



What Are the Nuclear Weapons ?

General Review as a Contribution toward
the Nuclear Free World

Ryukichi Imai

Translation Akiko Fukushima

Contents

"Nuclear" Is Not Understood 1

I. Nuclear Weapons — History and Technology 3

How to Make Nuclear Weapons 3

Uranium Type Atomic Bombs — No Need for Testing 3

Plutonium Type Atomic Bombs — Testing Is Necessary 7

It Is Difficult to Time the Implosion and the Explosion 9

The Indian Bomb Was also a Plutonium Type 11

Plutonium Sphere Has Notches 11

Hydrogen Bombs Absolutely Require Testing 13

The First Hydrogen Bomb Was Huge 15

Debate over the Development of a Hydrogen Bomb
with Unlimited Yield 19

B 36, a Larger Bomber, Was Developed for
the 20-ton Hydrogen Bomb 20

U.S.-Russia, France-China; but Others Not
in Same Leagues 22

The Bombing of Hiroshima and Nagasaki 25

Bombing of Cities and Use of Atomic Bombs on Hiroshima
and Nagasaki during the Pacific War 25

Cities Excluded from U.S. Bombing 26

Today's Nuclear Weapons	28
Weight of Nuclear Weapons: Top Secret	28
The Smallest Nuclear Weapon Is 15 cm in Diameter	29
Submarine Launched Nuclear Weapons Are the Most Advanced	31
Nuclear Deterrence Means Having Retaliatory Power Even after the U.S. and Russia Have Reduced Their Long Range Missiles to 3,500, They Still Have High Performance Missiles	33
Will Start II Be Ratified?	37
Levels of Five Nuclear Weapon States Differ Greatly When It Comes to Israel, India and Pakistan....	40
	41
Significance of Nuclear Test	43
The U. S. Has Completed Its Nuclear Tests, and the U.K. Receives Data from the U.S.	43
French Nuclear Tests for Converting Missiles to Submarine-Launched	44
Soviet Union Assisted China's Nuclear Weapon Development in Its Early Phase	45
China Has also Developed Submarine-Launched Nuclear Weapons	49
China Does Not Perceive Nuclear Weapons as Bad	51
Nuclear Strength of France and China	52
Was It Necessary to Establish Simulation Technology?	53
Why Japan and Germany Were so Ambiguous at the NPT Review Conference	55

- Japanese Media Is Obscure Over Chinese
Nuclear Testing 56
- Priority Is to Ban Nuclear Tests 57
- Nuclear Weapons and Human Beings 59
- A Simultaneous Launch of All Nuclear Weapons
Is Not Feasible 59
- 3,500 Missiles Are Still too Many 60
- How to Treat Plutonium from Dismantled
Nuclear Weapons 61
- Column:How Many Minutes Left Before Human Extinction
by a N-War? 62
- Attitudes of Scientists at the Early Phase of
Nuclear Development 62
- International Control of Nuclear Weapons 63
- A "Practical" Hydrogen Bomb Was Tested on Bikini
in 1954 64
- Cuban Crisis Put the World on the Brink
of a Nuclear War 66
- Partial Nuclear Test-Ban Treaty — France and China
Did Not Participate 67
- Non-Proliferation Treaty Is Unique Amongst
International Laws 67
- Kennedy Worried That the Number of Nuclear Weapon States
Might Increase 68

Indian Nuclear Test Was a Great Shock 69

Era of Evil Empire 69

II. Undeclared Nuclear Weapons States Other than the Five Super-Powers 71

Declared and Undeclared Nuclear Weapon States 71

Countries which Owned Nuclear Weapons as of
January 1, 1967 71

Was the Indian Underground Nuclear Test Conducted
for Peaceful Purposes? 71

Chinese Nuclear Weapon Development Prompted India
to Commence Development 74

Pakistan Learned from China 74

Israel Has Received Technology from France 75

We Do Not Know Whether South Africa Still Maintains
Nuclear Weapons 76

Iraq Was Promoting Its Atomic Bomb Program 77

Companies in Industrialized Countries Sold Technology
to Iraq 78

Iran Does Not Yet Have Nuclear Bombs 79

Brazil and Argentina Have Decided Not to Develop
a Nuclear Bomb 80

DPRK Has Not Nuclear Weapons, I Believe 80

Only a few Countries Can Produce
Centrifugal Separators 81

It Is Not Easy to Recover Plutonium 83

- Attitudes of NW States toward NNW States 86
- U.S. Stopped Korean and Pakistani
Reprocessing Plans 86
 - U.S. and Russia Each Have 10,000 Nuclear Weapons
Not Covered by Disarmament Agreement 88
 - Terrorists Can Make Nuclear Weapons If They Have
Proper Tools 90
- Nuclear Weapon Industries in the U.S. and Russia 92
- U.S. Nuclear Weapon Industry 92
 - A Successful Hydrogen Bomb and the Use of
Excess Uranium 95
 - Soviet Union Clung to the Non-Military Use of
Nuclear Explosions 96
 - The U.S. Nuclear Weapon Industry Employs
Over 100,000 People 97
 - Nuclear Weapon Industry in the Former Soviet Union 98
 - Stalin Knew from the Outset 100
 - When CEP Was Poor, Bombs Were Much Bigger 102
 - Manufacture and Maintenance of Nuclear Weapons
Require Support of Huge Industry 103
 - Research Institutions Are to Be Reduced by Half 104
- Disposal of Dismantled Nuclear Weapons 105
- Peaceful Uses Would Best Serve Plutonium Disposal 105
 - A Mistaken Explosion of Nuclear Weapons Would Be
a Repeat of Chernobyl 106

- Japanese Cooperation Is Necessary for Dismantling the
Nuclear Weapons in the Former Soviet Union 106
- Russia Wished to Convert Plutonium to Dollars 109
- Qualitative Differences Between Nuclear Non-Proliferation
and Nuclear Abolishment of Nuclear Weapons 110

Column: Functions of the United Nations 111

- United Nations Is Controlled by Interpreters 111
- Waldorf Astoria Hotel 112
- UN Resolution Depends on Its Sponsors 112
- NPT Is the Only Resolution Submitted Jointly by the U.S.
and the Soviet Union 114

III. Peaceful Uses of Nuclear Energy 116

Energy Issues 116

- Energy Demand Is Growing in Asia 116
- World Energy Demand Will Quadruple in 2010 120
- Proven Coal Reserve Is Exhausted by 21st Century 121
- Two-Thirds of World's Proven 1 Trillion Barrel Oil Reserve
in the Persian Gulf Region 122
- Use of Natural Gas Is Limited 123
- Uranium Is Abundant in Quantity 123
- New Energy Sources Are Still Being Developed 123

Environmental Issues 125

- No Room to Doubt the Increase of CO₂ Emissions 125
- World Temperature Will Increase by 1 to 3.5°C in 2050 126
- Some Countries May Be Flooded If the Sea Level Rises 127
- Possibility for the Spread of Disease 128
- Maintaining Carbon Dioxide Emissions
at Their 1990 Level 128
- Calculations on New Energy 130
- Use of Photovoltaic Power Is in Fact Very Difficult 131
- Giant Kelp Is a Biomass Source 132
- The Worst Culprit for Carbon Dioxide Production
Is Coal 132
- Developing Countries Work Hard for Economic Development
than Environmental Protection 133
- Asian Energy as a Global Issue 136
- Trilateral Commission: Chinese Energy Is
a Major Issue 136
- China's GNP Is Growing Very Rapidly, and It Moved
toward Increased Nuclear Power 137
- Qing Shan Nuclear Power Plant Uses Mainly
Domestic Technology 138
- Japan's Role in Asian Nuclear Development Is Important 142
- Road to Peaceful Use of Plutonium 146
- Germany Would Have Made Nuclear Bombs, Having Known
More about Plutonium 146

People Familiar with Nuclear Bombs Cannot Spread the Information	147
Difference Between Weapon Grade and Reactor Grade Plutonium	148
Only Pu ²³⁹ Can Be Used for Weapons	149
Bombs Are Not Made from Reactor Grade Plutonium	151
Why Do We Provide LWRs to the DPRK?	152
Purity of Iraq's Sarin Was Poor	154
Plutonium Transported by Akatsuki Maru Cannot Be Used to Make Nuclear Weapons	155
Role of Nuclear Power Cannot Be Dismissed in Asia	156
Nuclear Abolishment of Nuclear Weapons Lies with Peaceful Uses of Nuclear Energy	157