

<セッション 2>

**Japanese colonial science heritage and post-colonial historiography:
Manchu History of Science and Cold War**

(日本の植民地科学と冷戦期の科学:「連続性」の歴史的検証)

Mutsumi Inuma, "Nuclear Scientists Network under Cold War: sociology of science approach to the Japan-Indonesia nuclear engineers"

Loh Shi-Lin, "Nagai Takashi and Radiology in Pre-war Japan"

Maika Nakao, "Japanese Doctors in Hiroshima during the Occupation age: Between Local Science and American Science"

Susan Lindee, Survivors-in-waiting: The Radiation Effects Research Foundation and scientific planning for future risk

Vassiliki (Betty) Smocovitis, "Devil's Heritage: Masuo Kodani, the "Nisei Problem," and Social Stratification in the ABCC"

Nuclear Scientists Network under the Cold War: Sociology of Science Approach to the Japan-Indonesia Nuclear Relations.

Mutsumi Inuma, Kobe University. 井沼睦 神戸大学

This paper examines socio-science (politico-science?) relationship between Japan and Indonesia through discussing nuclear engineering. The term “Nuclear Village” has been commonly used to criticize the syndicate of the nuclear industry, electric power companies, national and local governments and research institutions. Japan has given Indonesian students opportunities to study nuclear physics at the Tokyo Institute of Technology (Tokyo Tech), Japan’s best technical university. Tokyo Tech alumni are among the most prestigious scientists in Indonesia. Japan-educated Indonesian nuclear experts dominates the nuclear-related institutions such as National Atomic Agency, Nuclear Regulatory Agency and the Bandung Institute of Technology (ITB). The Japan-Indonesia nuclear network is orchestrated by the Tokyo Tech-ITB nexus. At ITB, the best technological university in Indonesia, all physics professors obtained academic degrees from the Research Laboratory for Nuclear Reactors at Tokyo Tech. By biographical and bibliographical approach, this presentation analyzes how and why nuclear experts interact between Japan and Indonesia.

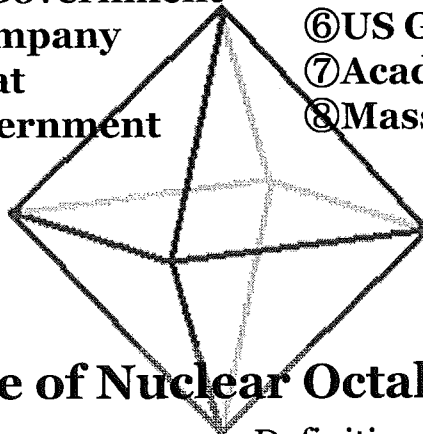
Nuclear Scientists Network under the Cold War

the Japan-Indonesia nuclear engineering.

Kobe University
Mutsumi Inuma

Japan's "Nuclear Village"

- | | |
|----------------------|-------------------|
| ①National Government | ⑤Nuclear Industry |
| ②Power Company | ⑥US Government |
| ③Bureaucrat | ⑦Academy |
| ④Local Government | ⑧Mass Media |



"Structure of Nuclear Octahedron"

Definition by Yoshioka

“Nuclear Village” in Indonesia?

National Atomic Agency (BATAN)

☛Chairman: Tokyo University

Nuclear Regulatory Agency (BAPETEN)

☛12(41) researchers: Japanese degree

Bandung Institute of Technology (ITB)

☛6 professors: Tokyo Tech

Research question and method

Question:

How do nuclear experts interact between Japan and Indonesia?

Method: Proposography

Interview Resources

①ITB : 7 people

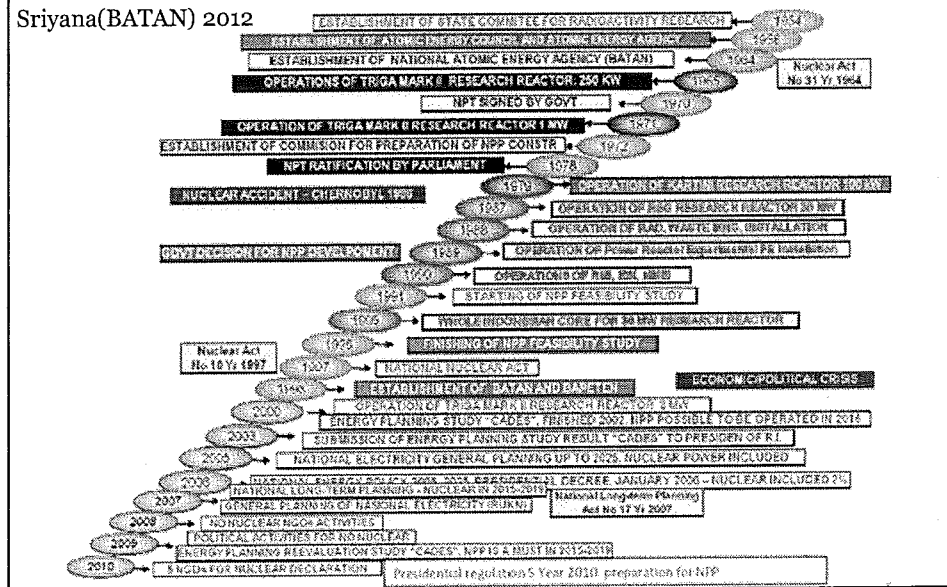
②National Atomic Agency(BATAN):8 people

③Nuclear Regulatory Agency(BAPETEN):4 people

④Tokyo Tech: 1 people

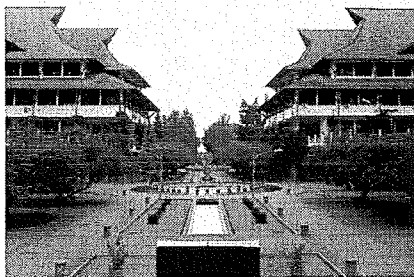
Back ground: History of R&D in Indonesia

Sriyana(BATAN) 2012

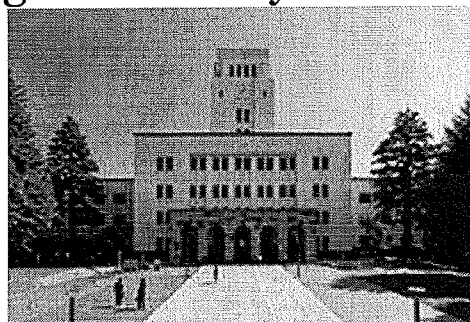


ITB=Tokyo Tech nexus

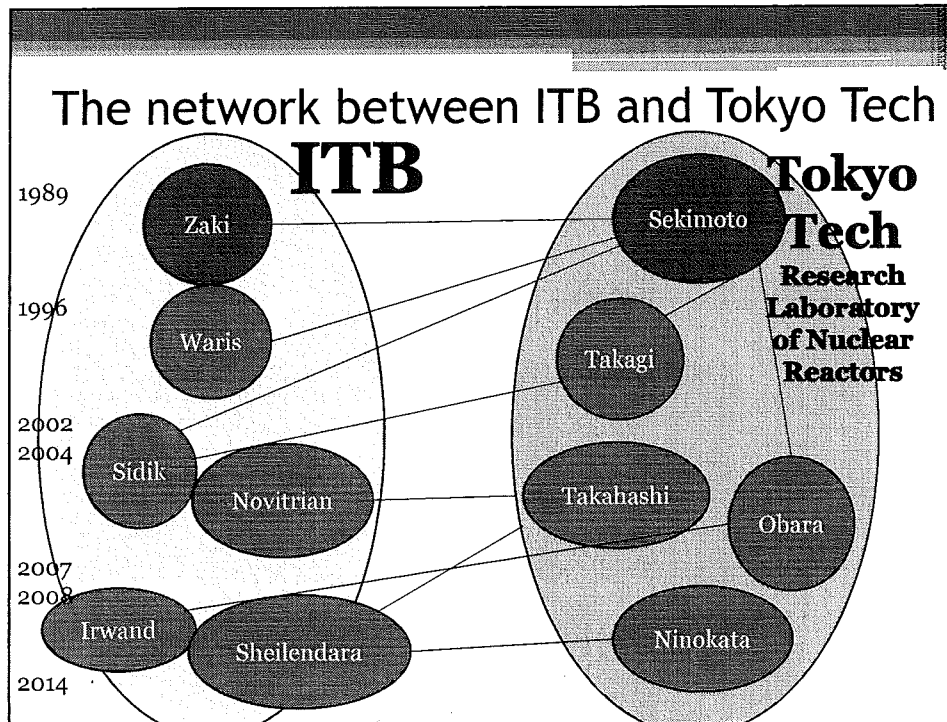
6 ITB nuclear physicists(engineers)
obtained academic degrees in Tokyo Tech.



Bandung Institute of Technology



Tokyo Institute of Technology



Master Mind; Zaki Suud

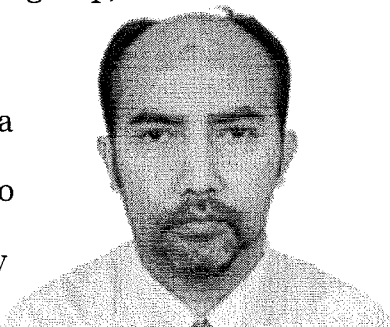
Chairman of
Nuclear physics and biophysics research group,
Department of physics, ITB

< Career >

- 1962 born in Wonosobo, central Java
- 1981-1986 ITB Physics
- 1986-1987 Language school in Tokyo
- 1987-1993 Tokyo Tech
関本博(Sekimoto hiroshi) Laboratory
- 1993-now ITB

< Pushing factor to Japan >

- Suharto and Habibi's aspiration for nuclear power
- **Science Technology Manpower Development (STMDP)**
financed by WB, ADB, Japan



Zaki's Apostle ITB

Name	Birth	Position	Term	Post Doctor	Lab	Scholarship	Language
Zaki Suid	1962	Chairman	1989-1995	×	Hiroshi Sekimoto	MEXT UtoU	Japanese ©
Abdul Waris	1967	Associate Professor	1996-1999	×	Hiroshi Sekimoto	MEXT GtoG	Japanese ©
Sidik Permana	1978	Lecturer	2002-2012		Hiroshi Sekimoto Naoyuki Takagi	-MEXT UtoU -Masuda Scholarship -Sato Scholarship -COE-INS Program	Japanese ©
Novitrian	1972	Associate professor	2004-2007	×	Minoru Takahashi	MEXT UtoU	×
Syellendra Pramuditya	1983	Lecturer	2008-2013	×	Hisashi Ninokata Minoru Takahashi	MEXT Uto U	×
Irwand	1981	Lecturer	2007-2012	Tokai village	Toru Obara	MEXT UtoU	×
Pribadi Munpuni ADHI	1989	Student	2013-now		Minoru Takahashi	MEXT UtoU	×

Zaki's Apostle in BATAN and BAPETEN

National Atomic Agency (BATAN)

-Zuhair
-Abu Khaid Rivai
-Topan Setia dipra

Nuclear Regulatory Agency (BAPETEN)

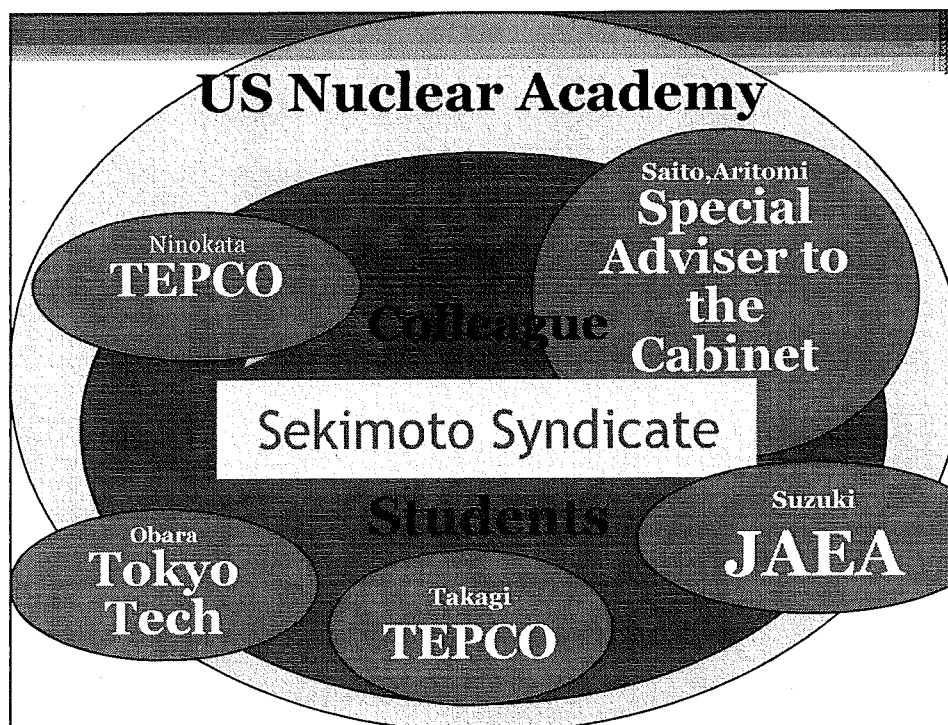
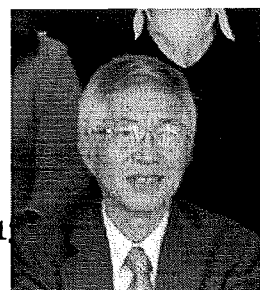
-Ismail
-Azizul Khaikim

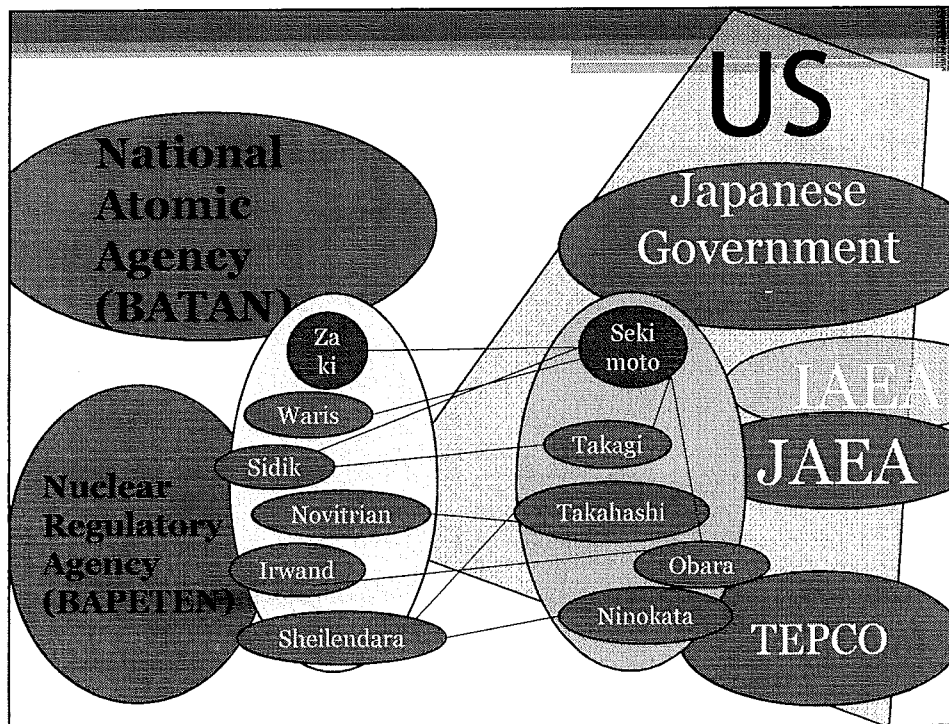
Zaki's Guru in Japan

- 関本 博 (Sekimoto Hiroshi)
- Leader of 21st Century COE Program
- Director of Center for Research into Innovative Nuclear Energy System (CRINES)

<Career>

- Ph.D.: Univ. of California, Barkley
- GE (1974-1976)
- Tokyo.Tech (1976-2011)
- Xiamen Univ. (2009-2016)
- Univ. of California, Barkley (2011-2014)
- Tokyo City Univ. (2014-2015)





<4> Conclusion

“The Academic-Governmental-Industrial Complex” pushes transfer in nuclear research between Japan and Indonesia

→ Atomic Village beyond the sea?

Further Research for analysis

- ① Co-Authored papers
- ② Life in Japan
- ③ ODA, Scholarship
- ④ Tokyo Tech financial sponsors

- Thank you

Nagai Takashi and Radiology in Pre-war Japan

Shi-Lin Loh

shiloh@fas.harvard.edu

Ph.D. candidate, Modern Japanese History/STS

Harvard University

Nagai Takashi (永井隆, 1908-1951) was one of the best-known *hibakusha* survivors of Nagasaki. A medical doctor and a devout Catholic, he became famous for his prolific literary output after Japan's defeat in the Second World War, with his memoirs about Nagasaki, the atomic bombing and his own family, becoming best-sellers in Japan and translated into many other languages. Nagai's writings and legacy are frequently discussed within the fields of peace studies and atomic-bomb literature. However, scholars have engaged far less with Nagai's main occupation: that of a radiology specialist engaged in the frontlines of public health and scientific research during the war. In this presentation, using his published writings, I examine Nagai's work as a radiologist before 1945, and his attitude towards medical science and radiation in medical diagnosis and treatment. This is not only to provide another perspective on understanding his significance as a historical character, but also as a case study in how radiology and X-rays are implicated in understandings of radiation illness in modern Japan.

Outline of Talk

1. Who is Nagai Takashi?
2. Biographical Outline
3. Nagai as Radiologist
4. "Atomic Illness"
5. Scientific Martyrdom
6. Conclusions?

Nagai Takashi
and
Radiology in Japan Before WWII

Shi-Lin Loh
Harvard University
shiloh@fas.harvard.edu

Kobe University, 2014.11.07



長崎は、
いまも祈っています。

各地で絶賛。さらにグレードアップして再演決定！

岡部企画プロデュース 54
岡部企画・幼年団員養成所
(株)カトリック中央協議会・広報推進

作・演出
岡部耕大

2010年6月3日(木)~7日(月)
紀伊國屋ホール 紀伊國屋書店新宿本店4F

公演日	3	4	5	6	7
開演時間	10:00	10:00	10:00	10:00	10:00
14:00開演					

Ad for Okabe Kodai's 2010
stage dramatization of
The Bells of Nagasaki

2010年岡部耕大作・長崎の鐘
演劇の宣伝

List of Works

Dates of publication do not reflect the order of writing; some were published posthumously or recompiled.

Writing

The Bells of Nagasaki (長崎の鐘), August 1946.

"Records of the Atomic Wasteland" (原子野録音), a series in the journal "The Knights of the Immaculata" (聖母の騎士), 1947-1951.

For That Which Passeth Not Away (亡びぬものを), 1948.

The Rosary Chain (ロザリオの鎖), 1948.

Leaving These Children Behind (この子を残して), 1948.

The River of Life - The Stories of Atomic Illness (生命の河-原子病の話), 1948.

The Flower-Blooming Hill (花咲く丘), 1949.

My Beloved Children (いとし子よ), 1949.

The Otome Pass (乙女峠), 1951.

Nyokodō Essays (如己堂随筆), 1957.

Village Doctor (村医), 1978.

Tower of Peace (平和塔), 1979.

Flowers of Nagasaki (長崎の花), Daily Tokyo Times series, 1950.

The New Morning (新しき朝), 1999

Atomic Bomb Rescue and Relief Report (長崎医大原子爆弾救護報告)

Translations

世界と肉体とスミス神父 The World, the Flesh, and Father Smith by Bruce Marshall

野鼠—フアンタジ Pack Rat by Francis Clement Kelley

Edited Collections

Living Beneath the Atomic Cloud: The Testimony of the Children of Nagasaki. (原子雲の下に生きて)

We of Nagasaki; The story of survivors in an atomic wasteland (私達は長崎にいた: 原爆生存者の叫び)

Unpublished Writing

A Bright Port (輝やく港 Kagayaku Minato)



Who is Nagai Takashi?

永井隆

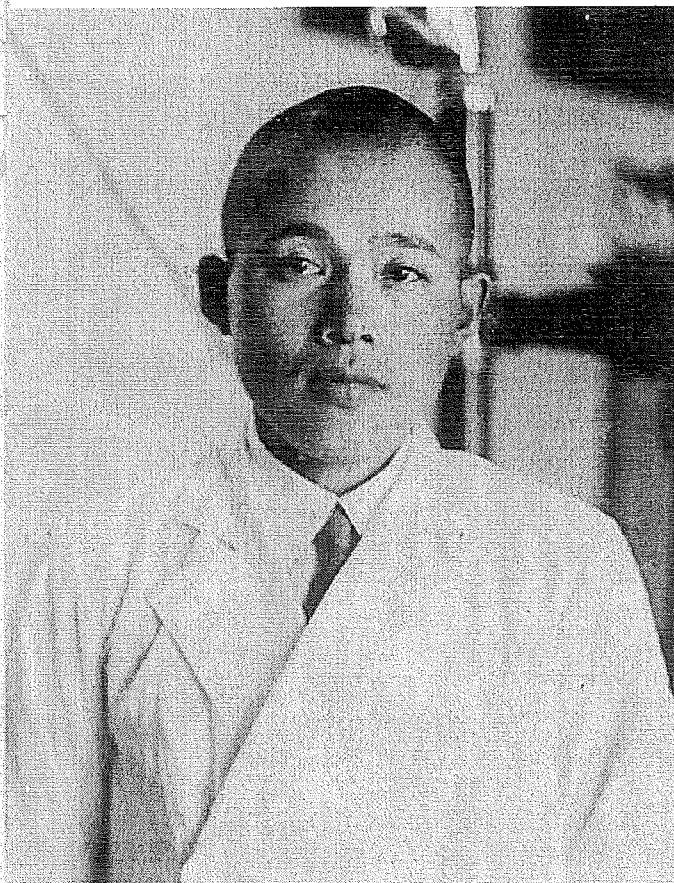
The first cases of atomic illness occurred in the laboratories that used X-rays and radium, and kept occurring amongst the doctors and nurses who used these in medical care, but at the time this passed unnoticed by the general public.

Hana saku oka, 321.

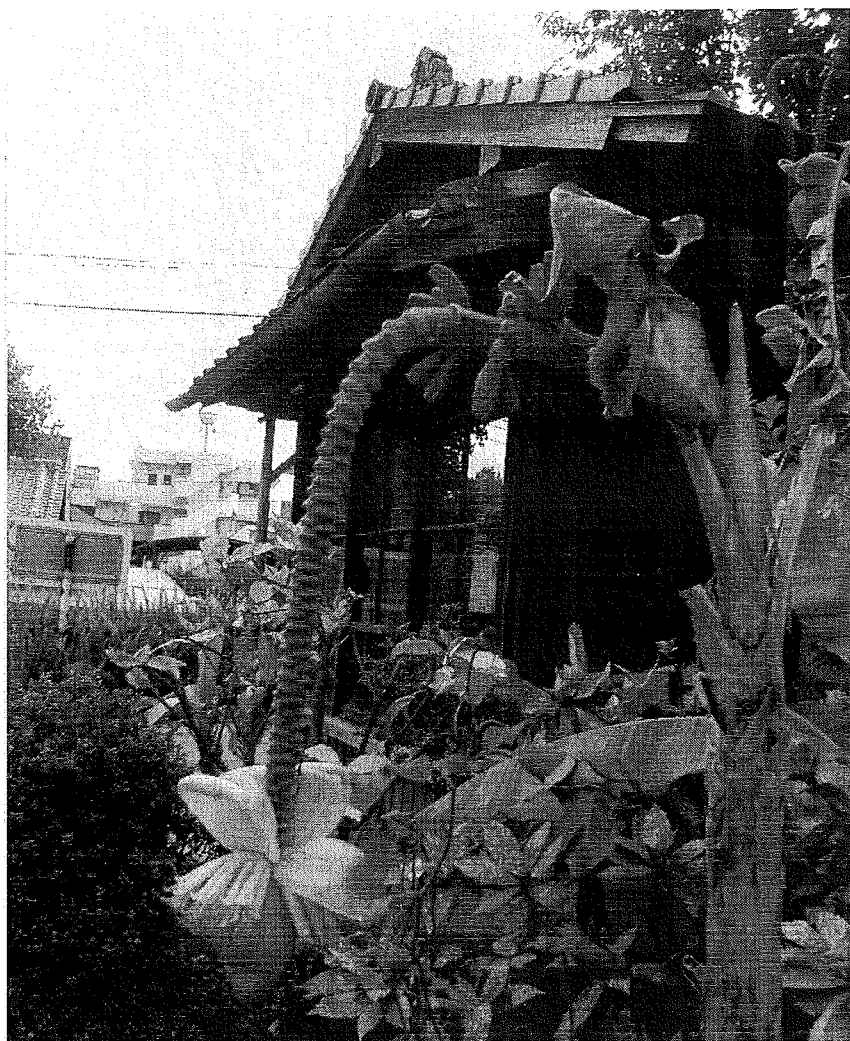
Biographical Outline

- 1908: Born in Matsue, Shimane Prefecture
- 1928: 21 years old. Enrols as a student at Nagasaki Medical University.
- 1932: Becomes a research assistant in the physical therapy section (物理療法科) under Suetsugu Itsuma 末次逸馬
- 1933: Military medic in the Manchurian Incident
- 1937: Military medic in the Shanghai Incident.
- 1940: Promoted to assistant professor of radiology; promoted to dean
- 1945: Survives atomic bombing of Nagasaki
- 1947: Moves into Nyokodo (如己堂) with his surviving family
- 1950: Awarded Prime Minister's Award for contributions to post-war reconstruction
- 1951: Death

Nagai as Radiologist



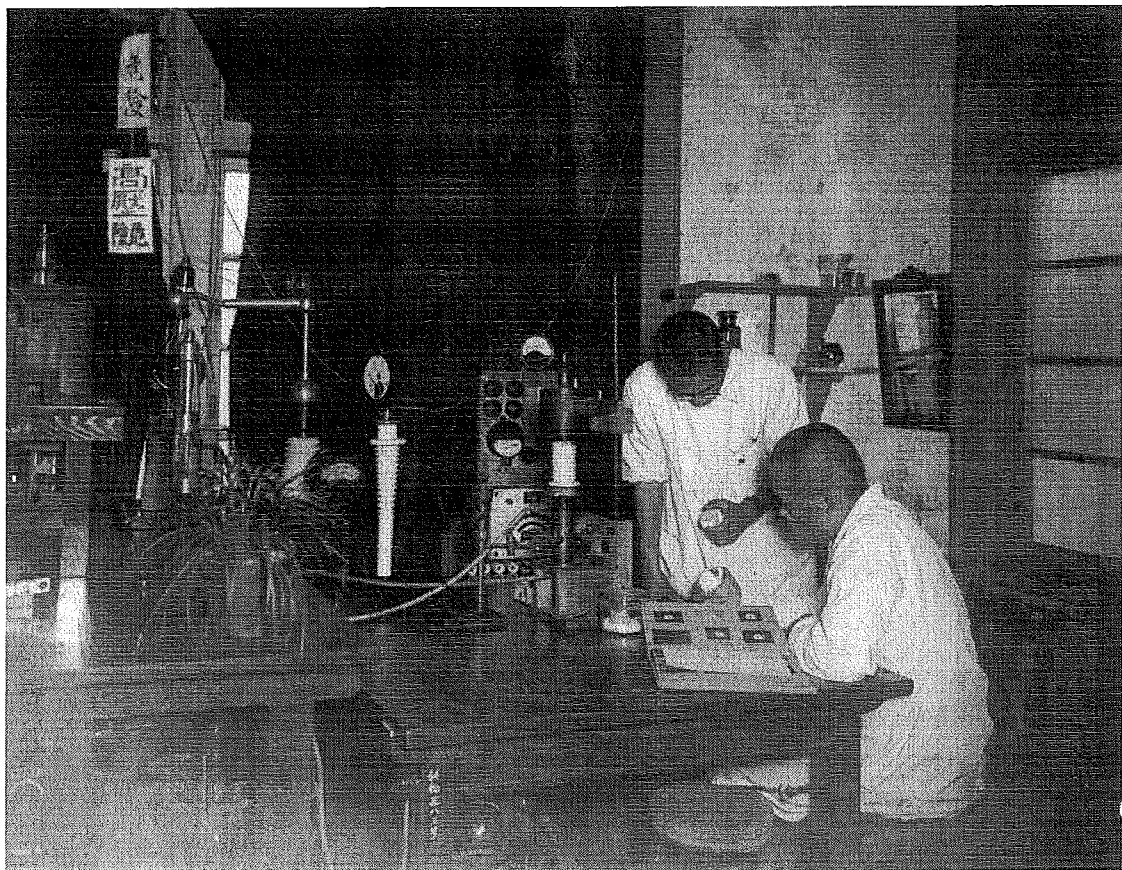
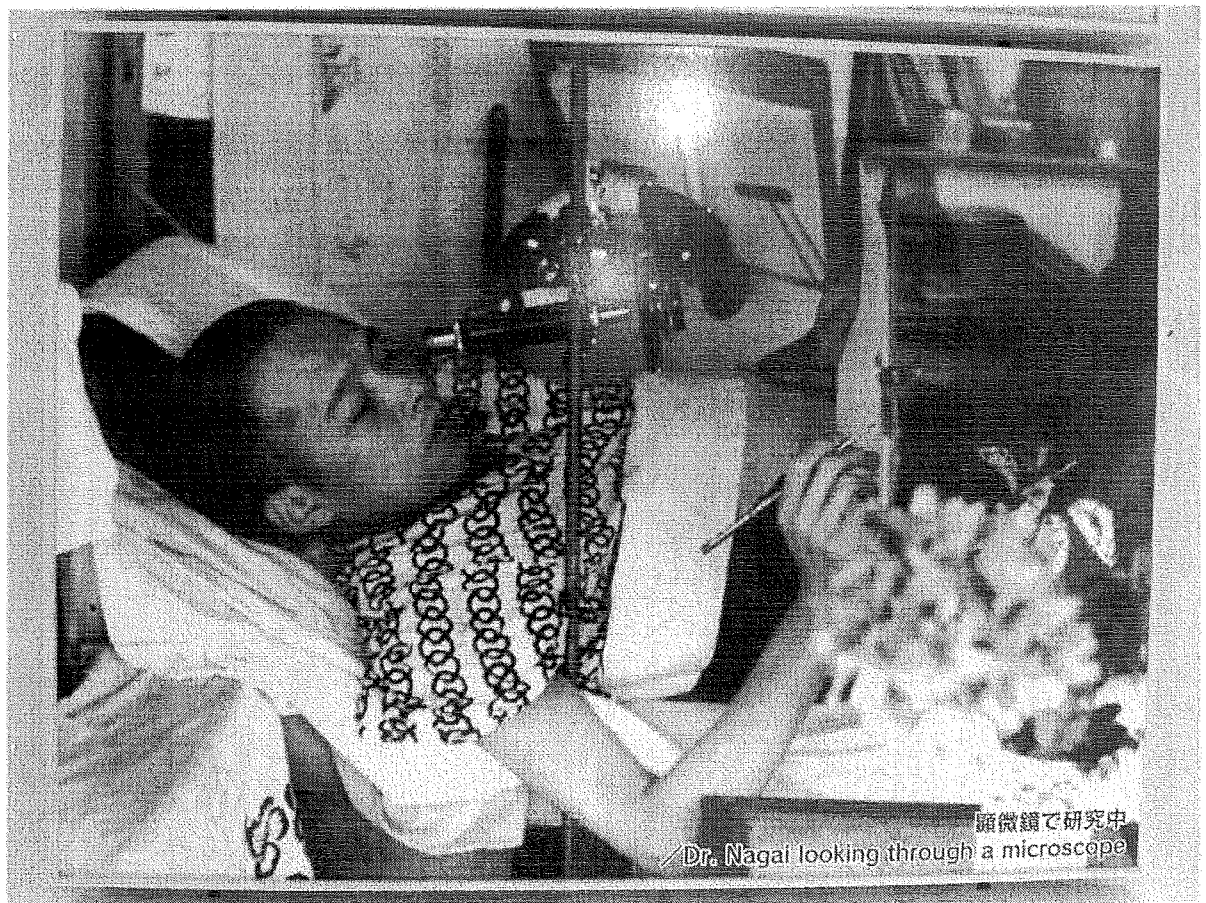
Assistant Professor
助教授時代



Nyokodo
如己堂



Nagai delivering a lecture
講義する永井



Doing Research at the Dept. of Physical Therapy (Nagai on right)
物理療法学科において研究中(右端が隆)

If a university professor really is supposed to grasp the truth, it would be impossible for me to hold that post even for a day. I had an utter lack of confidence, and was ashamed of my lack of knowledge; lecturing in front of an audience was terrifying, and though I had grappled with X-rays for the past twenty years, it was just as their discoverer, Professor Roentgen, had named these mysterious rays. I was covered in an unknown number of Xes; the more I researched, the more of them they were. Sometimes I even thought that I would quit this unmasterable field of learning and specialize in a different subject.

Rozario no kusari, 117.

Ryūkichi [a fictional name Nagai gives himself] gazed at the *rentogen* machine which had shortened his life. *The radiation it emits is killing me.* He tried to pursue this thought, but strangely enough he felt not a particle of hatred. – For this machine had, for a long time, been Ryūkichi's friend. Without it, Ryūkichi might not have done any work. It had birthed the many papers he had presented to the academy. It deserved thanks for the many students, Ryūkichi included, who had studied and accumulated fruitful experiences through using it. Even more crucially, it had given thousands of patients accurate courses of treatment, allowing them to survive in precarious situations.

The machine's rack was coming apart in places; its cables were repaired with wrappings of electrical tape, and the growl of its transformer had acquired a staticky noise. It, too, was already aged and fatigued, nearing the end of its life. Ryūkichi was the one who had used it to such a state. If this machine had a soul, it would doubtless share Ryūkichi's sentiments.

Horobinu mono wo, 538.

Atomic Illness

Atomic illness is a malaise caused by the radiation that is released when the atom is destroyed. It is a disease of civilization, the black thorn that lurks in the shadows of science's riotous blossoming.

Hana saku oka, 321.

A good deal of research concerning the effects of radiation from nuclear fission on living things had already been done in clinical tests and experiments with different kinds of animals before the atomic bomb exploded. Although the reaction is different between a large amount of radiation released over a short period of time and a small amount over a long period, radiation always has a destructive effect on tissue cells.

Bells, 87.

“X-ray damage” (レントゲン障害)

“Atomic illness” (原子病)

表彰状

永井 隆

常に危険を冒して放射線医学の研究に
心血を注ぎ遂に放射線職業病の一つである
慢性骨髄性白血病の犯すところとなつたがなお
不屈の精神力を振い起し職務に精励し学界に
貢献したことはまさに他の模範とするべきところである
なまは原子爆弾のため負傷し病床にたゞ身と
なつた後は著述に力を尽し長崎の鐘
この子を残して等幾多の著書を出して
社会教育に寄与するところ少なくその功績
顕著であることにこれを表彰する

昭和二十五年六月一日

内閣総理大臣吉田 茂

Scientific Martyrdom

(Rebecca Herzig, *Suffering for Science*)

Why is knowledge of things atomic increasing at such a dizzying rate, and acquiring such a beautiful shape? --- Because it grows on fresh blood! On the blood of its atomic disciples...

The atomic illness that stole away their lives on the road of truth-seeking. --- But though medical texts have added atomic illness as a new category of malaise, at the same time many illnesses have been shifted from the ranks of the incurable to the curable.

As protective measures have been fully enacted for atomic illness, may we not soon see the last of it? Like the dinosaurs which once revealed themselves for some time on the earth and then went extinct.

Have no care about atomic illness; the age of using atomic energy for man's purposes has arrived at last. Bright, bright is the light of this atomic age! Brimming with hope, this atomic age!

Seimei no kawa, 787.

In an instant, my beloved university, students, wife and all the fruits of my research burned to ashes. I was driven to despair as though pushed into hell. ...However, the feeling of desperation did not last for even half a day, because I had found a new hope, namely a disease that had never existed before...atomic bomb syndrome! I had to research this new disease! When it was decided, my dark depressed heart was filled with hope and courage. My spirit as a doctor surged. My body regained energy and I stood up.

Kono ko wo nokoshite.

Conclusions?

- Nagai's problematic legacy
- Engaging with voices critical of him
- Historical arc of views on radiation medicine/radiation illness from prewar to Fukushima

References/Citations

Nine texts written by Nagai are referenced as they appear in the collected volume titled *Nagai Takashi zenshū* (Tokyo: Kodansha, 1971), with corresponding pagination. The texts are *Nagasaki no kane*, *Rozario no kusari*, *Kono ko wo nokoshite*, *Itoshigo yo*, *Hana saku oka*, *Horobinu mono wo*, *Son'i*, *Seimei no kawa* and *Genshi bakudan kyugo hokoku*. Where necessary, *Nagasaki no kane* and *Genshi bakudan kyugo hokoku* may be compared with their English translations: *The Bells of Nagasaki*, trans. William Johnston (New York: Kodansha International: 1994) and *Atomic Bomb Rescue and Relief Report*, trans. Aloysius F. Kuo.

Chad Diehl, *Resurrecting Nagasaki: Reconstruction, the Urakami Catholics, and Atomic Memory, 1945-1970*. Ph.D. diss., Columbia University (2011), 112.

Kataoka Yakichi, *Nagai Takashi no shogai* (Tokyo: San Paulo, 1961)

Rebecca Herzig, *Suffering for Science: reason and sacrifice in modern America* (New Brunswick: Rutgers University Press, 2005)

Motoshima Hitoshi, "Urakami kirishitan no junan – kinkyorei, yonban kuzure, genbaku", *Seibo no kishi* (2000.10)

References/Citations II

Akizuki Tatsuichirō, *Shi no dōshinen: Nagasaki hibaku ishi kiroku* (Tokyo: Kōdansha, 1972)

Shirabe Raisuke, *Nagasaki bakushinchi fukkō no kiroku* (Tokyo: Nippon Hōsō Shuppan Kyōkai, 1972).

Konishi Tetsuro, "Kaku no 'heiwa riyo' to Nagai Takashi", *Nagasaki gaidai ronso* 15, 29-44.

Inoue Hisashi, "Besutosera no sengoshi Nagai Takashi 'Kono ko wo nokoshite' genbaku toka wa "kami no oncho" datta?", *Bungei shunju* 65(7), 367.

Takahashi Shinji, *Nagasaki ni ate tetsugaku suru kaku jidai no sei to shi* (Tokyo: Hokuju Shuppan, 1994)

Yamada Kan, "Gizensha Nagai Takashi e no kokuhatsu," *Ushio* (July 1947), 231-237.

Nishimura Akira, "Nagai Takashi ni okeru genbaku saika jugun taiken to shokugyo hibaku ni chumoku shite", *Shkyo kenkyu* 86(2), 179-200.

Japanese Doctors in Hiroshima during the Occupation age:

Between Local Science and American Science

Maika Nakao (Keio University)

It took several years and even decades for the radiation sickness caused by atomic bomb to be fully uncovered. Several symptoms gradually emerged among the survivors of the atomic bomb and they lived in fear for its symptoms. During this time, from 1945 to 1952, Japan was occupied by the U.S. and the information regarding radiation effects was restricted to disseminate. Previous scholars had been examining this America's "cover-up" of information and much less paid attention to the Japanese interpretation of radiation sickness during that period. In fact, the Japanese doctors who made clinical examination of survivors speculated in many ways about the symptoms and stated it to the public media. However, they committed oversights or miscalculation. How did the doctors made miscalculation and how did they uncovering the mechanism of the radiation sickness? By examining local doctors' activities in Hiroshima, this paper discusses the knowledge transfer of radiation sickness during the period of U.S. occupation and argues that the knowledge was created and transferred in between local science and American science.

“Japanese Doctors in Hiroshima during the Occupation age: Between Local Science and American Science”

Maika Nakao / Keio University
JSPS Postdoctoral Research Fellow

Introduction

- ◆ It has been said that the entire image of atomic bomb casualties were **not** seen in the public media for several years after the bombing.
- ◆ Previously, scholarly works tended to focus on **America’s “cover-up”** of the information.
- ◆ The **Japanese doctors** who made clinical examination of survivors speculated in many ways about the symptoms and stated it to the public media.
- ◆ How did **the doctors** make miscalculations and how did they uncover the mechanism of the radiation sickness?

Introduction

- This paper focuses on the discourse regarding the disease caused by the atomic bomb in both public and professional media and discusses the knowledge transfer of radiation sickness during the period of U.S. occupation.
- This paper argues that the knowledge was generated and exchanged between local science and American science.

Atomic Bomb Injury (原子爆弾症)

- ◆ **First:** people were killed by the heat and the massive blast, in the immediate aftermath, or a few days after the bombing.
- ◆ **Second:** the people who were unhurt, at first, began to experience nausea and diarrhea, hair loss, subcutaneous bleeding, and death from mid-August to early October. *acute radiation syndrome*
- ◆ **Third:** until December 1945, it seemed that the symptoms settled down (recovery period).
- ◆ **Fourth:** The following conditions began to afflict survivors from around 1946: leukemia, cataract, and birth abnormality. *late radiation syndrome*

Unknown Disease

- Several symptoms gradually emerged among the survivors of the atomic bomb and they lived in fear of its symptoms.
- The atomic bomb survivors suffered not only bodily damage but also **mental** and **social** damages.

The First Stage

- Soon after the American atomic attacks, Japanese **national newspapers** began to report about the bomb.
- Japanese **scientists** began to survey the nature of the atomic bombs.
- The articles pointed out the existence of **radiation and residual radioactivity**.

“Weird Disease” to “Atomic Bomb Injury” The Second Stage

- Around mid-August 1945, people died from a **“weird disease.”**
- In 24th August 1945, when an actress named Midori Naka died in the Tokyo Imperial University Hospital after she suffered from an atomic bomb explosion in Hiroshima, the attending physician **Masao Tsuzuki** named it as the **“Atomic Bomb Injury.”**



Masao Tsuzuki 都築正男 (1892-1961)
“The Father of Atomic Bomb Injury”

Medical Investigations The Second Stage

- Kyushu Imperial University (九州帝国大学) and Tokyo Imperial University (東京帝国大学).
- National Research Council of Japan (学術研究会議) set up a Special Committee for the Investigation of the Atomic Bomb (原子爆弾災害調査研究特別委員会).
- The American Team
→ Atomic Bomb Casualty Commission (ABCC)

The Third and Fourth Stage

- It seemed that the atomic bomb injury was gradually settled down.
- However, in reality the atomic bomb injury was not settled down.

Local Publications

- The local newspapers such as *Chugoku Shinbun* (中国新聞), *Yukan Hiroshima* (夕刊ひろしま), and *Nagasaki Times* (長崎タイムズ) carried much more information regarding the atomic bomb and atomic bomb injury.
- **Local newspapers** were valuable source of information for the survivors.
- **The local doctors** provided information about the injury.

Deny of Atomic Bomb Injury

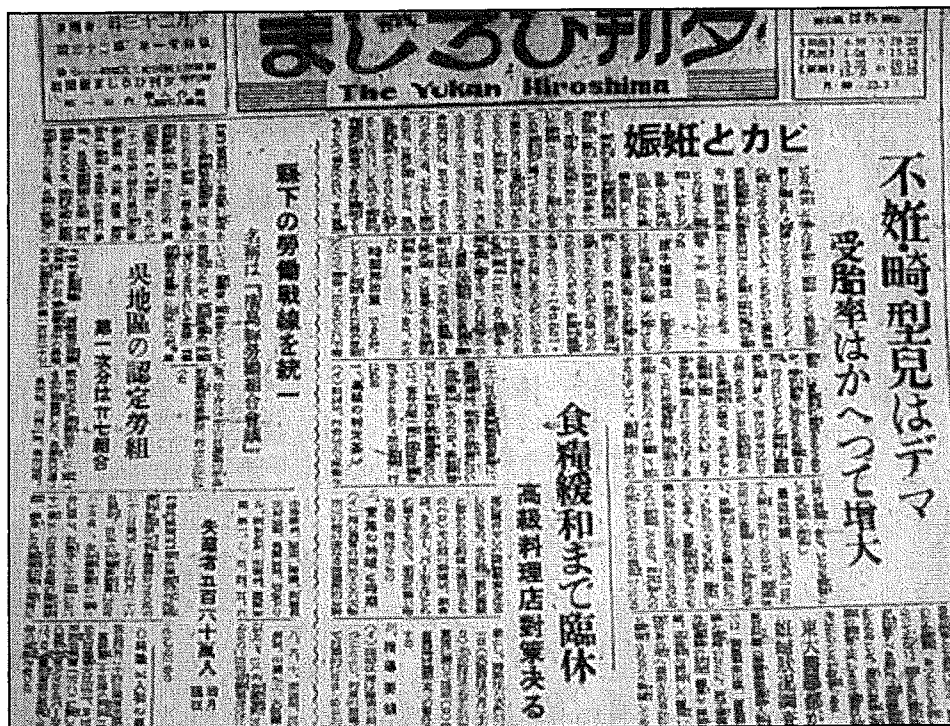


◆ Pikadon Sickness (*Yukan Hiroshima*, June 6, 1946)

"...there was a decrease in the number of patients on the second stage and the atomic bomb injury won't emerge again."

"Health reconstruction is in excellent condition"

「ピカドン症もう出ぬ 斑点は蚊やノミの仕業」
「健康復興いたって快調」



Deny of Atomic Bomb Injury

- Dr. Akiyama at the Hiroshima-Teishin Hospital denied sterility and birth abnormality. (June 23, *Yukan Hiroshima* & July 10, 1946 *Chugoku Shinbun*)
- “Don’t worry about infertility. There will be no birth abnormality.” “It is OK to marry. Ladies with picadon sickness, please feel at ease. You are not infertile, your babies will not be malformed.” (*Chugoku Shinbun*, July 10, 1946.)

Censorship?

- Shigetoshi Itokawa (糸川成辰) head of the editing office of the *Chugoku*.
- “There was no overt censorship and I didn’t get any complaints.[...] I have learned from American newspapers that the press ought to report after careful examination.”
- 「プレス・コードによる公然としての検閲はなく、私のところへは具体的には何もいってこなかった。占領軍の任務遂行、政治上の意味を除いたら、プレス・コードのいう客観報道、早く正しく、真実の報道は新聞の常識といえる。アメリカの新聞の持っているルール、事実をよく確かめてから、よりよく報道する姿勢には学ぶところも多かった。』『中国新聞八十年史』

Censorship?



Chugoku Shinbun, July 6, 1946.
Photo taken by Matsushige cameraman.

Hiroshima-Teishin Hospital

- Located 1.37km from the center of explosion.



Michihiko Hachiya (1903-1980)

- Born in Okayama. Graduated from Okayama Medical University (旧制岡山医科大学) in 1929 and became the hospital director of Hiroshima-Teishin Hospital from 1942.
- He is the author of the book *Hiroshima Diary*. In it, he describes 56 days of experience in Hiroshima from August 6 as a hospital director. *Hiroshima Diary* became the best seller and translated into 18 languages.



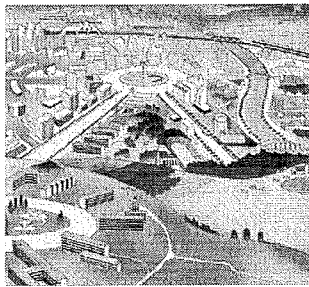
山陽新聞連載「名医の系譜Ⅱ」第5回 被爆者医療
広島逡信病院長 蜂谷道彦
疫学調査を陣頭指揮
2006/9/6
<http://iryo.sanyo.oni.co.jp/rensai/d/c2010031615361167>

Background of the Denial

- The difficulty to put a **patient's individual case** into **epidemiological analysis**.
- Local hospitals did not have the mechanism to gather information on the symptoms that progressed at slow and large scales.
- However, the fear of atomic bomb injury was ingrained in people's minds.

Background of the Denial

- The medical discourse was built upon people's intense anxiety and the desire to overcome the past.



Sankichi Toge (峠三吉) *Hiroshima in 1965*
Prize essay of "Utopia Hiroshima" campaign in 1946

- There was a tendency to link the word "bomb" and "peace."

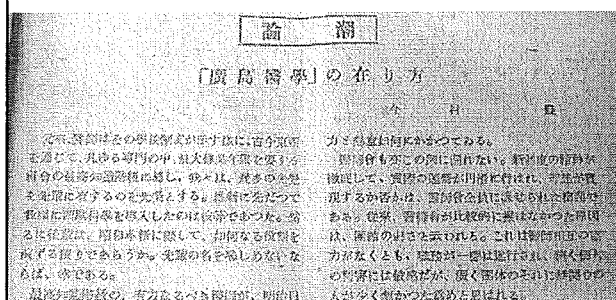


Peace Memorial Day

- In August 1948, Michihiko Hachiya stated, "Atomic Bomb Injury has disappeared. We would like to confirm the fact that we are free from Atomic Bomb Injury and have a peace memorial day with a happy mind."
- 「原爆症はすでに消滅した。われわれは爆弾症から解放されているという学問上の事実を確認し、平和記念日を明るく迎えたい」『朝日新聞』1948年8月6日

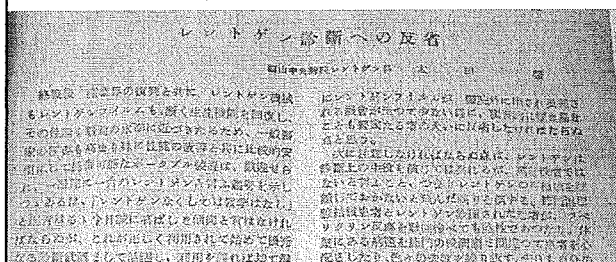
⇒ Doctor's statement for the third anniversary of the atomic bombing (Peace Memorial Day).

Medicine in Hiroshima



Hiroshima Medicine
(広島医学)

Vol.2, No.1 (1949), p.3.



Vol.2, No.1 (1949), p.31.

ABCC

- March 1947, Opened a office in Hiroshima Red Cross Hospital (広島赤十字病院).
- Summer 1948, James Niel started investigation on Hibakusha's blood.
- January 1949, GHQ (Crawford F. Sams) requested a land for "Atomic Bomb Institute(原爆研究所)."

ABCC



- ◆ The conflict of American cold science and victims' suffering.

(Susan M. Lindee, *Suffering Made Real: American Science and the Survivors at Hiroshima*, University of Chicago Press, 1994)

Conclusion

- In the local publications, local doctors contributed to newspapers in response to atomic bomb survivors' anxiety.
- The mechanism of denying the atomic bomb injury occurred in a local context. The survivor's never ending fear on radiation sickness forced doctors to deny it.
- Atomic Bomb Injury was seemingly forgotten in negotiations between doctors and patients, past and future.

Conclusion

- People in Hiroshima tried to overcome the bomb with reconstruction.
- "Atomic Medicine (原子医学)" was a good slogan for that purpose. Hiroshima should be a leading-edge of the Atomic Bomb research.

Survivors-in-waiting:

The Radiation Effects Research Foundation and scientific planning for future risk

Susan Lindee

DRAFT ONLY DO NOT CITE OR QUOTE

"Without people there can be no disaster."

Lieutenant Colonel G N Ritchie RE

"Disaster and the third world." April 1979

The Radiation Effects Research Foundation (RERF) in Hiroshima, Japan, was created in 1975, as a reconfiguration of the joint US-Japan Atomic Bomb Casualty Commission (ABCC). It has gradually become a global resource for planning studies of human risk in the wake of disaster. Scientists at the RERF have been consulted in the wake of every radiation accident since the 1970s, have played a critical role in planning long-term studies of populations exposed at Chernobyl and are now engaged with studies of workers exposed at Fukushima. But their approaches are relevant not only to radiation-related disasters, but to all kinds of complex technologically-mediated collapse.

Oriented not around a specific problem or disease (eg cholera or smallpox) or around a population identified first by some clear medical parameter (men over age 40), the RERF's research has instead been organized around a chaotic disaster, the precise details of which are still being actively reconstructed 70 years later. A new reassessment of dosimetry is underway today, drawing on photographs of two cities that are gone, taken before the bombings during the Second World War-- photographs of ghost cities, of buildings that burned in August of 1945. This unusual research institute has of necessity developed sophisticated protocols for both historical reconstruction and for an anticipatory epidemiology that can be adapted to other uncertain and chaotic disaster outcomes.

Scholars in the social study of medicine long ago began to explore the emergence of a social role they called a "patient-in-waiting," produced by uncertain medical diagnostics. The patient-in-waiting, in this analysis, is an individual suspended between health and illness. If screening and diagnostic technologies "make up people" in this way, I would suggest that institutions preparing for disaster do so as well, participating in the production of what we might call *survivors-in-waiting*. The survivor in waiting is suspended between safety and danger, inside overlapping twenty-first century networks of uncertainty, risk and vulnerability.

In this paper, I draw on these frames to explore the history and contemporary practice of the RERF, as a way of exploring Lt. Col. Ritchie's observation: Without people, there can be no disaster.

Survivors in waiting:

**The Radiation Effects Research Foundation
and scientific planning for future risk**

Susan Lindee
University of Pennsylvania
mlindee@sas.upenn.edu

Epidemiology without end

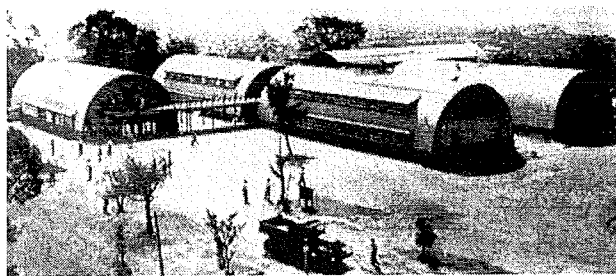
- The reconstruction of a critical moment (where were you?)
- Scientists as biological citizens (expertise and political identity in global risk)
- Boundary work: atomic bombs and nuclear power in the 1970s.

RERF today



November 1950

Construction of new facilities at the Hijiyama site is completed. Staff number 1061 at this time (918 Japanese, 143 from US, Australia, and other countries).



1950 census

- One of the most important triumphs for the developing ABCC was the inclusion of a survey about survivor status in the 1950 Japanese census.
- Having been exposed to the bombs--and therefore qualifying as "hibakusha," a social category by no means desirable--was not necessarily something people wanted to reveal.
- Employment and social discrimination against survivors was widespread. They were believed to be unlikely to be good workers (sickly, at risk for cancer and other conditions) and unlikely to be good marital partners (at risk for genetic effects in their children).
- The numbers of self-identified survivors rose very gradually in the post-war years, and the data from the 1950 census facilitated the creation of a core population of survivors around whom ABCC research could be structured

Reconstructing a critical moment "more than half"

- T65D (tentative 1965 dose) dosimetry calculation in 1965, and with later reports with abbreviated titles for "dosimetry system" the DS86, and DSo2 (Dosimetry System reports).
- The types and amounts of radiation released by the bombs at the moment of detonation--the critical moment of exposure, in comparison with which all other exposures were trivial--were not stable, measured, known facts about the world, but frequently recalculated and estimated assessments, grounded in technical uncertainties.
- Generally, the estimates of biologically significant radiation exposure went down over the decades, meaning that all effects documented were the result of exposure to lower levels of radiation--effects of the bombs became more dramatic with time in two different ways, as more cancers and other health effects emerged, and as dose calculations fell.

John Auxier, *Ichiban*

- Auxier and his group calculated in stunning detail how much and what types of radiation each survivor had been exposed to, based on at least one-hour interviews with over 60,000 survivors, conducted by teams of Japanese interviewers with U.S. observers, over a period of ten years.
- *Ichiban* replayed the bombings, in the construction of artificial or surrogate Japanese cities in Nevada, and in detailed oral histories which produced a tapestry of physical, medical and social experience, or a tapestry of traumatic memory.
- Database documenting the exact locations of 60,000 people at moment of detonation.
- Auxier recalled his astonishment at the survivors' detailed memories of the moment.

Traumatic memory

“We interviewed her and it was precisely, exactly like the first woman had described it. She knew where the woman who was sweeping [was], where her broom was, she knew where her hand was. It was scary it was so detailed. It was so burned in their memory so much. What they did five minutes later they could not remember. But that instant they remembered, so we had confidence then that mostly people remembered.”

Auxier, 2012 oral history

Reliving

All epidemiology of disaster risk, by its nature, requires this kind of reconstruction, this reliving or rehearsal of a critical moment in both technological and personal terms.

RERF: Born Transnational

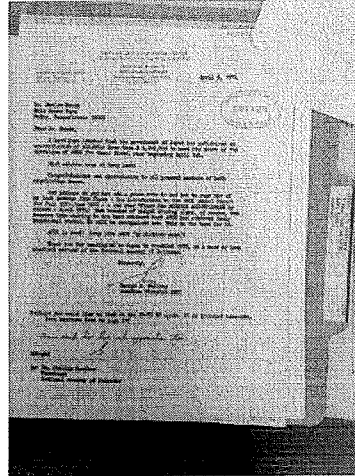
- Originally the Atomic Bomb Casualty Commission (ABCC), a joint project of the governments of the United States and Japan.
- Inflected by political and economic concerns. Scientists are chosen for leadership roles or oversight committee membership based on their citizenship, with a taut balance now required between Japanese, US, and "third-country" scientists, explicitly negotiated in treaties and formal protocols. People chosen to participate in ABCC/RERF activities are often categorized by nationality, and the numbers of Japanese and US participants must be equal. (Biological citizens)
- Not merely a Cold War or Occupation policy. Even the 1995 Blue Ribbon Committee was required to have two Japanese and two third-country nationals appointed by Japan (so, third-country nationals chosen by each of the central nations); and two US nationals and two third-country nationals nominated by the U.S. Department of Energy

National identity and science

Policies express an understanding of scientists as nationalist thinkers, or even as "biological citizens" of a certain kind, who would or could claim biological expertise *based on national identity*. Generally, in blunt terms, US scientists were seen to be more likely to downplay radiation risks and effects; Japanese scientists more likely to overplay them.

1975 RERF Inauguration Ceremony





Naming

- Darling: "ABCC is dead! Long live ABCC (by whatever name)!"
- "Institute for Radiological Studies"
- Radiation Effects Research Foundation was opposed by the Japan Radiation Research Society and the Japan Science Council, because it did not mention the atomic bomb.
- One diplomat reported to NAS President Philip Handler in the spring of 1975 that there was in Tokyo "considerable consternation in the nuclear and nuclear-medical communities over the [RERF] name. It is felt to be too all-encompassing."
- Those who studied radiation effects from non-military sources apparently did not want competition from the RERF, because "it has in the past been implicit from ABCC's name that its studies were constrained to the effects of radiation from the atomic bombs upon Hiroshima and Nagasaki survivors and their offspring."
- And the non-medical nuclear community, i.e. utilities, "would like to remain at arms' length from all aspects of radiation effects. They are concerned over a weakening of the association between radiation effects and atom bombs, fearing a stronger association with nuclear power will result."

Epidemiology of chaos

- How to track *everything* just in case?
- How to establish a practical day-to-day system that could pick up unexpected consequences?
- What biological materials should be saved?
- And how to keep such a system going for decades, throughout the life span?

How long is long-term?

- At first, 5-7 years
- By the 1950s, 1970s; in the 1960s, the 1980s seemed like a natural end; by the 1990s, there were still 20-25 more years ahead.
- Vague expectation of a "natural" ending, one that would reflect the aging of the populations being studied, diminishing returns on the research, the clear emergence of all effects, and the eventual death of most or all of the survivors.
- But studies of the first generation born to the survivors (the F1), of the DNA of survivors frozen in the RERF collections, and of the materials held in tumor registries, have gradually reframed the time-scale, as has the possible emergence of the RERF as a resource for the global management of risk, one that could outlive those whose injuries it was created to document.

Survivors in waiting

Today, with the 70th anniversary of the bombings approaching in 2015, it seems that the RERF could become a kind of post-survivor institute for the study of risk in general, and a critical site of expertise for what I have come to think of as the epidemiology of forever, or epidemiology without end.

This is an epidemiology for the human condition of the twenty-first century, in which we are all potential survivors--*survivors in waiting*--of complex and chaotic risk situations, all the time.

Epidemiology without end



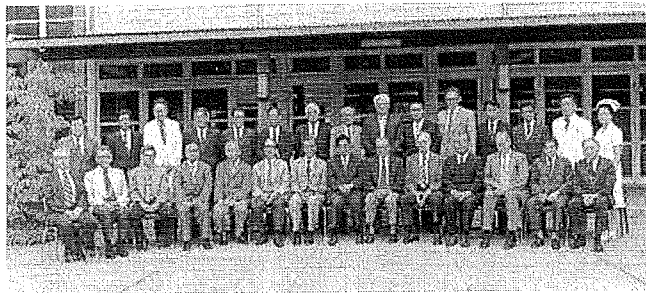
Shigematsu:

- “In fact, it may be no exaggeration to say that *more than half of all the efforts made in Hiroshima and Nagasaki during the past 45 years* [emphasis mine] to follow up the late health effects of the atomic bomb survivors has been devoted to the dosimetry problem”

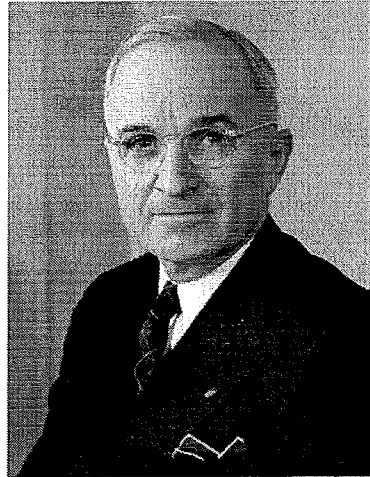
Barbara Allen on Katrina:

“The hurricane served to highlight disparities in health and well-being that already existed in the region and to foreground the vulnerabilities of poor, working class, and minority communities. Disputes over local vs cosmopolitan knowledge and questions about whose science and whose knowledge 'counts' in the reclamation of the city play out in the politics of rebuilding this historic place.”

10-12 July 1975 The first meeting of the Scientific Council is held in Hiroshima.



Harry Truman, from Wikipedia



Risk:

- An elaborate technical construction, a property that can be codified in quantitative terms, involving consensus standards for agreed-upon levels that trigger institutional action.
- Personal, visceral, embodied, "individuated," engaged with the direct experience of suffering and with the moral and social problem of anticipatory trauma. By no means is the world of risk calculation void of moral order. It is about the modern calculation of who will suffer, when, and why. *Some level of suffering*, by someone, is built in to most risk calculations.

January 1948 ABCC is relocated to the former Gaisen-kan (the Hall of Triumph), Ujina, Hiroshima. (The Japanese National Institute of Health [JNIH] of the Ministry of Health and Welfare formally joins the ABCC studies.)



November 1946. The Atomic Bomb Casualty Commission, predecessor of the Radiation Effects Research Foundation, began as a survey team that traveled throughout war-devastated Japan in the 406th Medical General Laboratory--three railroad cars that were picked up on schedule and attached to the Allied Limited train. Above from left, Tokyo University Surgery Professor Masao Tsuzuki and American researchers Melvin Block, Austin Brues, and James V. Neel ar(Photo courtesy of James V. Neel.)



Financial pressures

- From 1963 to 1973 the costs of the ABCC more than doubled, even though the staff declined by 300 people.
- Japan was contributing significantly less to the project than the United States.
- In 1972 the US contribution was 1.25 billion yen, and the Japanese 74 million.
- AEC was trying to leverage its cooperative work with the Japanese nuclear power program--specifically a deal that involved the sale by the US to Japan of \$320 million worth of fuel for new nuclear power stations--to get commitments for Japanese support for the ABCC..

Thomas Francis, the Francis Report, 1955

- Fixed sample
- Close to the hypocenter
- Far from the hypocenter
- Not in the city
- Based on the 1950 census

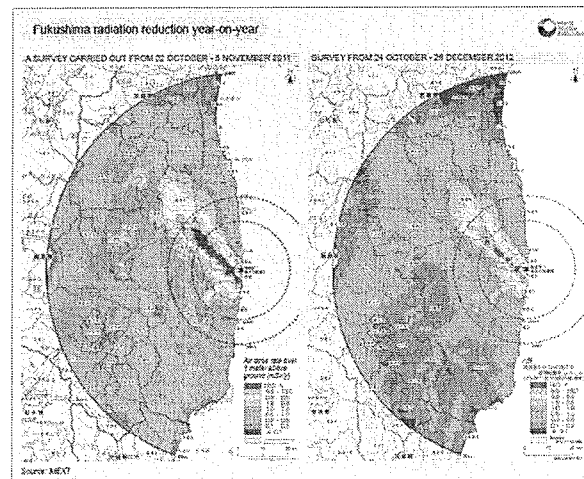
**“We could just be
manipulating the noise”--1991**

- Never found significant differences, for any parameter, between the offspring of survivors and the offspring of controls.
- Neel and Schull in 1991 drew on human and animal data to suggest a relatively high dose.
- In essence, no genetic effects have ever been found, despite dramatic efforts and decades of study.

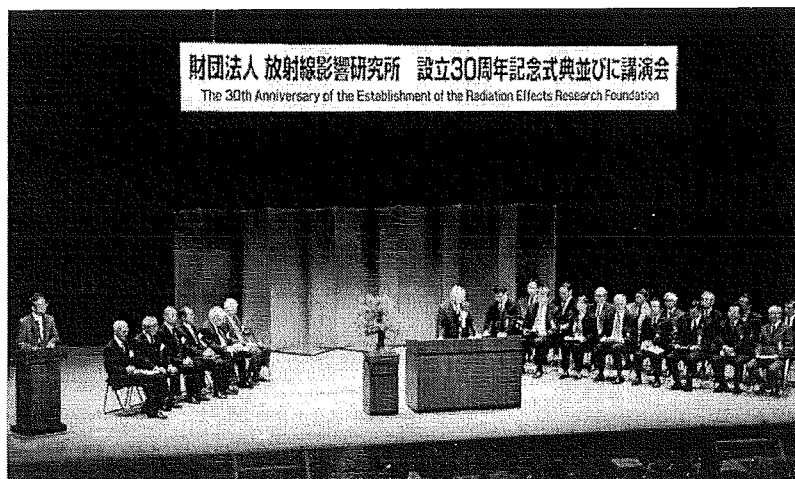
13-14 January 1987 Soviet scientists, including Professor A. I. Vorobjev of the Central Institute for Advanced Training of Physicians, Moscow (shown standing), visit RERF's Hiroshima laboratory following the Chernobyl nuclear power plant accident.



<http://www.world-nuclear.org>



30th anniversary RERF



Vassiliki (Betty) Smocovitis (Florida State University)

**“Devil's Heritage: Masuo Kodani, the "Nisei Problem," and Social Stratification in the ABCC”,
「魔の遺産：コダニ・マスオにみる「二世問題」と ABCC の社会的階層分化」**

Abstract & Regume, to be delivered on the spot.