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US affiliate of  
International Physicians for the Prevention of  
Nuclear War



May 31, 1962

**“The Medical Consequences  
of Thermonuclear War”**

## Fundamental Issues

- 1.No safe dose of radiation
- 2.Nature of the Nuclear industrial complex
- 3.Reality of radiation releases

## The Nuclear Industrial Complex (NIC)

The Nuclear Industrial Complex



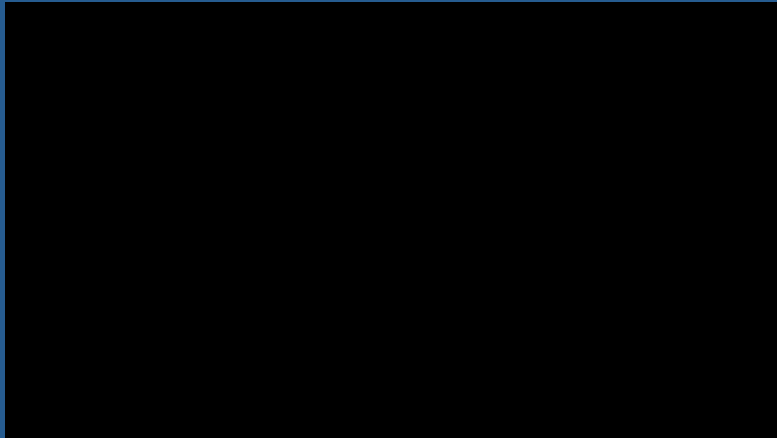
## The Three Poisonous P's of Nuclear Industrial Complex

Price  
Pollution  
Proliferation

## Hallmarks of Nuclear Industrial Complex

- Secrecy
- Coverup
- Minimization

No harm to human health



There is no safe dose of radiation

## The 4 R's

- It is a great privilege to be alive at a time in the world's history when a discovery akin to finding fire or electricity comes along...
- There used to be 3 R's that everyone had to learn: Reading, 'riting, and 'rithmetic, to this we must now add a fourth R: Radiation
  - David Lilienthal 1st Chairman AEC 1949

## Biologic Effects of Ionizing Radiation (BEIR VII ) National Academy of Science

- Low doses of radiation
    - Direct linear relationship between dose and development of solid tumors
      - BEIR VII June 2005
- There is no “safe” dose of radiation

## Cancer and the Effects of Radiation

- A single exposure is sufficient to increase cancer incidence years later
- Radiation induced cancer is indistinguishable from naturally induced cancer
- Most cancers are increased in incidence after irradiation

» Boise, A.D.  
» ACS conference, 1980

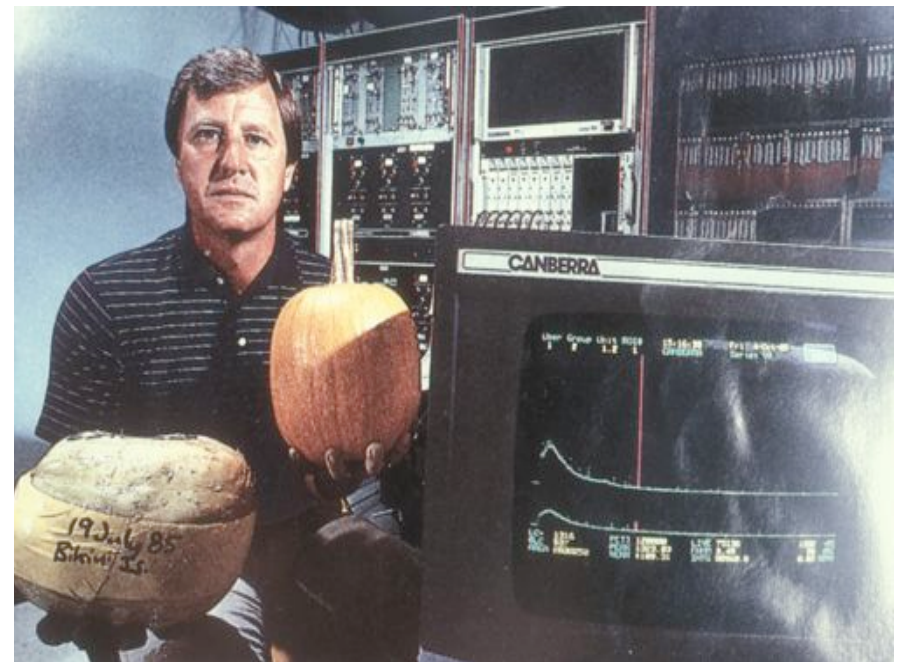


Troops at "Camp Desert Rock" (the Nevada Test Site) observe a mushroom cloud following the test on November 1, 1951. Source: Defense Special Weapons Agency



4-10 BAKER DAY: NUCLEAR EXPLOSIONS GO UNDERWATER

## The Lucky Dragon







Dr. Alice Stewart

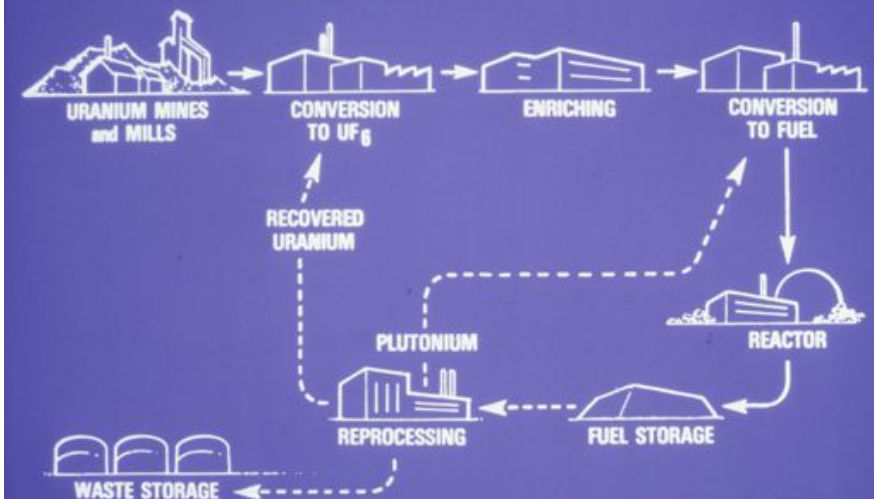
## Dr. Alice Stewart

- Effects of xRay on unborn fetus
  - 1 pelvic xray increases the chance of child developing leukemia by 1.5
  - Pelvimetry was common 25 years ago

## Radiation Risks

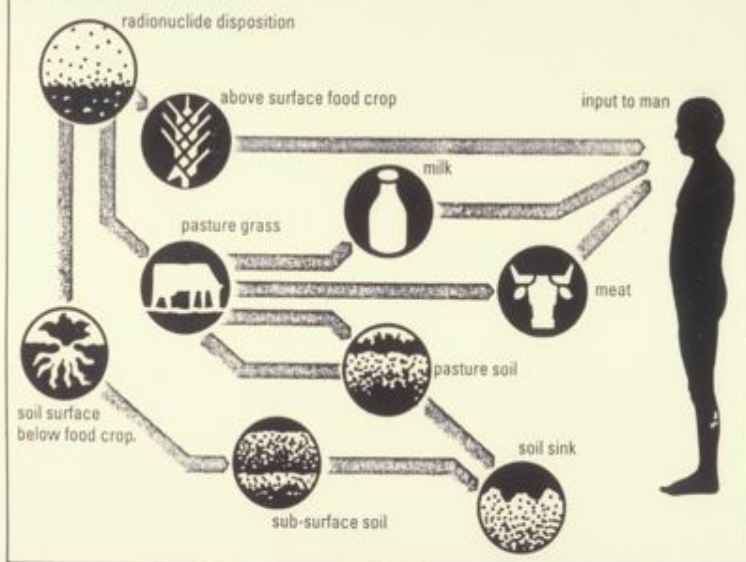
- One individual in 1000 will develop cancer from 10 mSv exposure (a whole body CT scan)
  - Chest xray = 0.1 mSv = 10mRem

Figure 2: The Nuclear Fuel Cycle





### 3.6 ENVIRONMENTAL PATHWAYS



## Isotope half lives

- Iodine 131 8 days Thyroid
- Strontium 90 29 yrs Bone, teeth
- Cesium 137 30 yrs Soft tissue, muscle
- Plutonium 239 24,000yrs Lung, kidney blood, spleen

## Natural Disasters

- Begin
- Middle
- End

## Radiation

- Contaminates, befouls, penetrates, pollutes
- Silent and unseen
- Frightens in new and special ways
- Dread lingers on and on

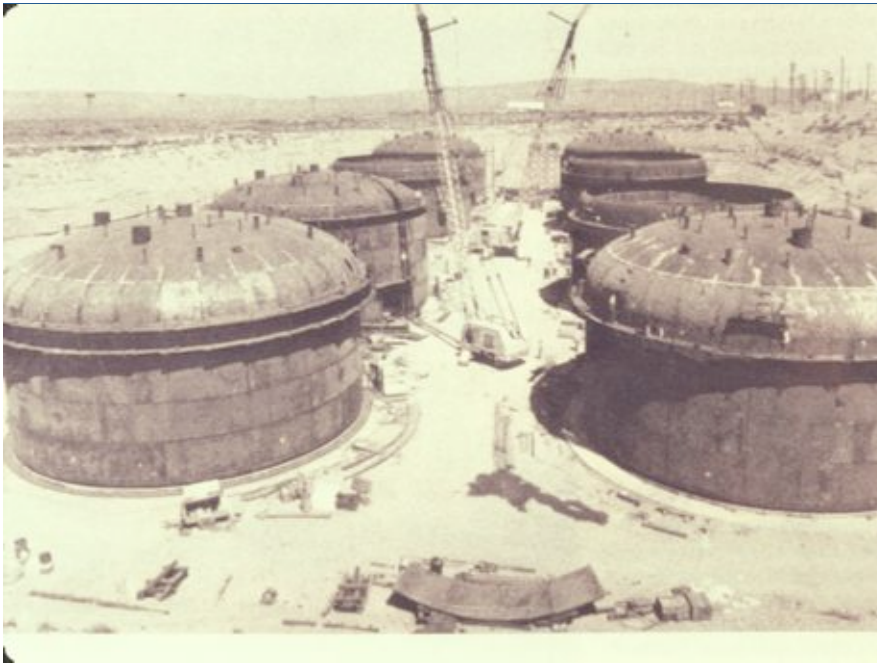
## Radiation disasters

Nuclear explosions 1945-1998  
Kyshtym (Chelyabinsk) 1957  
Three Mile Island 1979  
Chernobyl 1986  
Fukushima 2011

## Kyshtym 1957

- Explosion of storage tank (similar to Hanford)
- 217 Villages destroyed
- 10,000 People evacuated over 2 year
- CIA knew of incident—Kept secret



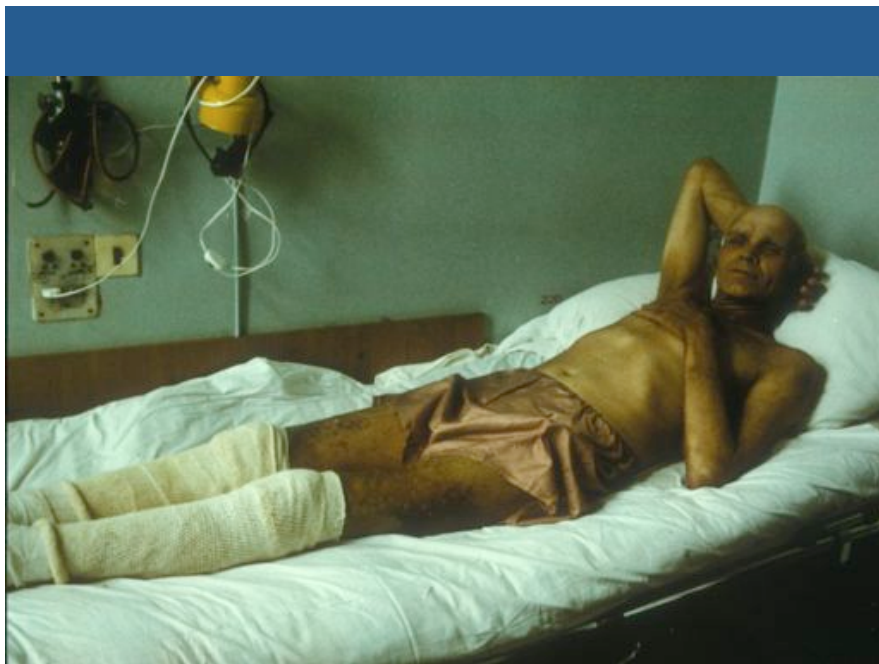
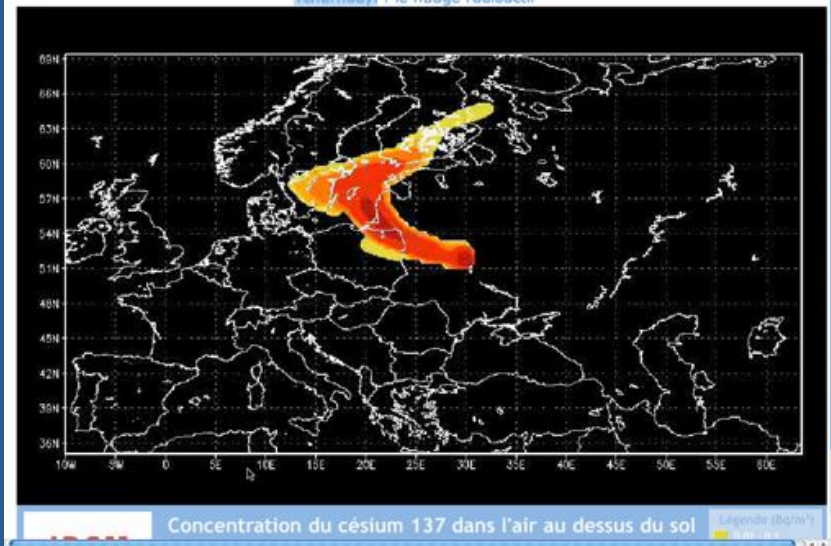


## Kyshtym

- Radiation cloud moved 350 KM
- Contaminated 800 square KM
- Still off limits as the East-Ural Radioactive Trace (EURT)



Tchernobyl : le nuage radioactif





## Conflicting Data regarding Chernobyl

- WHO/IAEA 56 deaths from radiation
  - 4000 eventual deaths
- International Agency for Research on Cancer
  - 16,000 eventual deaths
- Belarus Academy of Science
  - 93,000 deaths, 270,000 Cancers

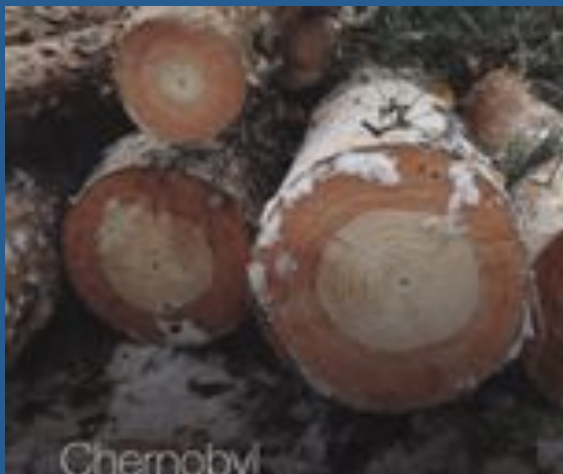
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## Conflicting data regarding Chernobyl

- Russian Academy Science
  - 60,000 deaths in Russia
  - 140,000 deaths in Ukraine and Belarus
- Belarus Academy of Science
  - 93,000 deaths, 270,000 Cancers
- Ukranian National commission
  - 500,000 deaths so far

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## Chernobyl ecosystem



## Chernobyl barn swallows

- Reduced adult population by 43%
  - Reduced males by 24%
  - Reduced females by 57%
- Excess annual mortality of 1.8 million birds
- Elevated Mortality among Birds in Chernobyl as Judged from Skewed Age and Sex Ratios
  - Moller, Alquati, Rudolfsen, Mousseau, 2012

## New Chernobyl Sarcophagus



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## Fukushima



## Fukushima



Fukushima explosion 2



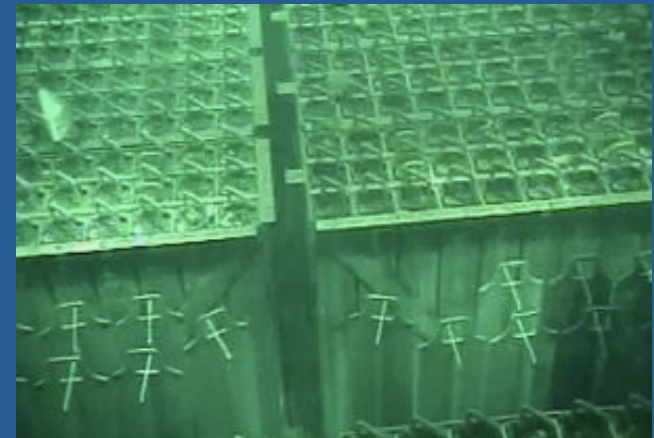
Fukushima explosion 3



Fukushima



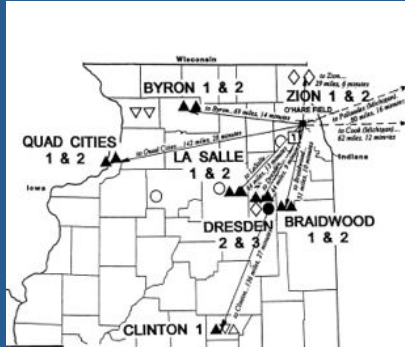
Fukushima fuel rods 4





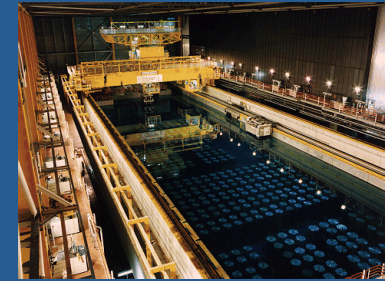
## Nuclear Power Plants in the US

- 104 operating nuclear power plants and 36 non-power reactors in the US
- 11 operating plants in Northern Illinois
- Produce 8% of the nation's energy

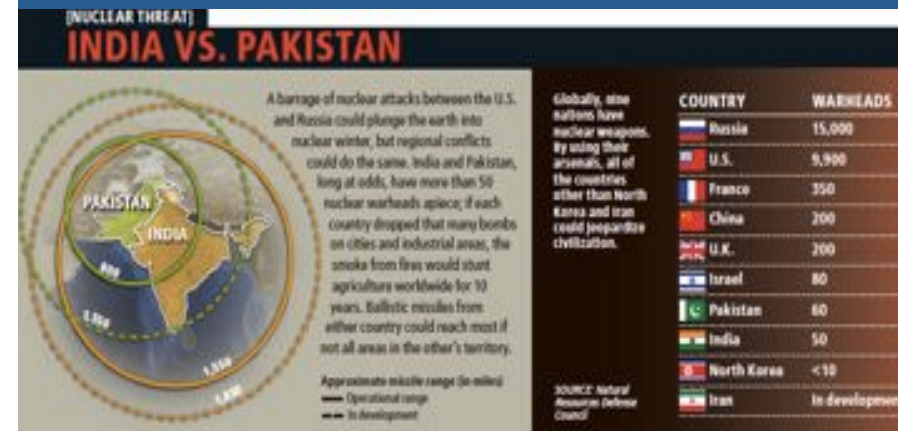


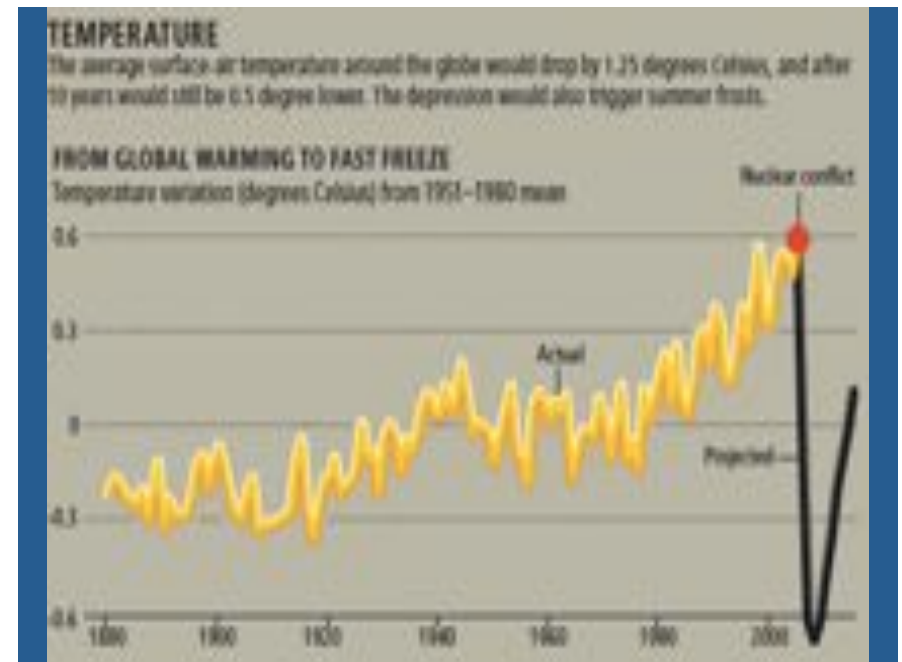
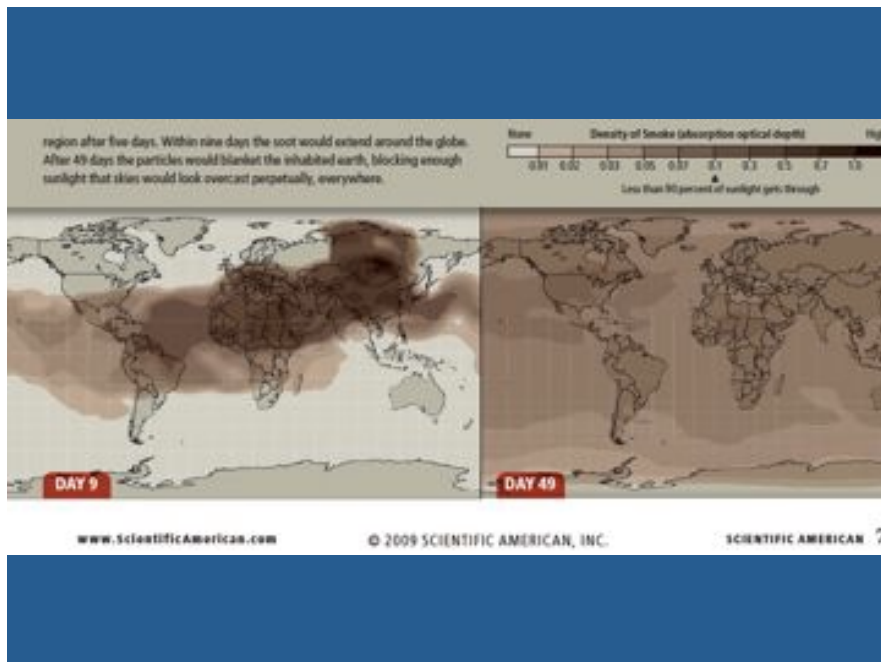
## Spent Fuel Storage

- After 12-24 months in the reactor, fuel is offloaded into cooling ponds
- Must remain until cool
- More than 10x the radioactive material than the core (20-50 million curies Cs-137-Chernobyl released 2 million curies)



## The single greatest danger...





## Limited nuclear war today

Smoke surrounding the globe  
Freezing temperatures daily in the  
Northern Hemisphere  
Over 1 billion would starve to death

## Nuclear Weapons Today

- **20,000 nuclear warheads** with the equivalent explosive force of:
  - Over 200,000 Hiroshima-sized bombs.
  - 10 billion tons of TNT, 2 tons for every human on the planet.
- **Thousands on hair-trigger alert**, ready to be launched on a few minutes notice.

## Nuclear “Football”



The elimination of nuclear weapons

## Hallmarks of Nuclear Industrial Complex

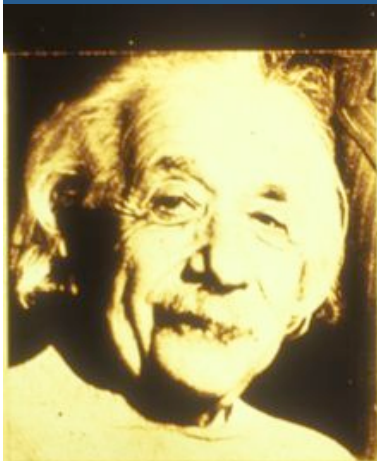
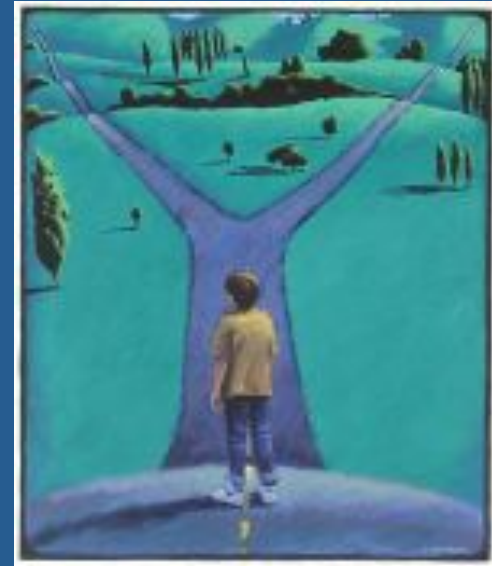
- Secrecy
- Coverup
- Minimization

## Don't lose sight of the forest for the Trees

- Blanketing the earth with unmeasured amounts of radiation which will affect the environment for thousands of years
  - Bombing
  - Leakage
  - Accidents
  - Waste

## A dangerous experiment

- Layers of long lived radiation
- Unconsenting and Unknowing population exposed and not followed
- Results unknown for centuries



The splitting of the atom has changed everything save our modes of thinking, and thus we drift toward unparalleled catastrophe.

DR ALBERT EINSTEIN

## What can you do?

Read and educate yourself

Join PSR [WWW.PSR.ORG](http://WWW.PSR.ORG)

[WWW.IPPNW.ORG](http://WWW.IPPNW.ORG)



