MODERN TECHNOLOGIES AND CONFLICTS

History, overview and ethics

26.9. 2018

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"WE'VE ARRANGED A GLOBAL CIVILIZATION IN WHICH MOST CRUCIAL ELEMENTS PROFOUNDLY DEPEND ON SCIENCE AND TECHNOLOGY. WE HAVE ALSO ARRANGED THINGS SO THAT ALMOST NO ONE UNDERSTANDS SCIENCE AND TECHNOLOGY. THIS IS A PRESCRIPTION FOR DISASTER. WE MIGHT GET AWAY WITH IT FOR A WHILE, BUT SOONER OR LATER THIS COMBUSTIBLE MIXTURE OF IGNORANCE AND POWER IS GOING TO BLOW UP IN OUR FACES."

– CARL SAGAN, 1995

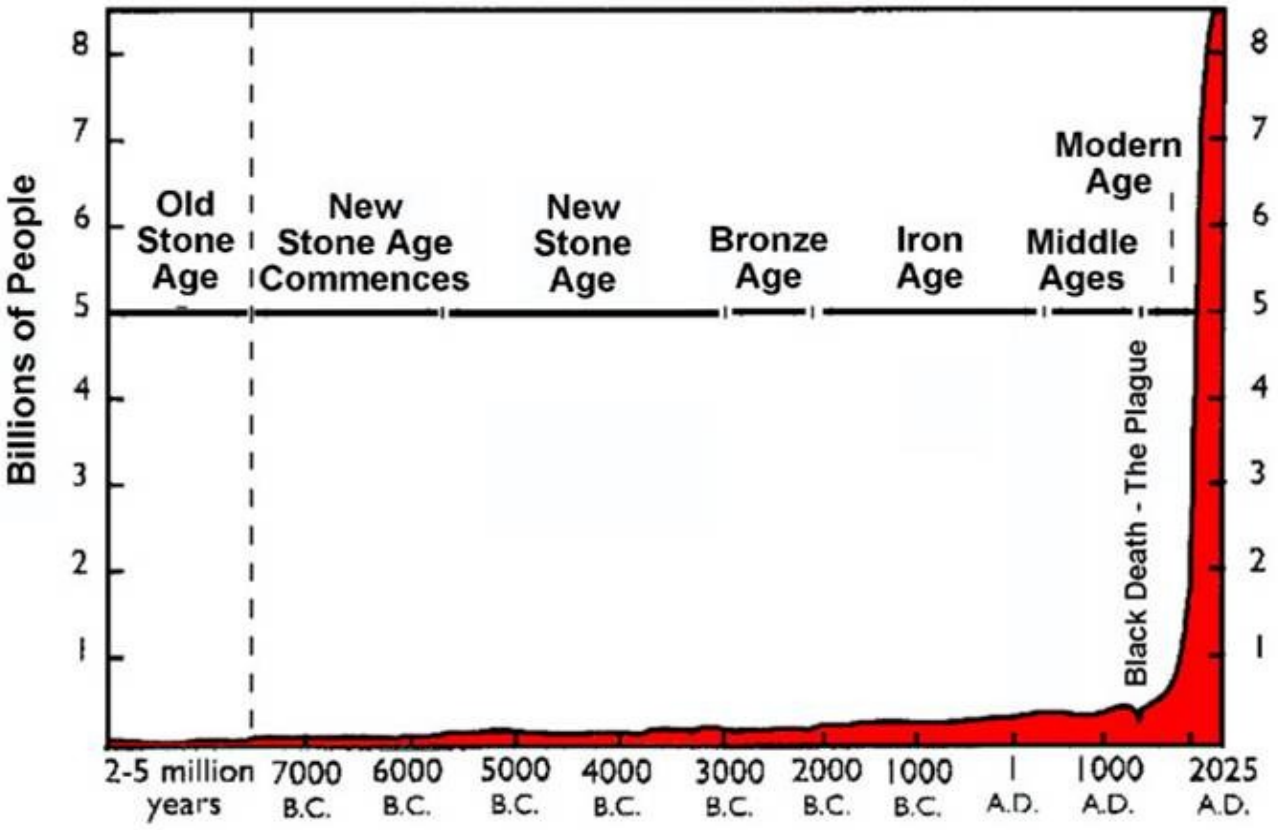
LONGTERM TRENDS

- technology frees up people from doing previously necessary work and enables them to do something new instead
- new professions and sectors are created, influencing the rest of society
- all kinds of conflict (military and social) drive new science
- it is never possible to predict all outcomes of research

FRITZ HABER

- 1918 Nobel price for the “Haber-Bosch process”
  - fixation of atmospheric nitrogen into ammonia (NH_3)
  - currently uses about 1-2% of global energy budget
  - we produce about 400 million tons of it
- pillar of agriculture (fertilizer)
  - quadruples effectivity
  - ⅔ of produced food
- it was a prerequisite of the population boom

World Population Growth Through History



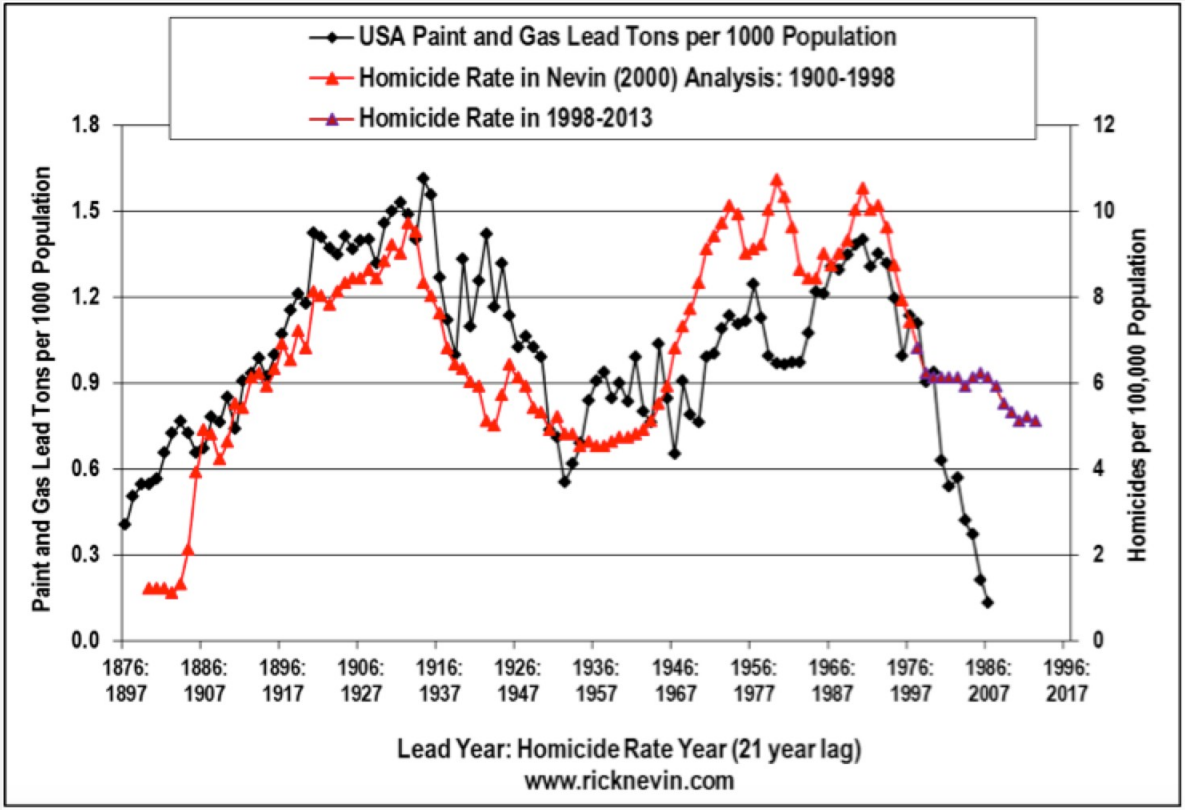
From "World Population: Toward the Next Century," copyright 1994 by the Population Reference Bureau

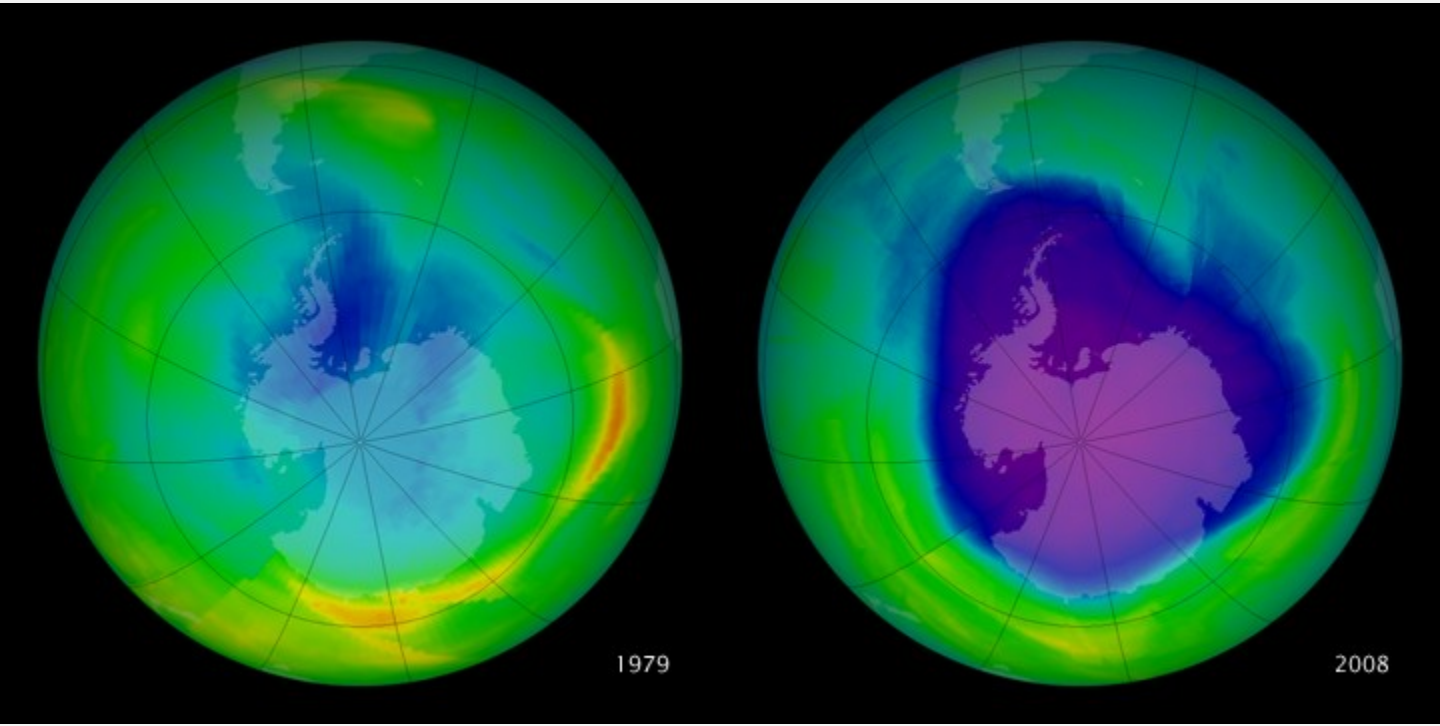
FRITZ HABER AND THE WAR

- but nitrogen is also used in explosives
- and he worked on chemical weapons:
  - chlorine gas
  - yperite (mustard gas)
- and his work was basis for future development of Zyklon A
  - (originally used as insecticide)

THOMAS MIDGLEY

- famous and decorated chemist
- 1921 invented leaded gasoline (TEL)
- 1928 invented freons (CFCs)


USA Paint and Gas Lead Tons per 1000 Population
Homicide Rate in Nevin (2000) Analysis: 1900-1998
Homicide Rate in 1998-2013
Paint and Gas Lead Tons per 1000 Population
Homicides per 100,000 Population
1.8
1.5
1.2
0.9
0.6
0.3
0.0
12
10
8
6
4
2
0
1876: 1897
1886: 1907
1896: 1917
1906: 1927
1916: 1937
1926: 1947
1936: 1957
1946: 1967
1956: 1977
1966: 1987
1976: 1997
1986: 2007
1996: 2017
Lead Year: Homicide Rate Year (21 year lag)
www.ricknevin.com


1979
2008

"Give your throat a vacation...

Smoke a FRESH cigarette"

IF the cigarette you have been smoking stings or burns your throat, switch to Camels and see the difference.

It's the peppery dust left in tobacco by inefficient cleaning methods that makes you cough.

It's the unkindly hot smoke of harsh, dried-out tobacco that burns and irritates your throat.

There is no peppery dust in Camels—that's whisked away by a special vacuum-cleaning process.

There are no stale, crumbly, parched tobaccos—the fine Turkish and mild Domestic tobaccos of which Camels are blended come to you in prime, factory-fresh condition, thanks to the Humidor Pack.

This scientific germ-safe wrapping—not plain ordinary Cellophane, but *moisture-proof* Cellophane which costs nearly twice as much—seals in all the natural aroma and freshness, seals it so tightly that wet weather cannot make Camels damp, nor drought weather make them dry.

Camels are milder and more throat-friendly because they are dust-free and fresh.

Give your throat a vacation, switch to Camels for just one day. Then leave them—if you can.

Tune in CAMEL QUARTER HOUR featuring Morton Downey and Tony Wons — Camel Orchestra, direction Jacques Renard — Columbia System — every night except Sunday

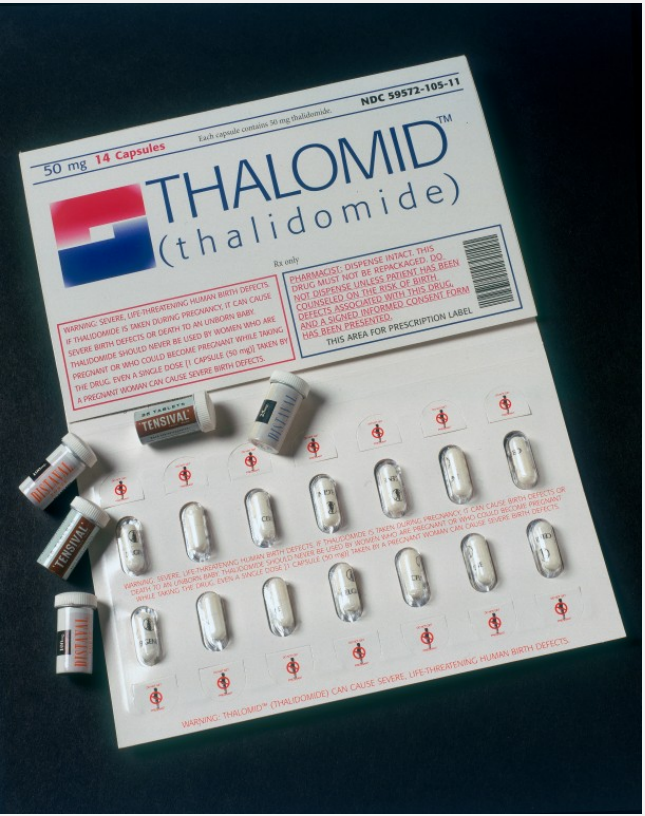
CAMELS

Mild . . . NO CIGARETTY AFTER-TASTE

© 1935, R. J. Reynolds Tobacco Company

Don't remove the moisture-proof wrapping from your package of Camels after you open it. The Humidor Pack is protection against dust and germs. In offices and homes, even in the dry atmosphere of artificial heat, the Humidor Pack delivers fresh Camels and keeps them right until the last one has been smoked

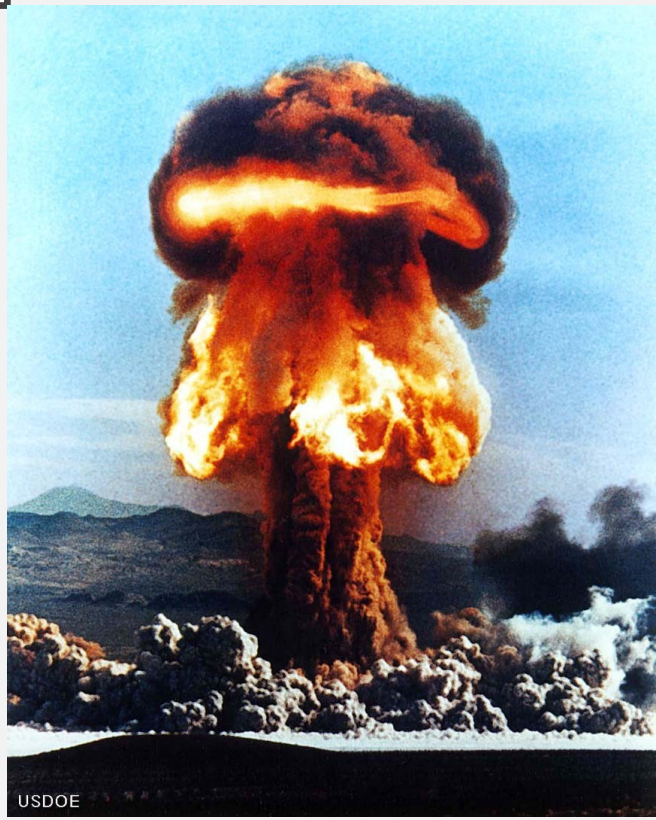
D.D.T.


50 mg 14 Capsules
Each capsule contains 50 mg thalidomide.
NDC 59572-105-11
THALOMID™
(thalidomide)
Rx only
WARNING: SEVERE, LIFE-THREATENING HUMAN BIRTH DEFECTS
IF THALIDOMIDE IS TAKEN DURING PREGNANCY, IT CAN CAUSE SEVERE BIRTH DEFECTS OR DEATH TO AN UNBORN BABY.
THALIDOMIDE SHOULD NEVER BE USED BY WOMEN WHO ARE PREGNANT OR WHO COULD BECOME PREGNANT WHILE TAKING THE DRUG. EVEN A SINGLE DOSE (1 CAPSULE (50 mg)) TAKEN BY A PREGNANT WOMAN CAN CAUSE SEVERE BIRTH DEFECTS.
PHARMACIST: DISPENSE INTACT. THIS DRUG MUST NOT BE REPACKAGED. DO NOT DISPENSE UNLESS PATIENT HAS BEEN COUNSELED ON THE RISK OF BIRTH DEFECTS ASSOCIATED WITH THIS DRUG, AND A SIGNED, INFORMED CONSENT FORM HAS BEEN PRESENTED.
THIS AREA FOR PRESCRIPTION LABEL
TENSIVAL
WARNING: THALOMID™ (THALIDOMIDE) CAN CAUSE SEVERE, LIFE-THREATENING HUMAN BIRTH DEFECTS.

NUCLEAR WEAPONS

- Ernest Rutherford discovered atomic nucleus (1911)
- Germany vs. USA
  - http://dai.ly/x24gwgc?start=913
    - 15:13-20:13 (Feynman)
  - https://vimeo.com/128088968
    - 15:06-21:21 (Bagge + Weizsacker)

- various rationalizations
- impact on future?
  - Hiroshima, Nagasaki
  - Cold War
  - energy generation



MEDICINE

- intimately connected with wars and human experimentation
- Archibald McIndoe (plastic surgery)
- Dwight Harken (heart surgery)

- PTSD/Gulf War Syndrome/Shell Shock

ARTIFICIAL LIMBS

- https://www.youtube.com/watch?v=F_brnKz_2tI

ETHICS AND REGULATION OF SCIENCE

- are wars good for science?
- can science be separated from politics and should it?
- who should decide what to research?
- who is or should be responsible for the results?