How Did an A-Bombed Nation Come to Embrace Nuclear Technology?

ANTH 101: Culture of the Bomb
February 19, 2013
Michiko Hase
March 11, 2011
March 11, 2011

- Earthquake + aftershocks
- Tsunami
- Nuclear disaster at Fukushima Daiichi Nuclear Power Plant
  -- Three meltdowns (Reactors 1, 2, 3)
  -- Three explosions (Reactors 1, 3, 4)
  -- Radioactive substances released
Two Hydrogen Explosions

Reactor 1, March 12 3:36 p.m.  Reactor 3, March 14, 11:01 a.m.

* Reactor 4, March 15: no agreement on the cause of the explosion.
Fukushima Daiichi Nuclear Power Plant
March 19, 2011
Radiation in the air
Fukushima Nuclear Disaster

- Radiation exposure: workers & residents
- Contamination of air, water, ground, food
- Loss of “home”: housing, family, community
- Contaminated debris and waste
- Secrecy and misinformation
Nuclear Disaster: Long-term Problems

- Decommissioning
- “Clean-up”/Decontamination
- Nuclear waste
- Long-term health consequences
- Displaced people, families, communities
- Legal responsibility
- Long-term energy policy
日本の原発 運転中は54基

■:計画中  ▲:建設中  ×:廃止

### 日本原子力発電
- 敦賀（福井県敦賀市）
  1号 2号 ▲3号 ▲4号
- 上関（山口県上関町）
  ■1号 ■2号
- 島根（鳥取県島根市）
  1号 2号 ▲3号

### 関西電力
- 高浜（福井県高浜町）
  1号 2号 3号 4号
- 美浜（福井県美浜町）
  1号 2号 3号

### 日本原子力研究開発機構
- ふじん（同上）
  1号 2号 3号 4号

### 中国電力
- 玄海（佐賀県玄海町）
  1号 2号 3号 4号
- 川内（鹿児島県鹿児島市）
  1号 2号 ■3号

### 北陸電力
- 志賀（石川県志賀町）
  1号 2号

### 四国電力
- 伊方（愛媛県伊方町）
  ▲1号 ▲2号 3号

### 中部電力
- 浜岡（静岡県御前崎市）
  1号 2号 3号 4号

### 東北電力
- 東通（青森県東通村）
  1号 ■2号
- 楢葉（福島県楢葉町）
  1号 2号 3号 4号

### 東京電力
- 東通（同上）
  ▲1号 ■2号
- 福島第1（福島県大熊町）
  1号 2号 3号 4号 5号 6号 ■7号 ■8号
- 東海第2（愛知県東海村）
  1号 2号 3号 4号

### 電源開発
- 大間（青森県大間町）
  1号 2号 3号 4号
- 火江・小高（福島県南相馬市）
  1号 2号 3号 4号
Most Japanese people didn’t know that there were so many reactors in Japan.

How did this happen?

How could I be so ignorant and indifferent?
RC Succession: Summertime Blues (1988)

• Lyrics by IMAWANO Kiyoshirō (1951-2009)

“We don’t need them!”

“They’re dangerous!”

http://www.youtube.com/watch?v=IaUHCFF5BU8
Manhattan Project map
HIROSHIMA
August 6, 1945

“Little Boy”
(uranium bomb)
dropped from “Enola Gay”

Est. 130-140,000 died by end of 1945
(Population: 420,000)
Est. 200-250,000 died by 1950
Long-term radiation illnesses
NAGASAKI
August 9, 1945

“Fat Man”
(plutonium bomb)
made at Hanford, WA

Est. 74,000 died by end of 1945
(Pop. 240,000)
Est. 140,000 died by 1950
Long-term radiation illnesses
Why Two Bombs?

“The nuclear bomb was used to end the war.”

Why were two bombs dropped?

• Two different types (uranium and plutonium)
• To demonstrate superiority over the Soviet Union
• Prelude to the Cold War — context for postwar nuclear arms race
The Cold War in Asia

- People’s Republic of China, October 1, 1949
- Korean War, June 25, 1950—July 27, 1953
- “Reverse course”; Rearmament of Japan
  -- National Police Reserve -- August 10, 1950
  \( \rightarrow \) Self-Defense Forces
- San Francisco Peace Treaty and Security Treaty between the U.S. and Japan signed 9/8/1951; went into effect 4/28/1952
- Japan = bulwark against communist encroachment in Asia
March 1, 1954 “Bravo” explosion
Impacts of Bravo on Japan

March 1, 1954 “Bravo” detonated in Marshall Islands

-- About 1,000 Japanese fishing boats in the area
   --> crew members exposed to radiation

-- Fear of radioactivity; “radioactive tuna”

-- Anti-nuclear (weapons) movement

September 23 Lucky Dragon 5 radio operator dies

November 3 Movie Gojira[Godzilla] released
GOJIRA (GODZILLA) (1954)

GOJIRA

• Creature from the Jurassic to Cretaceous periods; has survived in deep sea
• Its habitat is polluted by hydrogen bomb testing
• It emerges from the sea and attacks Tokyo
• Releases radioactivity

http://www.dailymotion.com/video/x1nl5c_godzilla-1954-movie-trailer_shortfilms#.USK37fKv_bo
GOJIRA (GODZILLA) (1954)

• Warning about nuclear bomb testing; radiation
• Memory of war-time experience
• Government secrecy
• Scientists’ conscience and agony; ethical dilemma
  --”Oxygen Destroyer”: should he use it to kill Gojira and reveal a weapon of mass destruction?
I LIVE IN FEAR (1955)

- Directed by Akira Kurosawa
- Family disputes over Father’s extreme fear of: atomic and hydrogen bombs, radiation, fallout from “the south” (= Marshall Islands)

- Rashomon (1950)
- Seven Samurai (1954)
- https://www.youtube.com/watch?v=12XBPY_R6Vg
BAREFOOT GEN (1973-)

Barefoot Gen, vol. 1 (1973)

Keiji Nakazawa
(March 14, 1939-Dec. 19, 2012)
“Atoms for Peace” Speech (Dec. 8, 1953)

- President Eisenhower’s speech at United Nations: “peaceful use” of nuclear technology

- August 1946 (U.S.) Atomic Energy Act
  -- made the entire nuclear program secret
  -- created Atomic Energy Commission

- August 1954, Atomic Energy Act revised
  -- allowed nuclear technology and material exports if recipient country is committed not to use them to develop weapons
“Atoms for Peace” Program

• U.S. launches “Atoms for Peace” program in the U.S. and abroad
  -- Supplied equipment and information to schools, hospitals, research institutions
  -- Iran, Pakistan: first reactors built under this program

• “Atoms for Peace” exhibit toured in the U.S., Asia, Europe, South America
“Atoms for Peace” exhibitions in Japan

• 11 cities, Nov. 1955--Aug. 1957
  --Hiroshima, Mito included
• 2,600,000 attended

Exhibit included:

• a full-scale model of an experimental nuclear reactor
• a model illustrating a nuclear fission reaction
• panel displays that introduced nuclear physics
“Atoms for Peace” Exhibition in Hiroshima, May-June, 1956

• 11,000 people in 22 days
• Co-sponsors:
  -- Hiroshima prefecture
  -- Hiroshima city
  -- American Cultural Center
  -- Chugoku Shimbun (newspaper)

• Held at A-Bomb Museum (1955--)
  -- A bomb–related displays temporarily removed
International Atomic Energy Agency (IAEA)
“The ‘Atoms for Peace’ Agency”
(Est. 1957)

From IAEA website:
• The IAEA is the world's center of cooperation in the nuclear field. It was set up as the world's "Atoms for Peace" organization in 1957 within the United Nations family. The Agency works with its Member States and multiple partners worldwide to promote safe, secure and peaceful nuclear technologies.

http://www.iaea.org/About/about-iaea.html
Clever Terminology

• WEAPONS – 核兵器 (NUCLEAR weapons)

• ENERGY/POWER – 原子力 (ATOMIC energy/power)

➢ “Bad/militaristic” use vs. “good/peaceful” use
➢ The distinction helps to obliterate the fact that both use the same technology.

✓ Even the US Nuclear Regulator Commission is translated as “原子力規制委員会” (Atomic Regulatory Commission)
Nuclear Research in Japan

During World War II
• Two projects to develop nuclear bombs (Army and Navy respectively)

Defeat (8/15/1945) → Occupation (~4/27/1952)
• Nuclear research was banned by Occupation forces

1955 Atomic Energy Basic Act
1956 Atomic Energy Commission

(1949 First Nobel Prize given to a Japanese citizen: YUKAWA Hideki for predicting “π−meson” in 1935)
ATOMIC Energy in Japan

- April 1952  Occupation ends
- July 1952  Proposal to form an atomic energy commission
- March 1954  First budget for atomic research and cooperation proposed in the Diet
- Nov. 1955  U.S.-Japan Atomic Research Cooperation Agreement → import of enriched uranium from U.S.
- Nov. 1955-Aug. 1957  “Atoms for Peace” exhibit –11 cities
- Dec. 1955  Atomic Energy Basic Act
- Jan. 1956  Atomic Energy Commission
- June 1956  Japan Atomic Energy Research Institute
  --1957  Japan’s first experimental reactor
- Nov. 1957  Japan Atomic Power Company
ASTRO BOY (Tetsuwan Atomu) (1952-)

Atomu (atom)

Sister: Uran (uranium)
『鉄腕アトム』主題歌

空をこえて ラララ 星のかなた
ゆくぞ アトム ジェットの限り
心やさし ラララ 科学の子
十万馬力だ 鉄腕アトム

耳をすませ ラララ 目をみはれ
そうだ アトム 油断するな
心ただしひ ラララ 科学の子
七つの威力さ 鉄腕アトム

町角に ラララ 海のそこに
今日も アトム 人間まもって
心はずむ ラララ 科学の子
みんなの友だち 鉄腕アトム

空をこえて ラララ 星のかなた
ゆくぞ アトム ジェットの限り
心やさし ラララ 科学の子
十万馬力だ 鉄腕アトム
1960s B&W Series
Opening Credits

There you go, Astro Boy,
On your flight into space
Rocket high, through the sky
For adventures soon you will face!

Astro Boy bombs away,
On your mission today,
Here's the countdown,
And the blastoff,
Everything is go Astro Boy!

Astro Boy, as you fly,
Strange new worlds you will spy,
Atom celled, jet propelled,
Fighting monsters high in the sky!

Astro Boy, there you go,
Will you find friend or foe?
Cosmic Ranger, laugh at danger,
Everything is go Astro Boy!

Crowds will cheer you, you're a hero,
As you go, go, go Astro Boy!

http://www.astroboy-online.com/lyrics.php
DRAEMON (1969-)
Robotic Cat from the 22\textsuperscript{nd} Century
Why Did “Atoms for Peace” Appeal to the Japanese?

- Devastated Nation: Disarmed and Occupied by Foreign Forces
  - Defeat (8/15/1945) → Occupation (~4/27/1952)
  - Lost colonies
  - Disarmed; nuclear research banned
  - Devastation, hunger, poverty
Why Did “Atoms for Peace” Appeal to the Japanese? – Political Economy

Need for energy for economic recovery & growth

- Japan is “resource poor” – fossil fuels
  -- But rich in natural resources for renewable energy: water, solar, wind, geothermal

Political motives of proponents

- Desire to have a “nuclear option” in defense – continuity with prewar nuclear research
- Desire to regain standing in world politics
- http://www.cnfc.or.jp/e/arsenal/index.html
1963 Japan’s first nuclear power produced in Tokai-mura
1970 4 reactors
1974 3 laws providing for subsidies to host communities
1988 37 reactors
2009 54 reactors
Why Did “Atoms for Peace” Appeal to the Japanese? – Psychological Aspect

• U.S. censorship of discussions and photos of Hiroshima & Nagasaki; public show of victims’ suffering not allowed.
• Loss of pride, self-confidence as a nation
• Need to feel hopeful, to look to the future
• Horrified but dazzled by nuclear technology
• Overcoming victimization and powerlessness by mastery of potentially destructive technology:
  Japanese are especially suited for putting the dangerous technology to a peaceful use precisely because they are “the only nation attacked by the nuclear bomb.”
• The A-bomb: symbol of US military might and scientific prowess (← Japan’s bamboo spears)
• The A-bomb: science, modernity ← Japan’s backwardness
“Japan, the only nation attacked by the nuclear bomb” – Hypocrisy of the mantra

• Not all Japanese were victims of the atomic bombings.
• Actual A-bomb victims were and still are discriminated against by other Japanese and by the government: stigma, ostracism, prejudice, governmental neglect.
• The same politicians and media that are fond of this mantra harbor(ed) nuclear ambitions.
• The mantra helps to hide Japanese aggression toward other nations.
Role of the Mass Media

• SHŌRIKI Matsutarō & Yomiuri Shimbun
  --Shōriki: Japanese collaborator for “Atoms for Peace”
  --Yomiuri sponsored “Atoms for Peace” exhibit
  -- Shōriki: First Chairperson of AEC

• Other media followed suit
  --Positive articles/programs about nuclear industry
  --Accidents/problems downplayed/ignored
  --Massive advertisement money (electric companies are regional monopolies – no competition)
  --Wining & Dining by nuclear industry

*TEPCO Chair in China with journalists on 3.11.2011
Education

The Exciting Atomic-Power Land -- Supplementary reader for elementary schools (given to schools for free)
A nuclear power plant’s visitor hall with “Alice in Wonderland” characters
After Fukushima Disaster...

“The Exciting “Atomic-Power Land”

“Let’s Think About Radiation”
Indifference and Ignorance
No More!

Thank you!