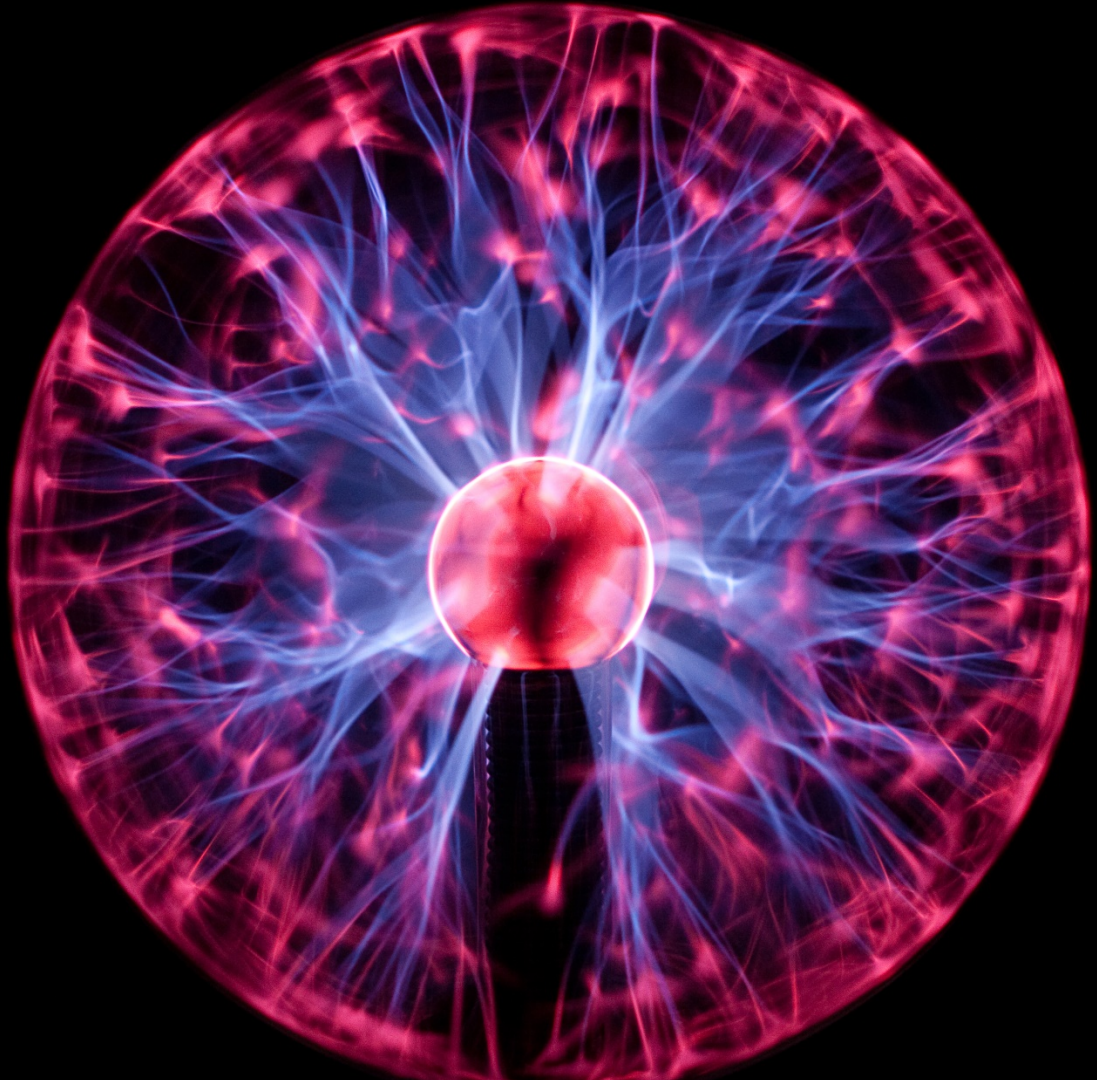
-

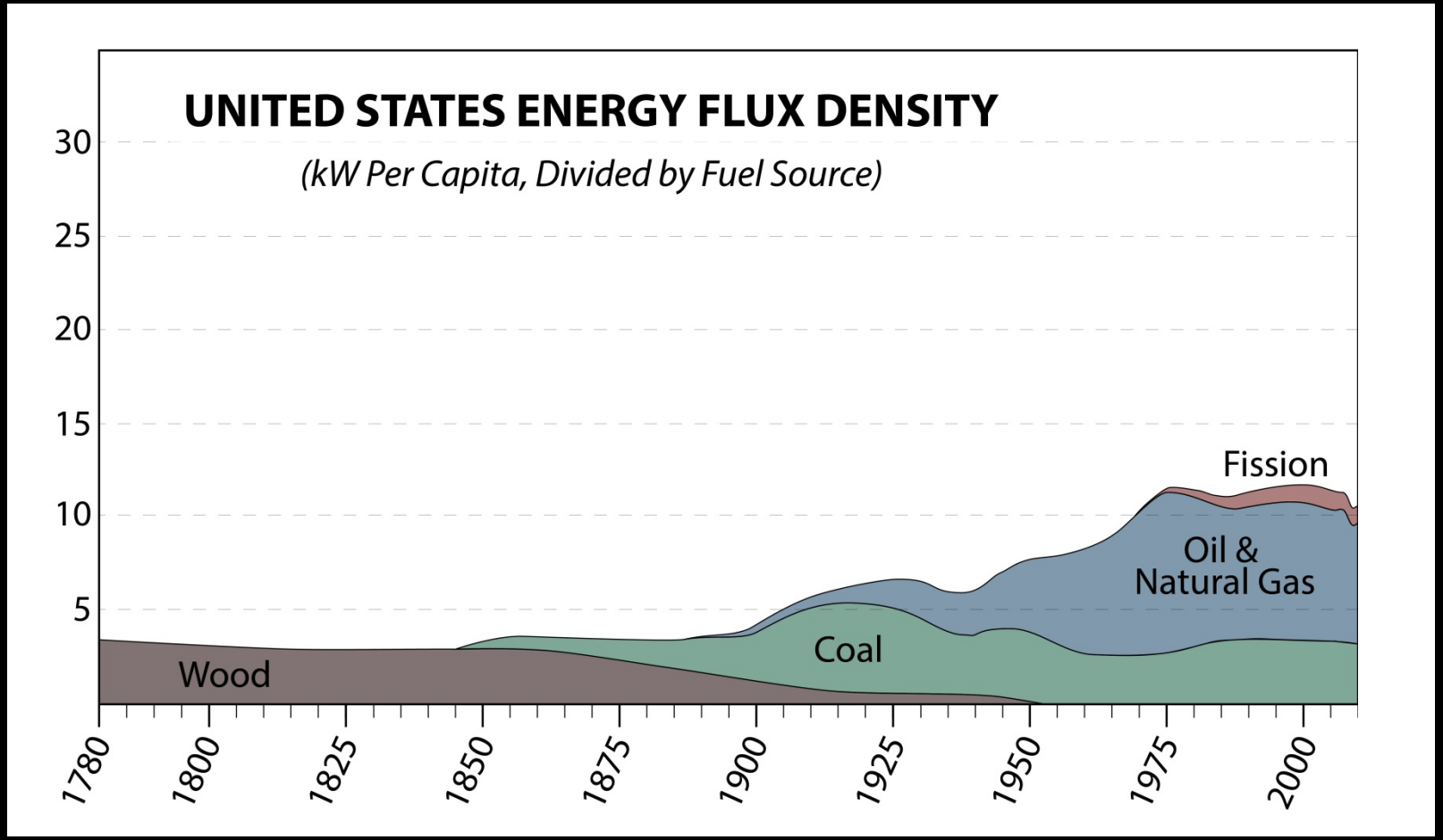
3. DISCOVERY VS LOGIC AND AI

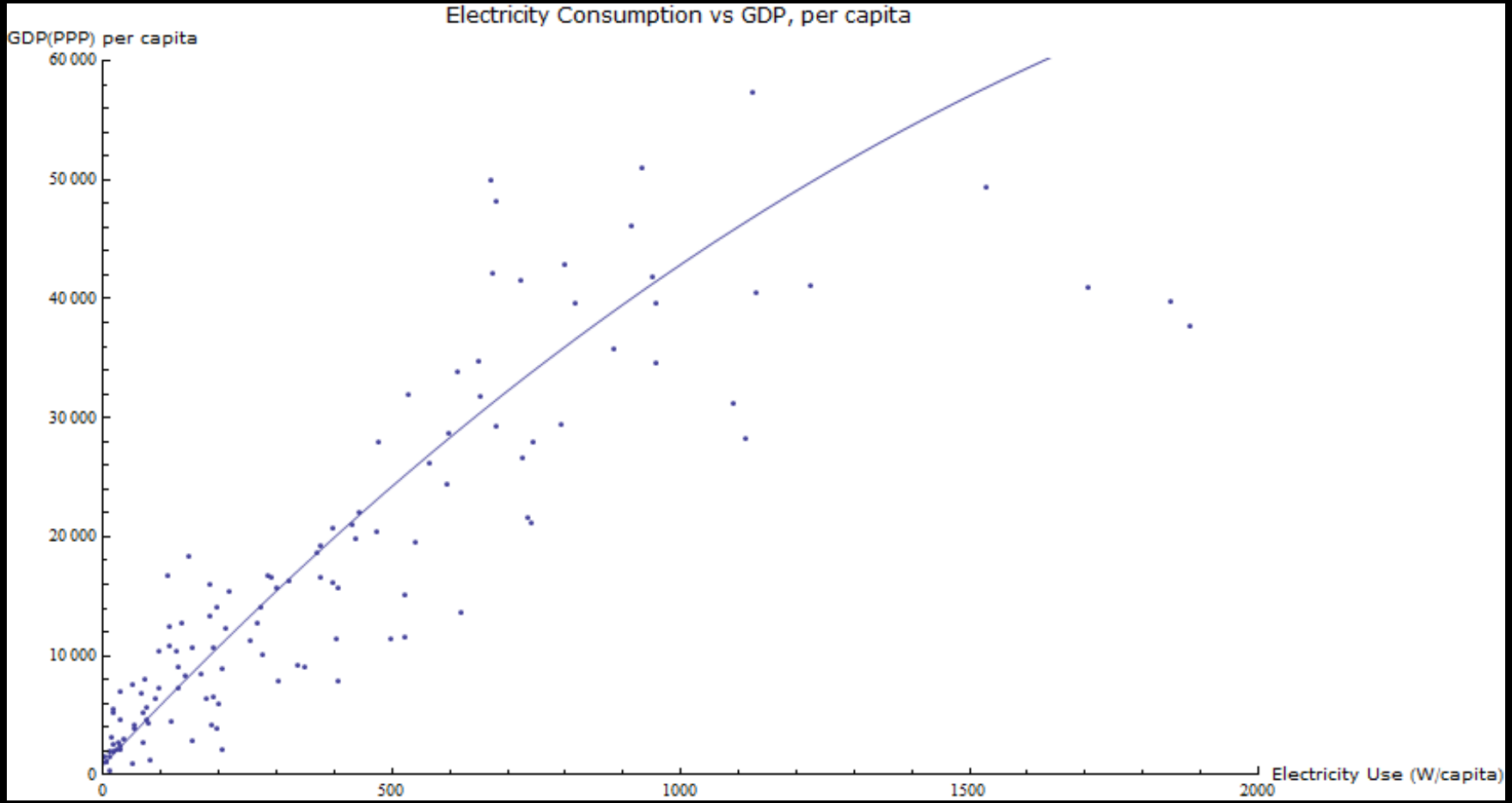
-

Prometheus,
the fire-bringer

40
NEVADA NORTHERN
40
NN 403



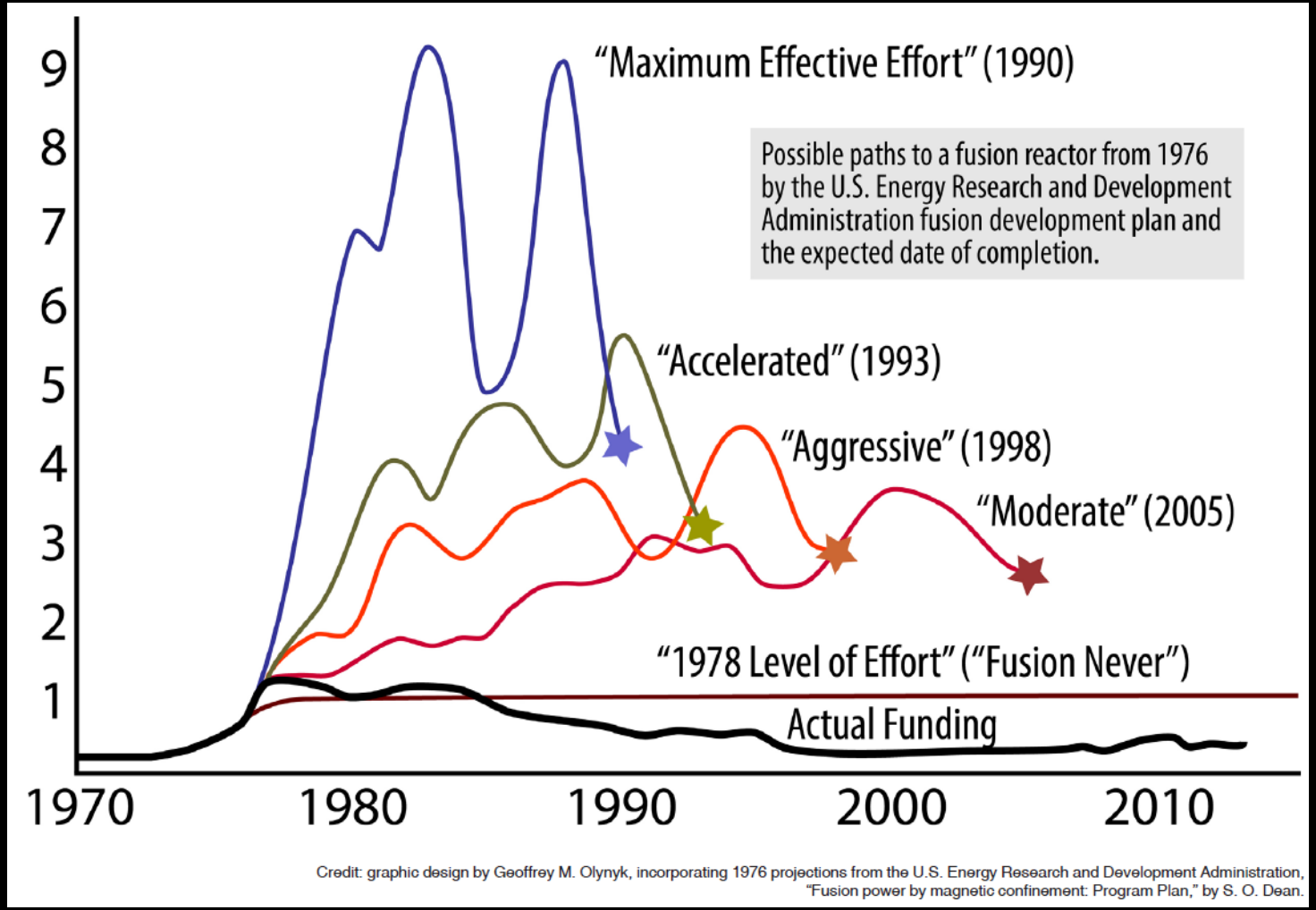

UNITED STATES ENERGY FLUX DENSITY
(kW Per Capita, Divided by Fuel Source)
30
25
20
15
10
5
Fission
Oil &
Natural Gas
Coal
Wood
1780
1800
1825
1850
1875
1900
1925
1950
1975
2000


Electricity Consumption vs GDP, per capita
GDP(PPP) per capita
60 000
50 000
40 000
30 000
20 000
10 000
0
0
500
1000
1500
2000
Electricity Use (W/capita)

The Energy Density of Fuels

FUEL SOURCE	ENERGY DENSITY (J/g)
Combustion of Wood	1.8×10^4
Combustion of Coal (Bituminous)	2.7×10^4
Combustion of Petroleum (Diesel)	4.6×10^4
Combustion of H_2/O_2	1.3×10^4 (full mass considered)
Combustion of H_2/O_2	1.2×10^5 (only H_2 mass considered)
Typical Nuclear Fuel	3.7×10^9
Direct Fission Energy of U-235	8.2×10^{10}
Deuterium-Tritium Fusion	3.2×10^{11}
Annihilation of Antimatter	9.0×10^{13}

Fuel energy densities. The change from wood to matter-antimatter reactions is so great that progress must be counted in orders of magnitude, and the greatest single leap is seen in the transition from chemical to nuclear processes.



Credit: graphic design by Geoffrey M. Olynyk, incorporating 1976 projections from the U.S. Energy Research and Development Administration, "Fusion power by magnetic confinement: Program Plan," by S. O. Dean.

KEY CONCEPTS

1. PHYSICAL CHEMISTRY

-

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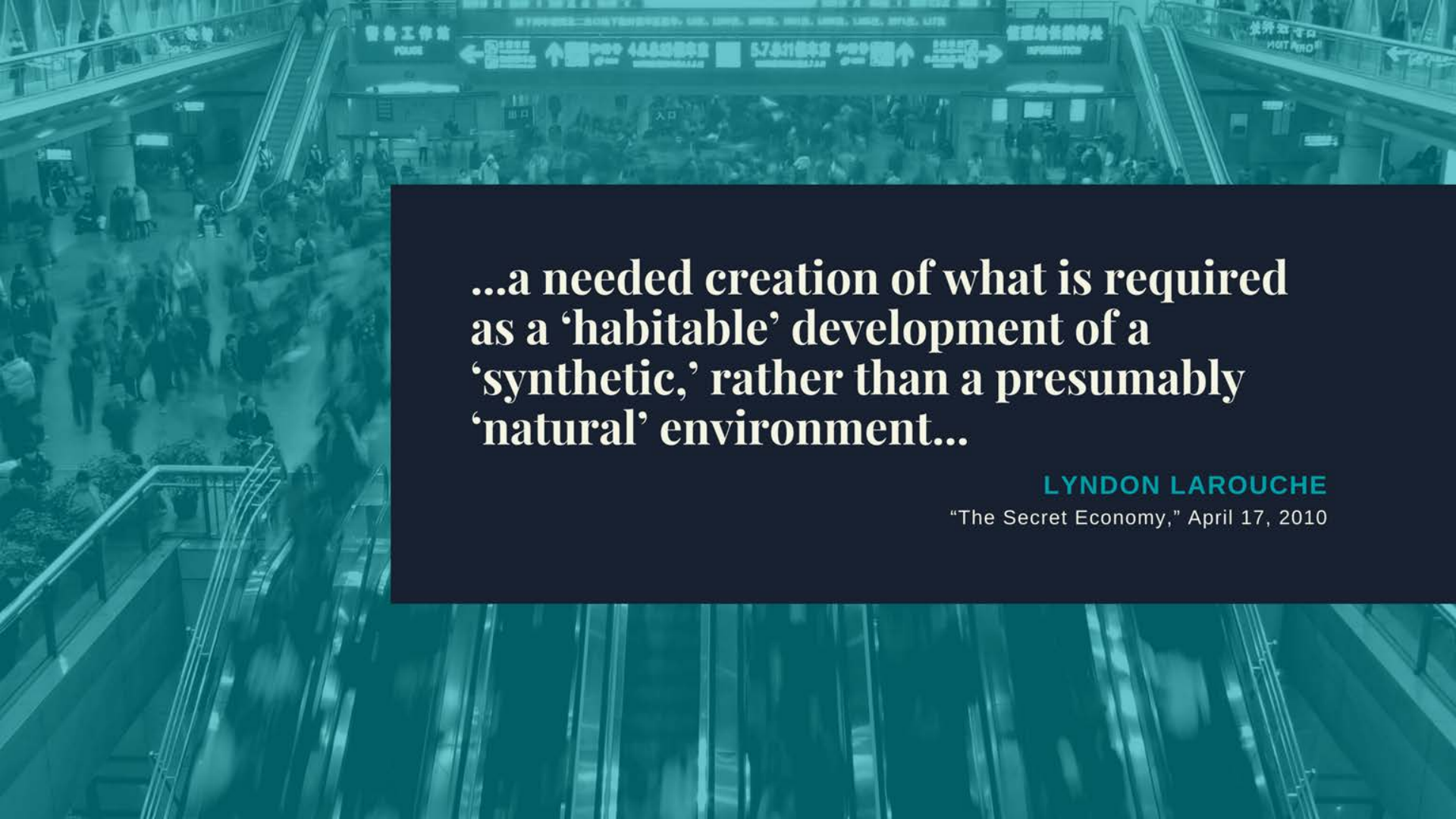
-

3. DISCOVERY VS LOGIC AND AI

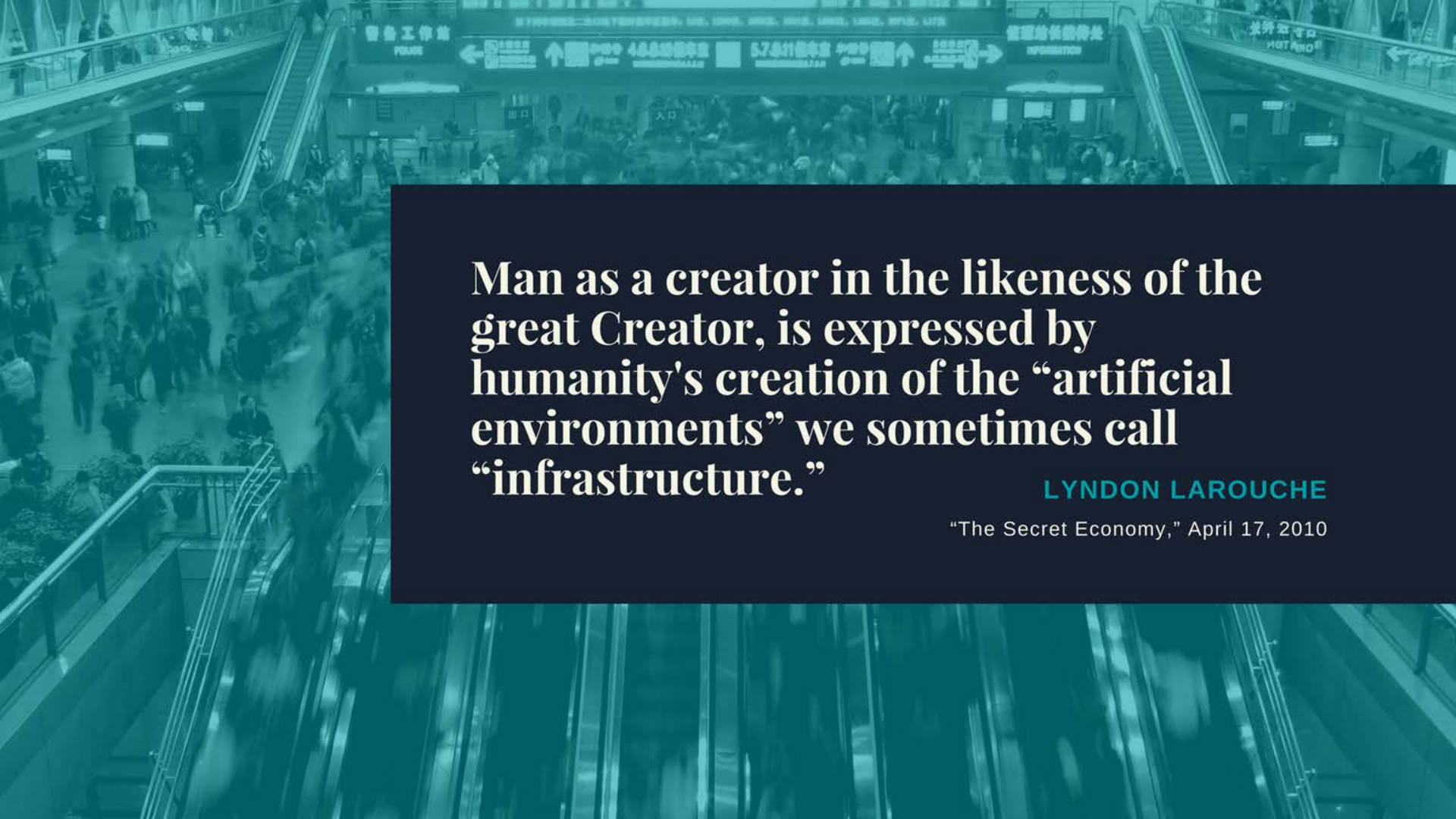
-



...a needed creation of what is required as a 'habitable' development of a 'synthetic,' rather than a presumably 'natural' environment...

LYNDON LAROUCHE

"The Secret Economy," April 17, 2010



Man as a creator in the likeness of the great Creator, is expressed by humanity's creation of the "artificial environments" we sometimes call "infrastructure."

LYNDON LAROUCHE

"The Secret Economy," April 17, 2010

CREATING SYNTHETIC ENVIRONMENTS

INDEPENDENCE

Our infrastructure makes us independent of the vagaries of “nature.” We produce our own environments, such as energy, transportation, agriculture, water, and social environments.

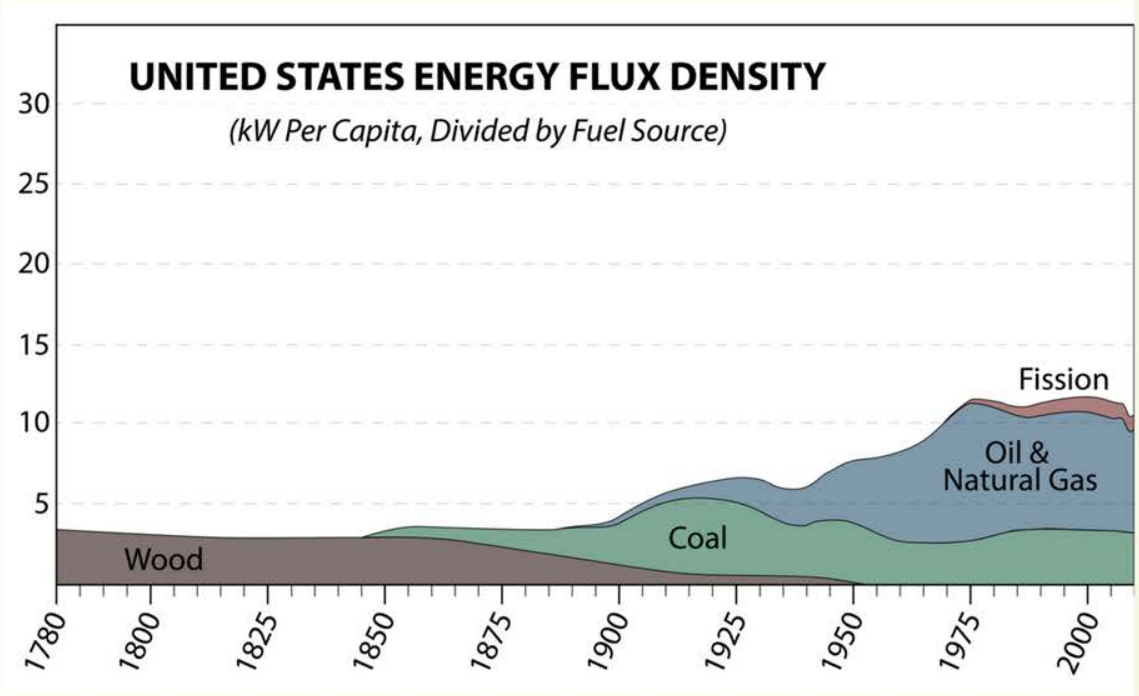
POWER

By discovering principles of nature, we increase our power over it.

A SPECIES CHARACTERISTIC

Unlike animals, we change our relationship to nature, willfully.

ENERGY


UNITED STATES ENERGY FLUX DENSITY
(kW Per Capita, Divided by Fuel Source)
30
25
20
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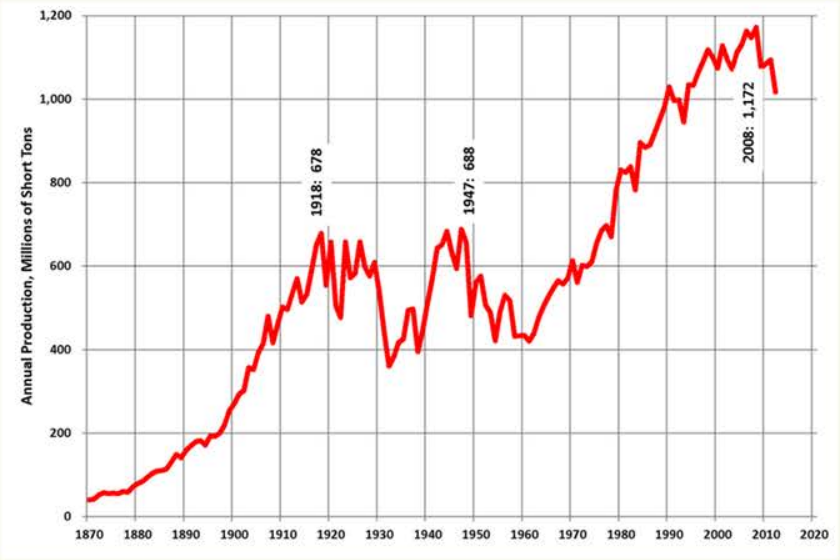
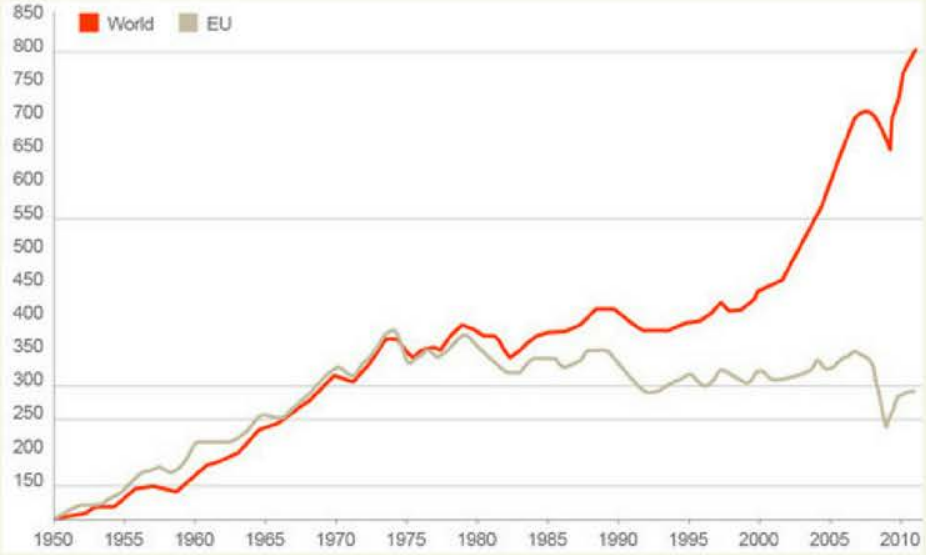
10
5
Fission
Oil &
Natural Gas
Coal
Wood
1780
1800
1825
1850
1875
1900
1925
1950
1975
2000

MATERIALS

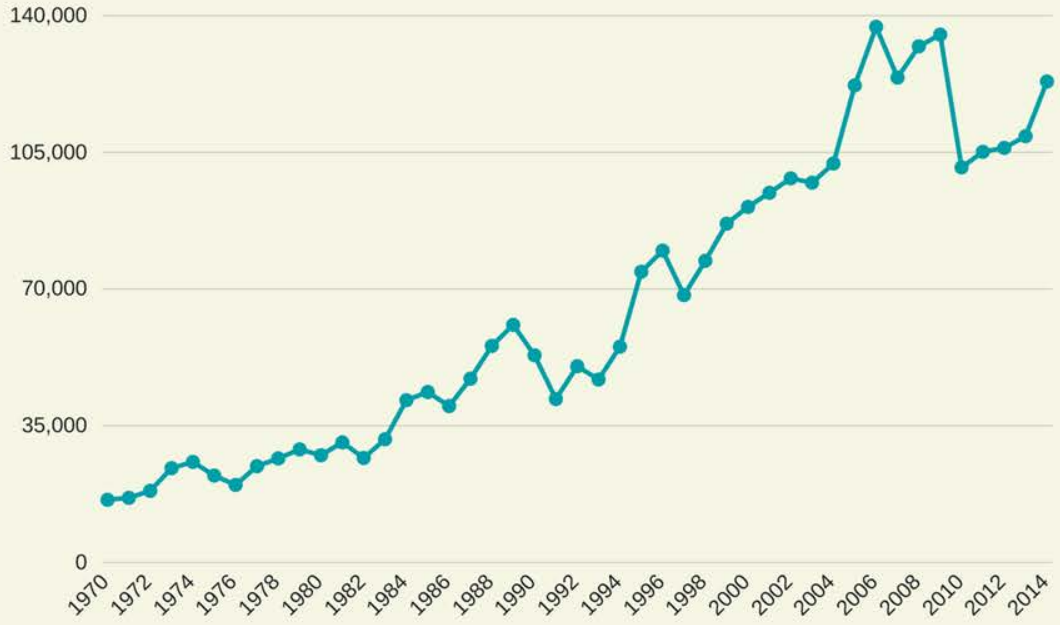


U.S. Coal: 1870 to 2010



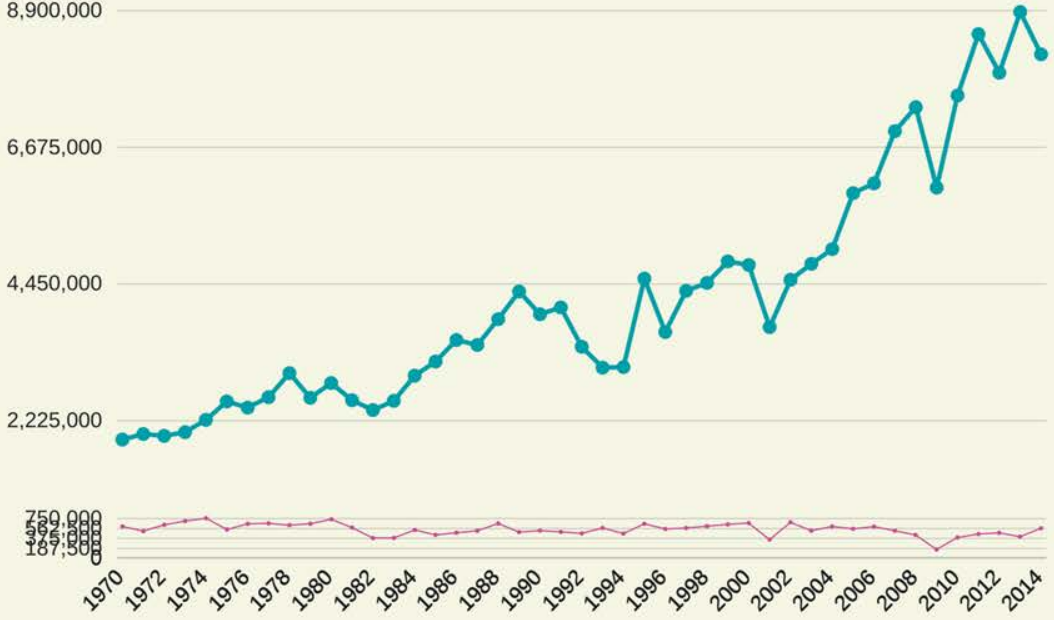
World Steel, 1950-2010

MATERIALS



World production of rare earths (tons).

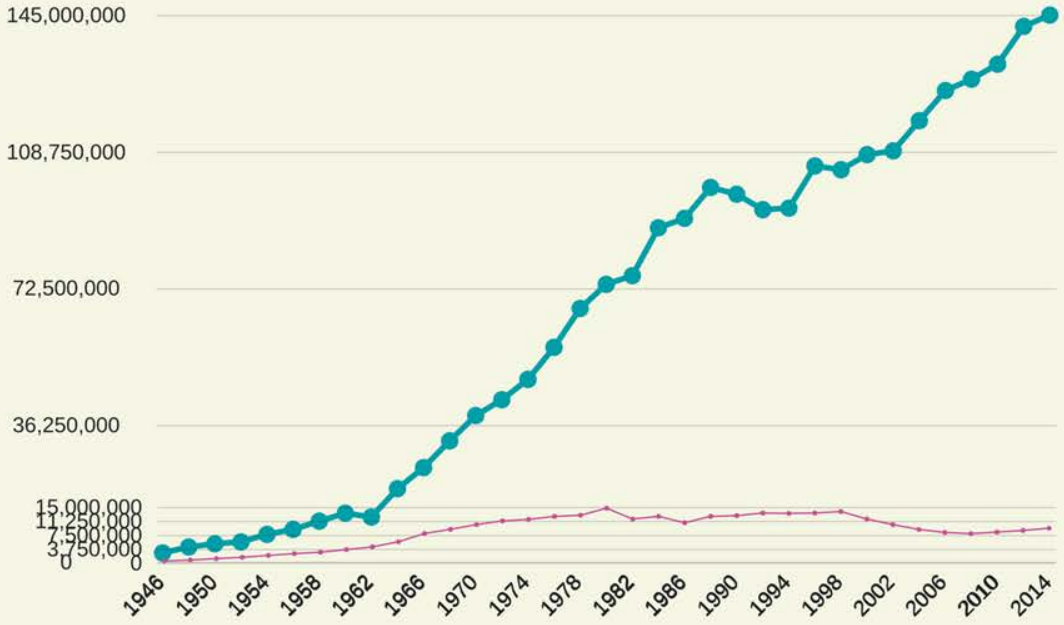
MATERIALS



World production of chromium (tons).

U.S. consumption

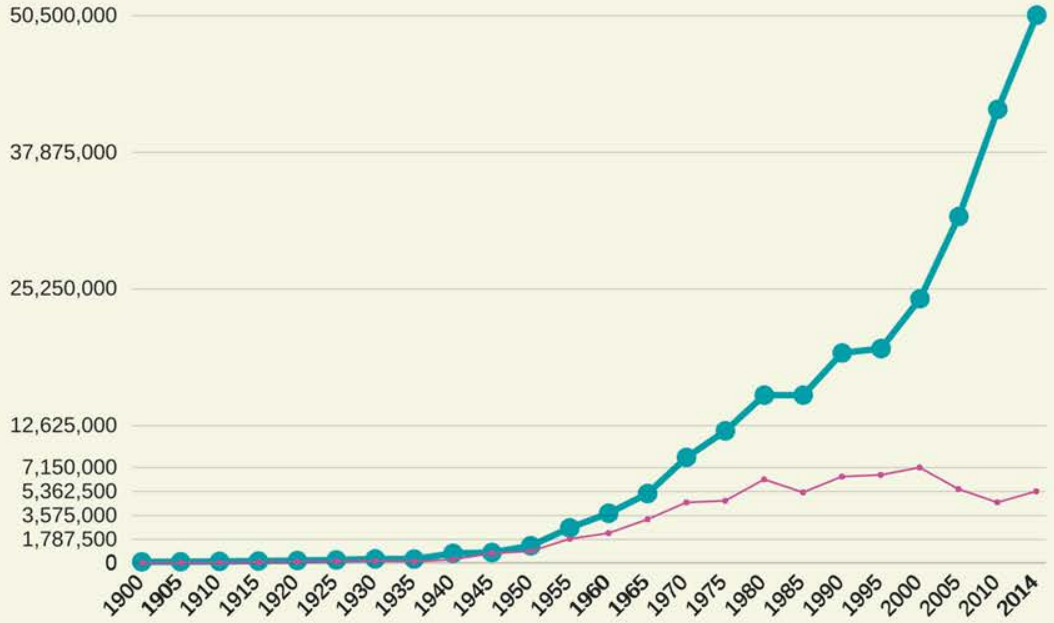
MATERIALS



World prodn of fixed nitrogen (tons).

U.S. production

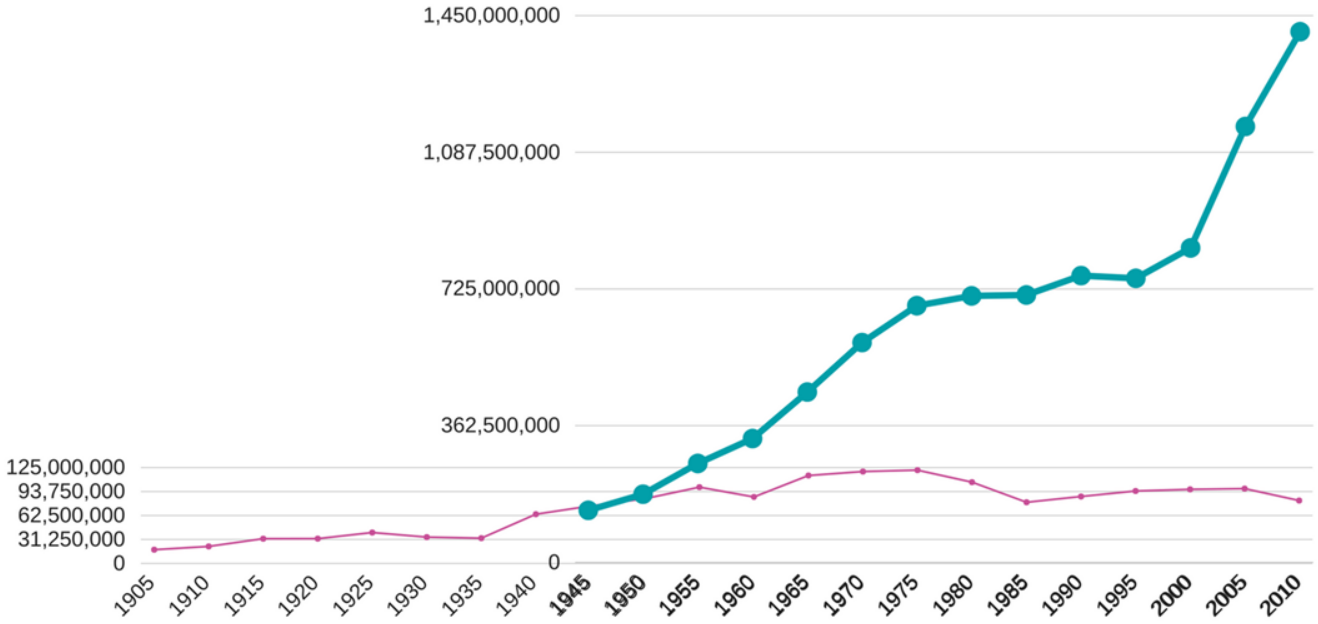
MATERIALS



World production of aluminum (tons).

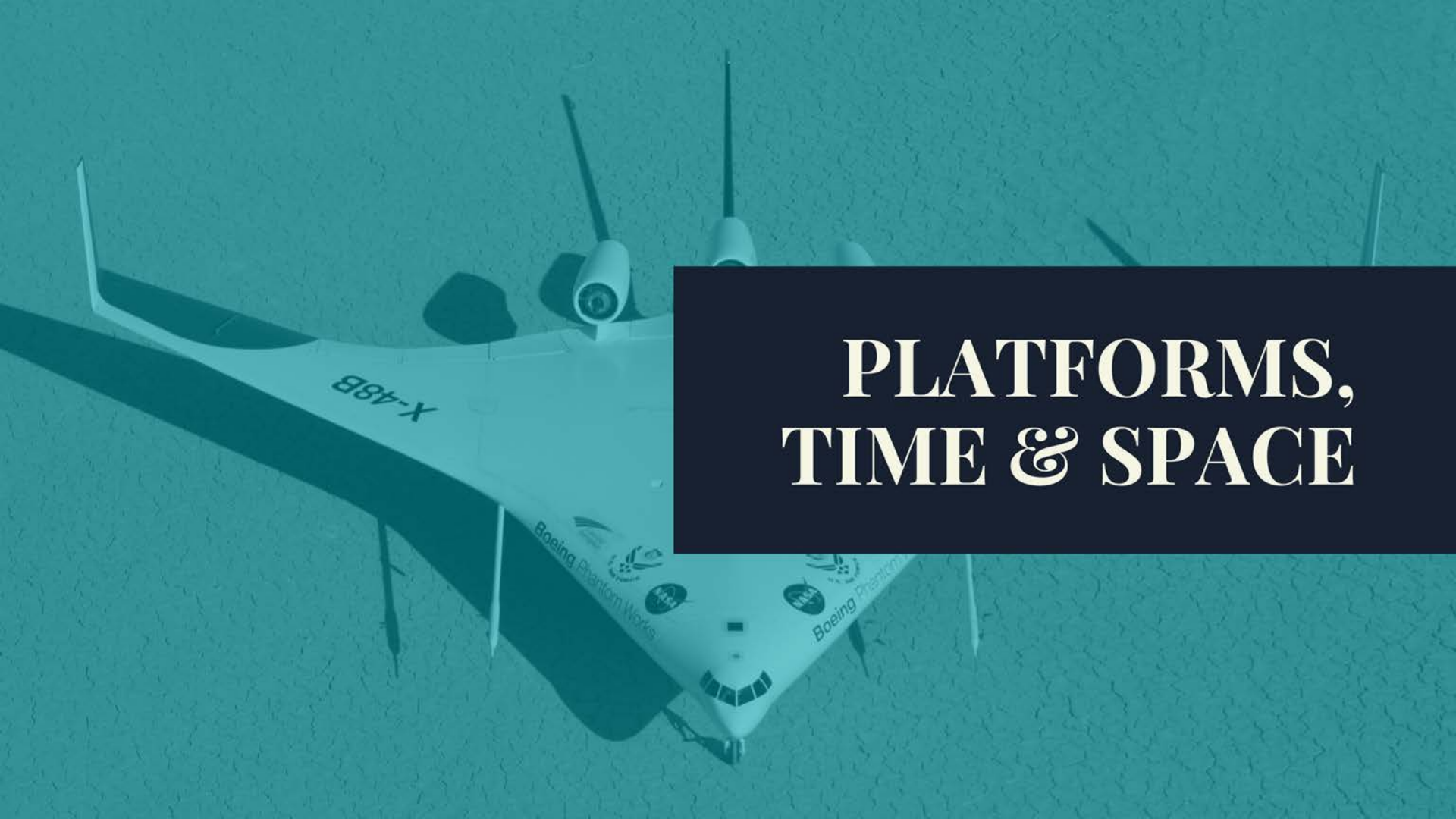
U.S. production

MATERIALS



World production of steel (tons).

U.S. production



PLATFORMS, TIME & SPACE

PLATFORMS

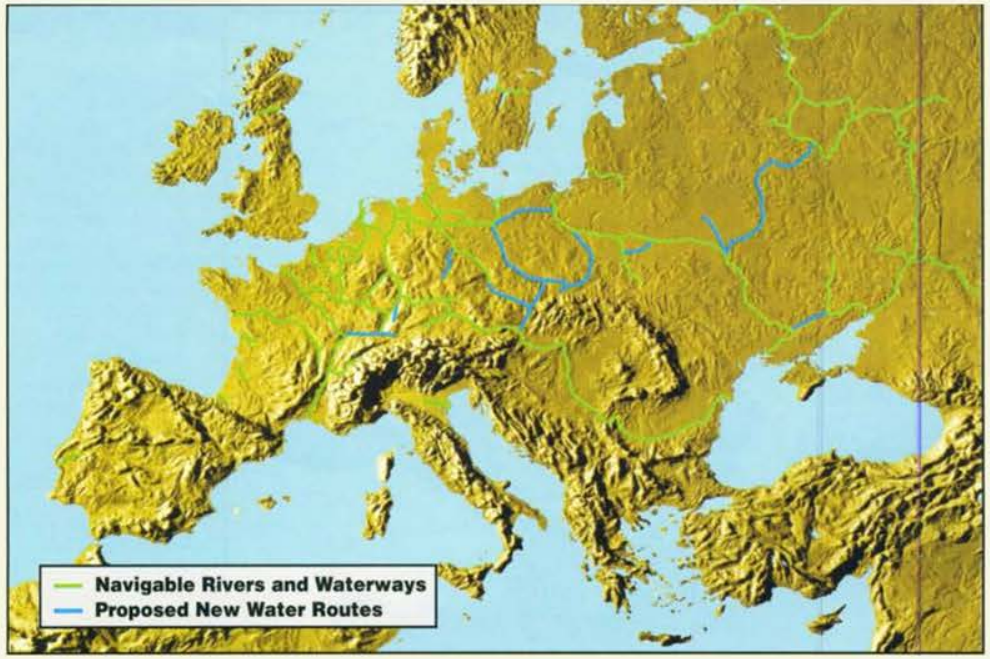
1. Preshistory. Trans-oceanic navigation. Astronomy.
2. Inland waterways, such as the canals of Charlemagne.
3. Rail and transcontinental rail. See the U.S. and its replication elsewhere.

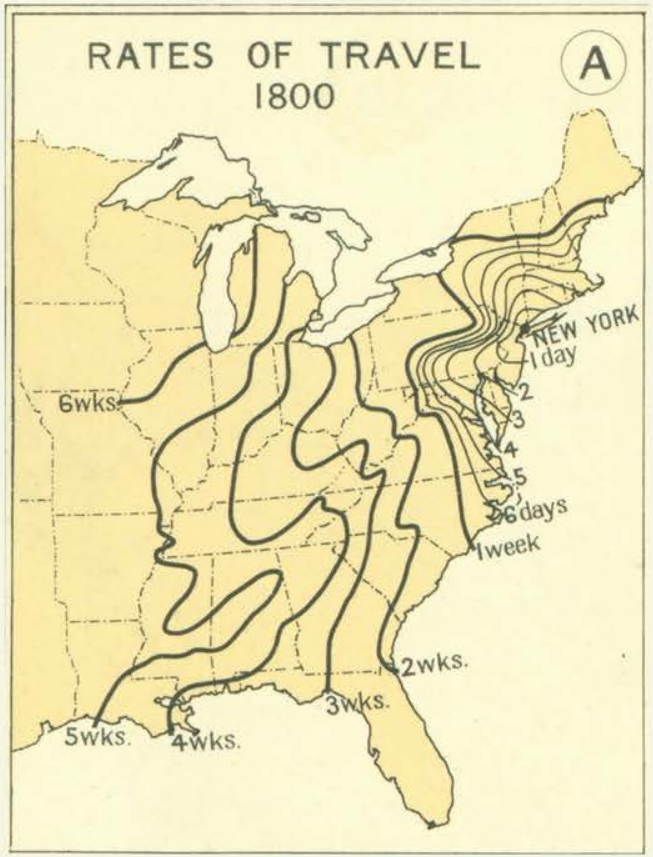
PLATFORMS

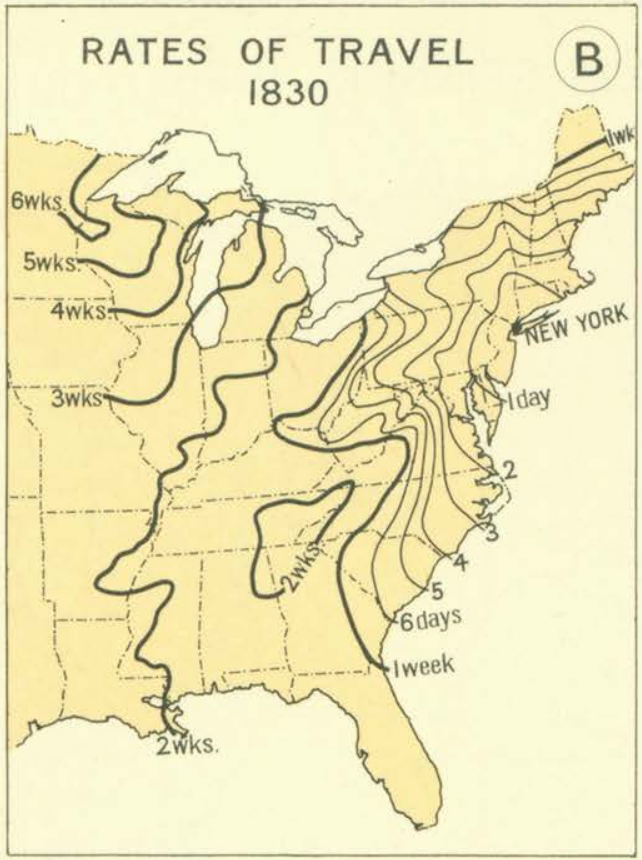
4 High-speed rail. Magnetically levitated rail.

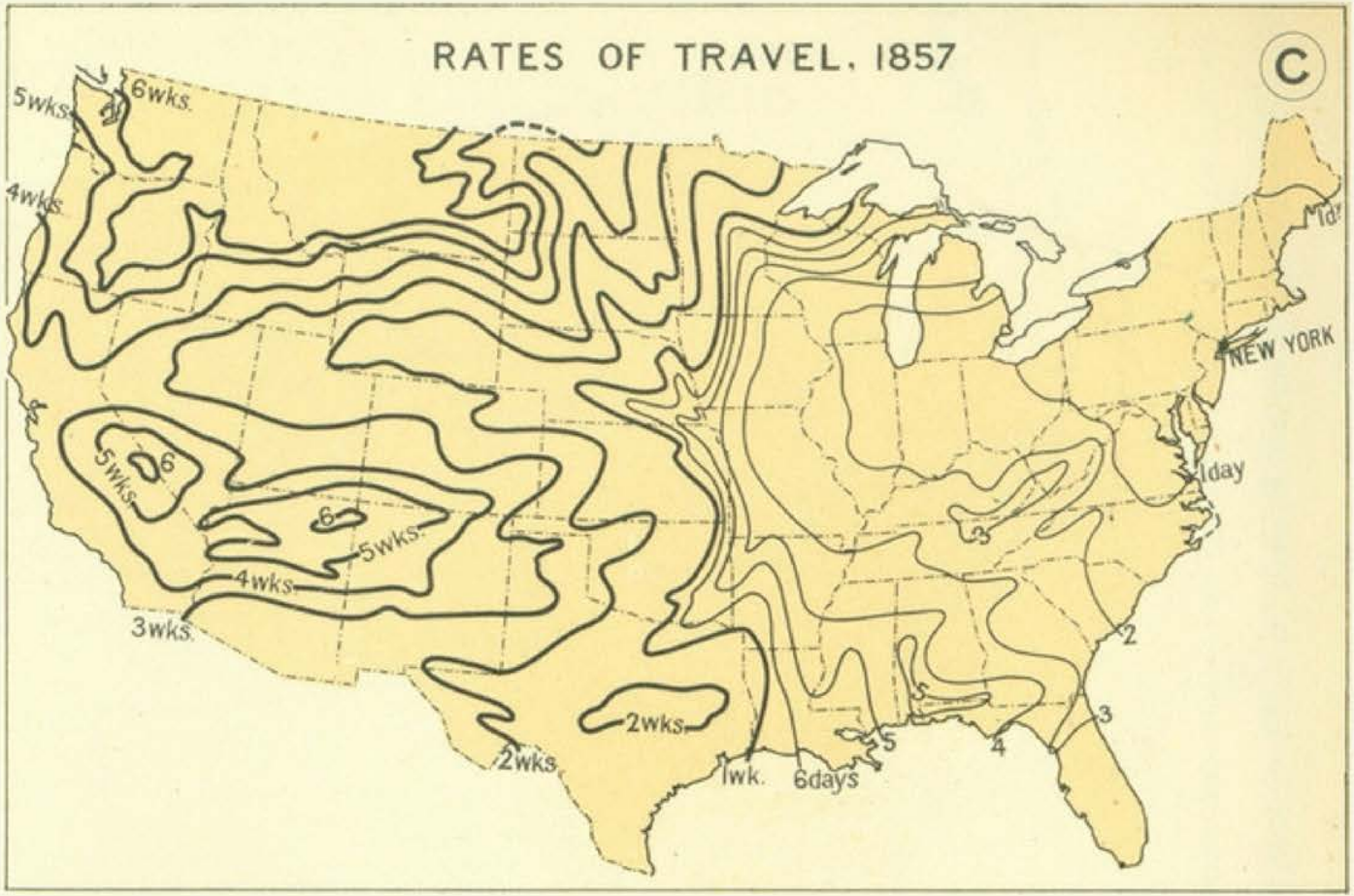
5 Nearby space. Industrialization of the moon.

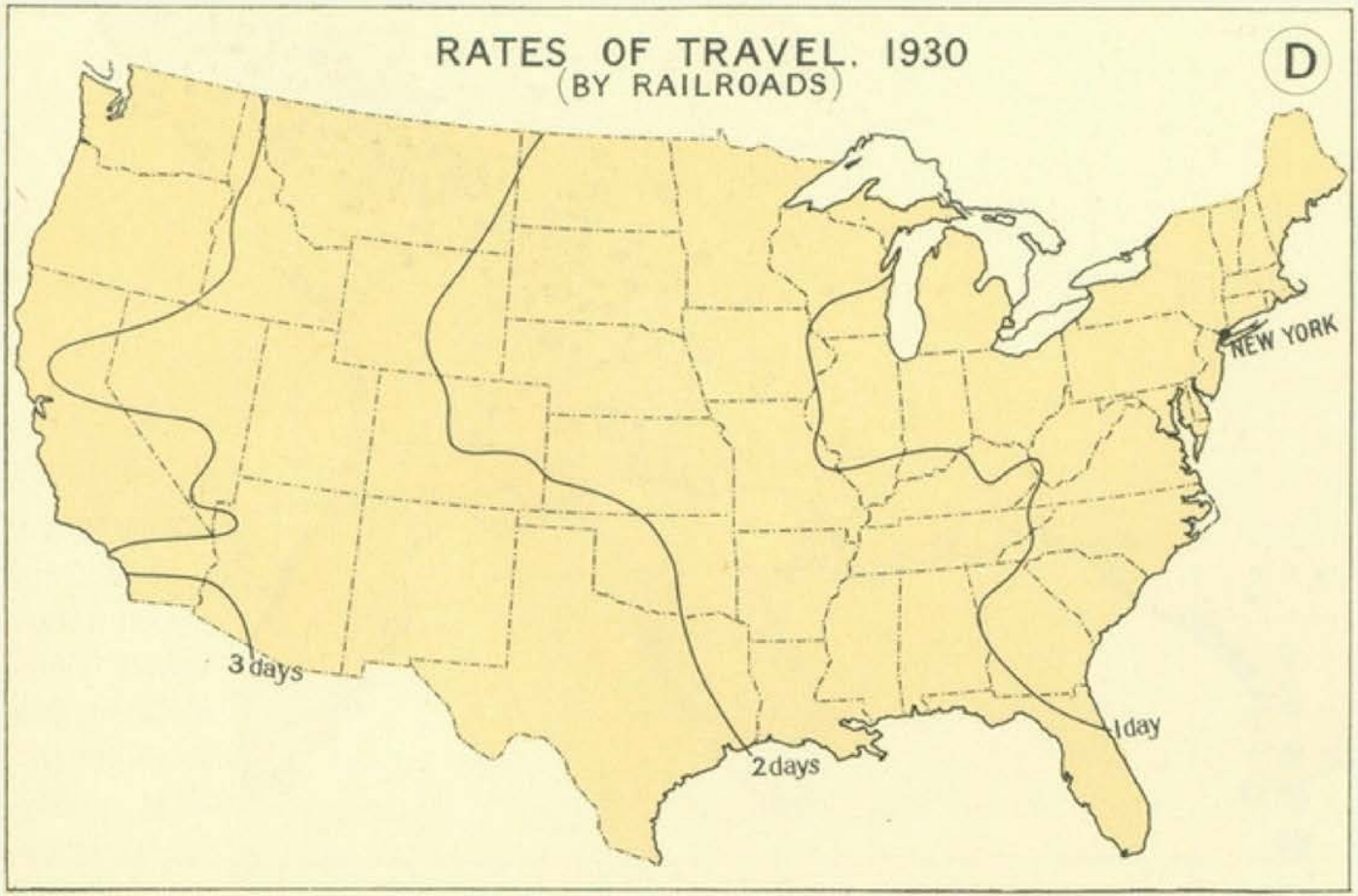
CANALS OF EUROPE



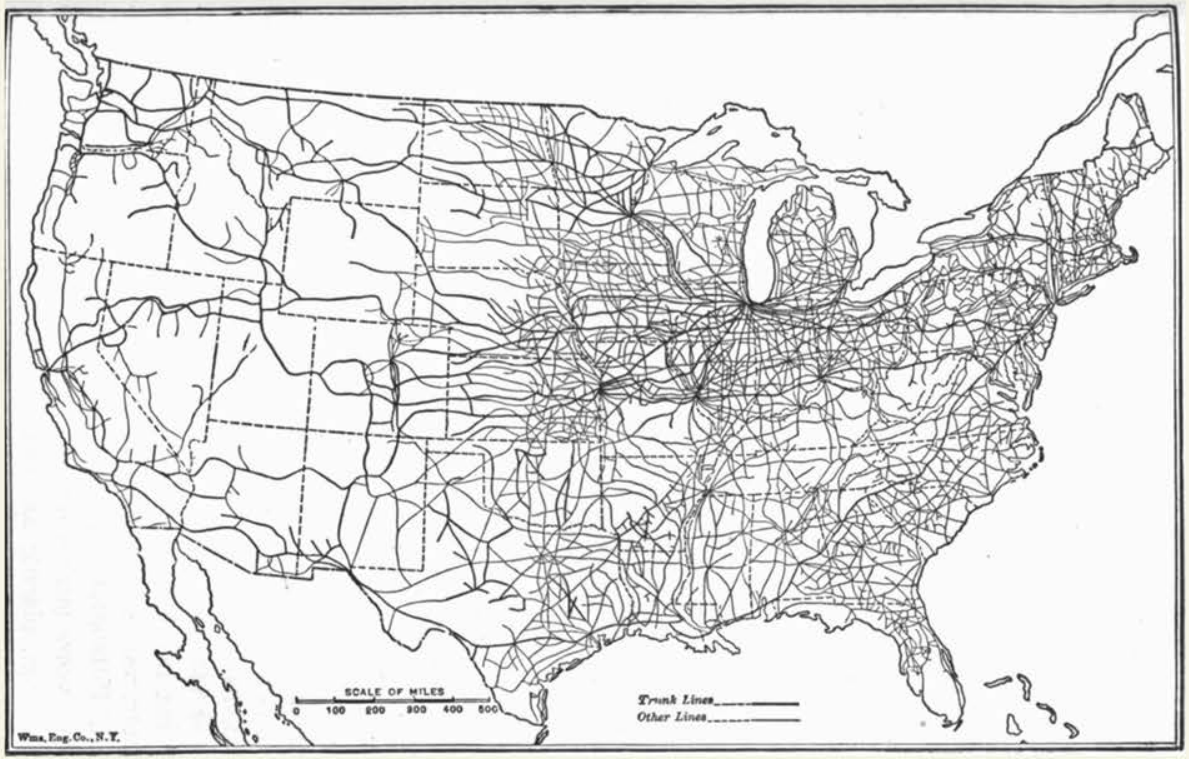

RATES OF TRAVEL
1800
A
NEW YORK
1 day
2
3
4
5
6 days
1 week
6wks.
2wks.
3wks.
4wks.
5wks.


RATES OF TRAVEL
1830
B
1wk
6wks.
5wks.
4wks.
3wks.
2wks.
NEW YORK
1 day
2
3
4
5
6 days
1 week


RATES OF TRAVEL. 1857
C
5wks.
6wks.
4wks.
NEW YORK
1day
5wks.
6
6
5wks.
4wks.
3wks.
2wks.
2wks.
1wk.
6days
2
3
4
5

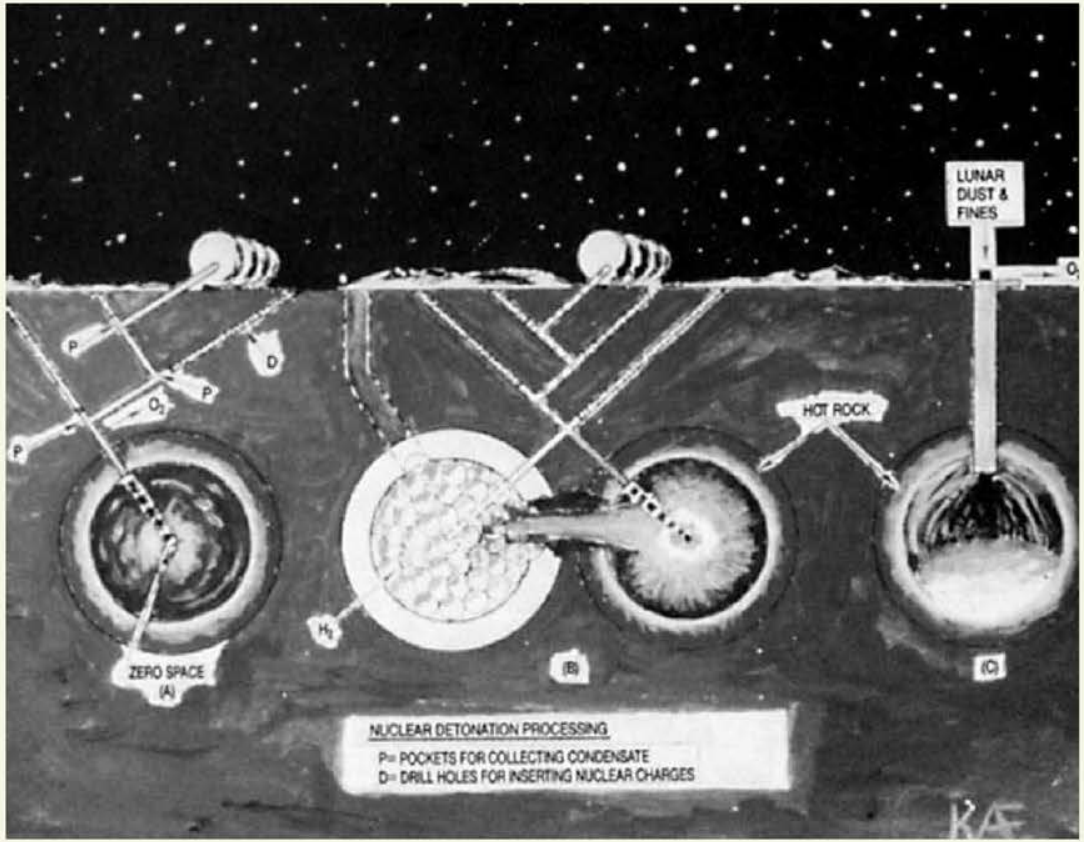

RATES OF TRAVEL. 1930
(BY RAILROADS)
D
NEW YORK
3 days
2 days
1 day

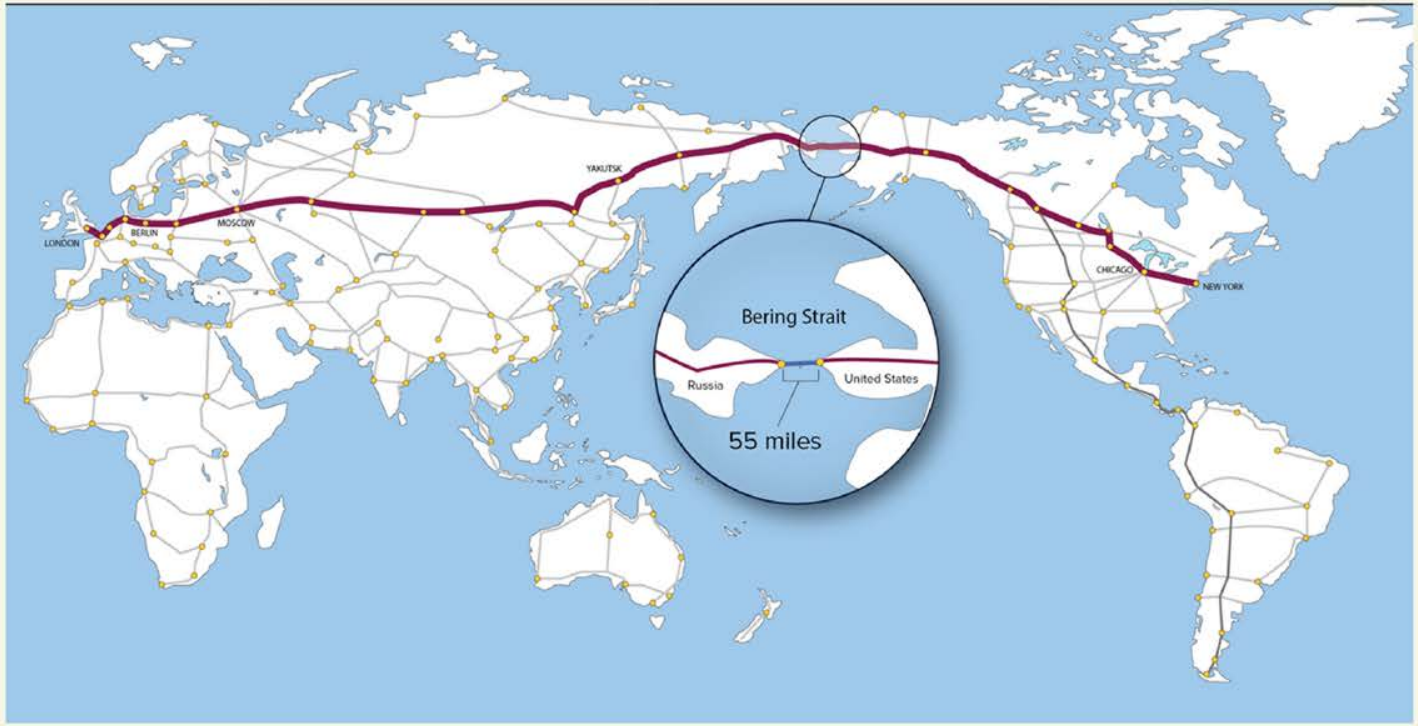
RAILROADS OF THE U.S.



CHINESE RAIL

LUNAR DEVELOPMENT




LONDON
BERLIN
MOSCOW
YAKUTSK
CHICAGO
NEW YORK
Bering Strait
Russia
United States
55 miles

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Joyous Africans Take to the Rails, With China's Help

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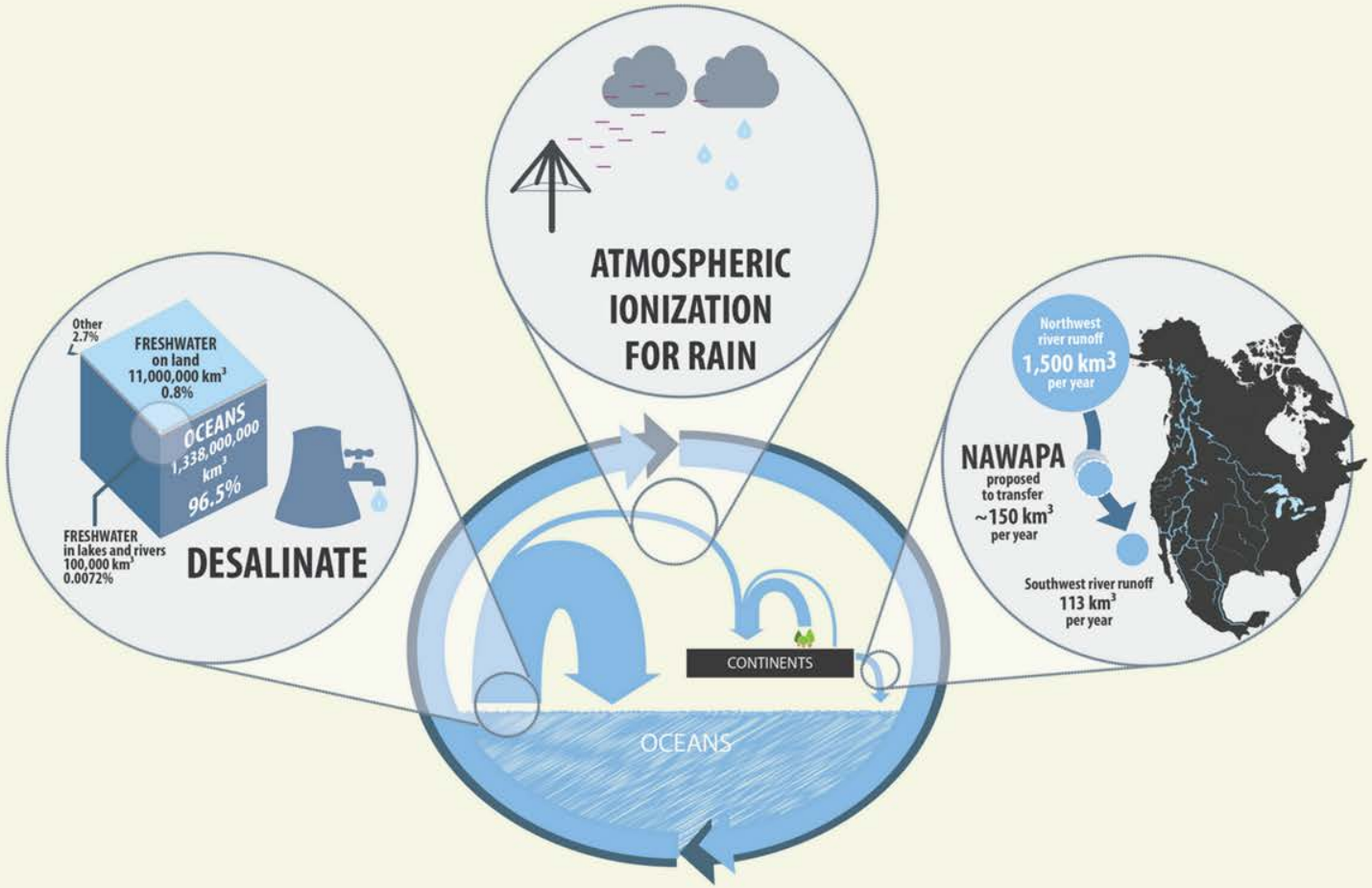
By ANDREW JACOBS FEB. 7, 2017

GULF OF THAILAND
PHATTALUNG
TRANG
SONGKHLA
HAT YAI
KRA CANAL
SATUN
THAILAND
THE KRA CANAL
AND THE
DEVELOPMENT
OF SOUTHEAST ASIA

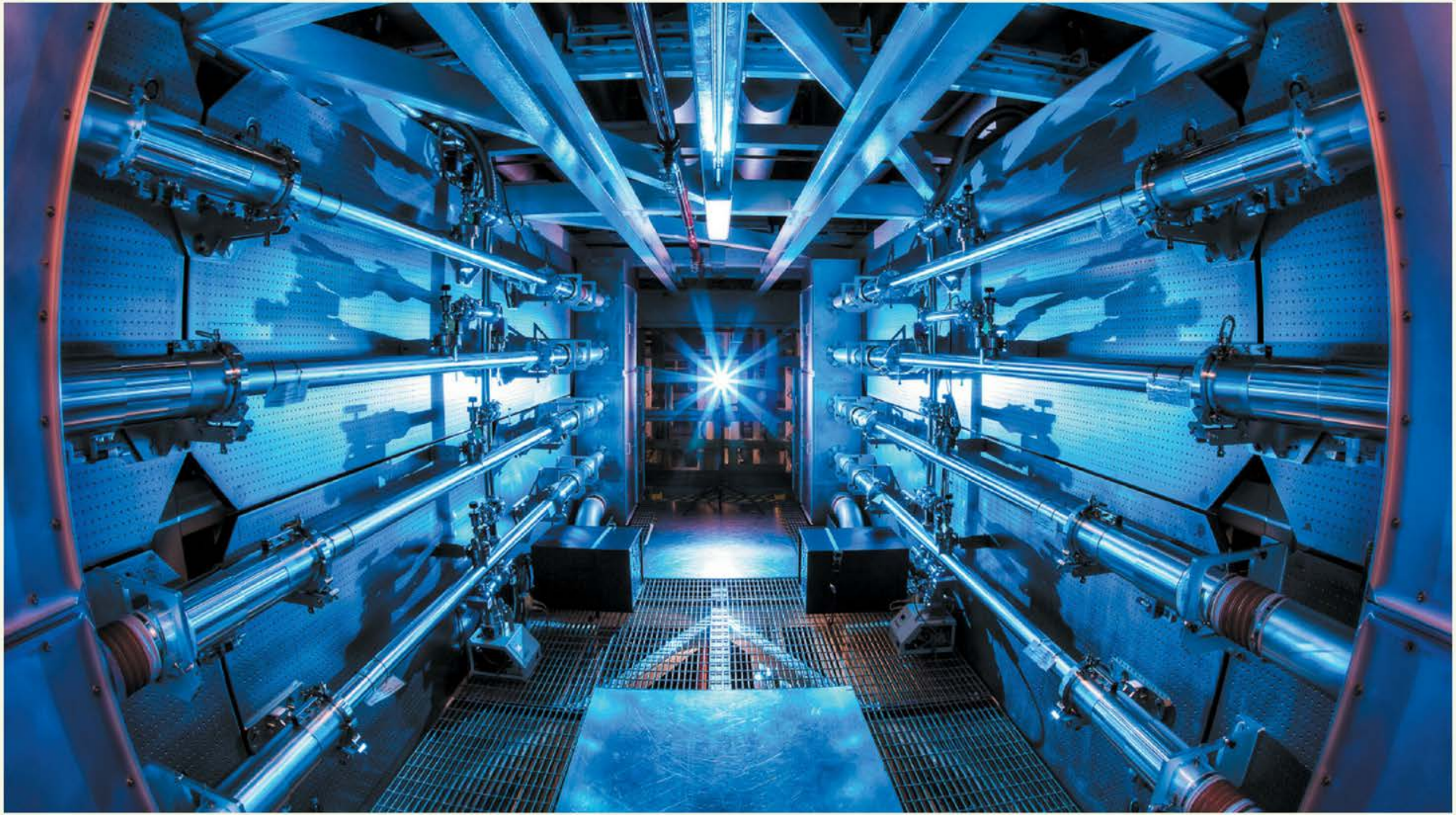
THE FUTURE

- Water
- Agriculture
- Materials
- Power

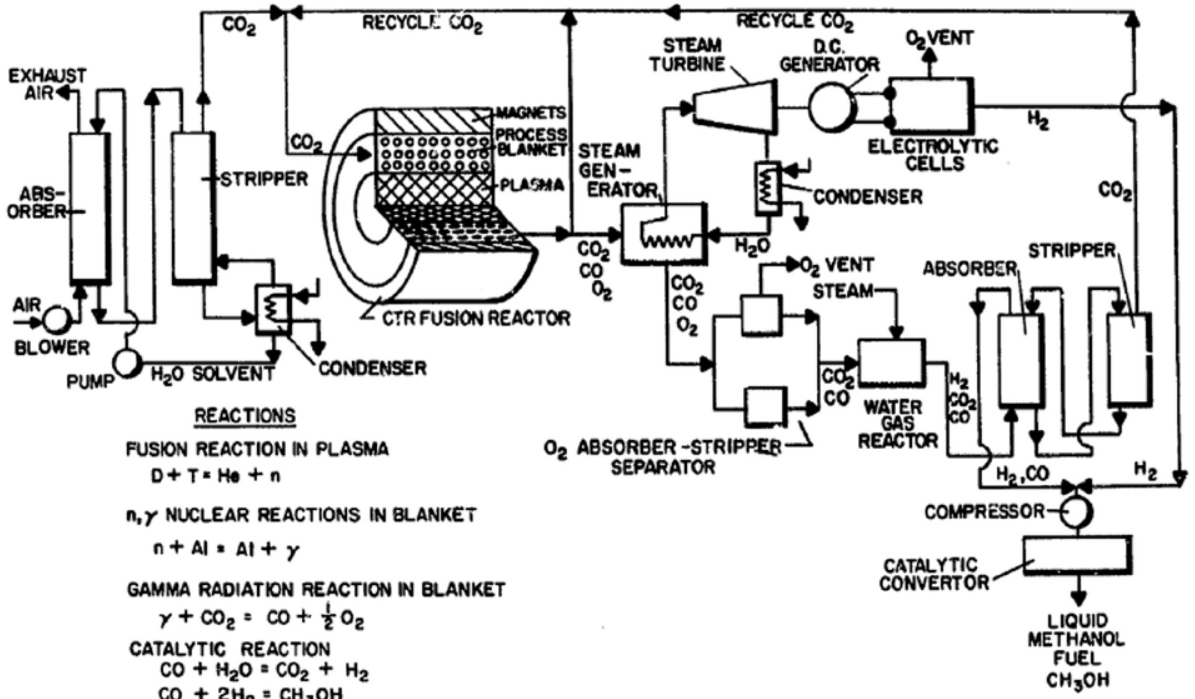

ATMOSPHERIC
IONIZATION
FOR RAIN
Other
2.7%
FRESHWATER
on land
11,000,000 km³
0.8%
OCEANS
1,338,000,000
km³
96.5%
FRESHWATER
in lakes and rivers
100,000 km³
0.0072%
DESALINATE
Northwest
river runoff
1,500 km3
per year
NAWAPA
proposed
to transfer
~150 km³
per year
Southwest river runoff
113 km³
per year
CONTINENTS
OCEANS

flickr / Ryan Griffis

wiki / Valcenteu



LIQUID METHANOL FUEL PRODUCTION
FROM AIR, WATER AND A
CONTROLLED THERMONUCLEAR FUSION REACTOR (CTR)



REACTIONS

FUSION REACTION IN PLASMA

$D + T = He + n$

n, γ NUCLEAR REACTIONS IN BLANKET

$n + Al = Al + \gamma$

GAMMA RADIATION REACTION IN BLANKET

$\gamma + CO_2 = CO + \frac{1}{2} O_2$

CATALYTIC REACTION

$CO + H_2O = CO_2 + H_2$

$CO + 2H_2 = CH_3OH$

ELECTROLYTIC REACTION

$2H_2O = 2H_2 + O_2$

Figure 6

KEY CONCEPTS

1. PHYSICAL CHEMISTRY

-

2. ECONOMIC “PLATFORMS”

-

3. DISCOVERY VS LOGIC AND AI

-

DISCOVERY: THE BASIS OF ECONOMY

DISCOVERY

- The human mind creates concepts that reflect, increasingly less imperfectly, how the universe works.
- Such discoveries always increase our power over nature.
- They are never final.

IMPLEMENTATION

- New ideas are created in the mind of the human individual.
- Create the social and physical environment to foster this.
- Education!

DISCOVERY

FUTURE DISCOVERIES

- Fusion
- Dark matter / galactic principles
- Cosmic rays

NEXT TIME

1. DISCOVERY: Albert Einstein vs Bertrand Russell. Creativity vs logic.

2. NON-SCALAR VALUES: Can the value of a new technology be expressed in a scalar relationship to the cost to develop it?

3. ABELIAN FUNCTIONS: How Bernhard Riemann's approach to complex functions provides a clue.

HOMEWORK

lpac.co/nyc-economics-classes

BE FRUITFUL, AND MULTIPLY!

LAROUCHEPAC.COM

You can contact Jason at jasonross.lpac@gmail.com