Unusual, Long-Distance, Biological, Atmospheric and Geophysical Effects From Underground Nuclear Bomb Tests and Nuclear Power Plant Accidents:

Suppressed Scientific Evidence

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All materials carry prior publication copyrights from *Pulse of the Planet* journal. Permission to reprint should be addressed to: James DeMeo, Ph.D., Editor, *Pulse of the Planet* journal Orgone Biophysical Research Laboratory www.orgonelab.org Email: info@orgonelab.org In his 1951 publication *The Oranur Experiment** Dr. Wilhelm Reich described a series of observations on unshieldable biological and atmospheric effects from low to moderate level radioactive materials. The effects were sensible, observable, and produced severe and sometimes life-threatening symptoms in humans and laboratory animals subjected to this unshieldable phenomenon.

Reich had previously argued for the existence of a specific biological energy (he called it the orgone) which also acted as a kind of "aether", existing as a continuum within the atmosphere, and which could also be stimulate and excited. However, one does not have to be convinced of Reich's explanation, or of the existence of orgone energy, to take the basic empirical observations made by Reich and his co-workers seriously. This point becomes all the more important when one considers that *Reich was not the only individual to make note of such unusual, long-distance and unshieldable phenomenon related to nuclear energy*. In fact, nuclear physics today acknowledges there is a very significant percentage of all energy from nuclear decay processes which is completely unshieldable — notably, neutrino particles — but the theory also claims they possess nearly no mass, and no electrical charge, and so pass through ordinary matter (including people and other organisms) without creating any observable effects. If Reich is correct in a basic way, however, then the neutrino and other mysterious nuclear phenomenon, might in fact be having very profound effects. Good science demands that empirical observations be given a higher value and authority than pure theory.

The materials contained in this document range in from relatively insignificant materials only suggestive of a possible effect (ie, Kato's study), to highly significant and even alarming materials, clearly demonstrating strong biological and atmospheric reactions (Katagiri's study) and confirming Reich completely. Other materials contained herein fall somewhere between these two levels of significance. Virtually none of these materials have been taken seriously by the high-ups in the atomic energy industry or regulatory agencies, for obvious reasons. It is hoped the general public, and those citizens engaged in the anti-nuclear power movement, will become aware of these findings, and press for necessary controls and reforms in the uses of nuclear materials, atomic power, and nuclear testing. James DeMeo, Ph.D., Greensprings, 1999.

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^{*} *The Oranur Experiment, First Report 1947-1951*, Wilhelm Reich Foundation, Rangeley, Maine, 1951. Partially reprinted in *Selected Writings*, by Wilhelm Reich, Farrar, Strauss & Giroux.

Earthquakes and Nuclear Testing: Dangerous Patterns and Trends

Gary T. Whiteford, Ph.D. *

Presented to the Second International Conference on the United Nations and World Peace, Seattle, Washington, 14 April 1989.

Introduction

This paper is an attempt to understand distributions, patterns, and directions of large earthquakes of Richter Magnitude (M) >= 6 since 1900. Secondly, attempts will be made to relate such large earthquakes to the patterns of nuclear testing. Such testing is conducted by the United States (USA), the Soviet Union (USSR), France, the United Kingdom (UK) and China. Emphasis was placed on earthquakes of M>=6 because these are the ones that cause considerable property damage and/or kill hundreds of people in short periods of time. Further, the data was more manageable when such magnitude earthquakes were considered. For example, there are between 5,000 to 7,000 earthquakes of M>=4.5 each year around the world, whereas in any given year since 1900, the highest number of earthquakes M>=6 (in 1957) was 214. As the magnitude threshold is lowered, many thousands more small events must be screened. Earthquakes have always been part of the Earth's geologic history. On the other hand, nuclear testing only began in earnest in 1951. In 1963, such testing was moved underground. The greatest recorded earthquake death toll of 830,000 was in Shaanxi, China, in 1556. The worst in this century was on 28 July 1976, when the northeastern Chinese city of Tangshan was levelled and about 800,000 people were killed. That guake measured M 7.8. Coincidentally, five days before the guake (23 July) the French detonated a nuclear bomb in the South Pacific Mururoa Atoll, and one day before (27 July) the USA detonated a nuclear bomb of 20-150 kilotons (KT) at the Nevada test site.

The nuclear era began on 16 July 1945, when Trinity was dropped 100' from a tower near Alamogordo, New Mexico. The yield was 19 KT of TNT equivalent. Soon

* Professor of Geography, University of New Brunswick, Frederickton, New Brunswick, Canada, E3B 5A3 after this test, on the 5th and 9th of August, the 15 KT nuclear device "Little Boy" was dropped on Hiroshima, and the 21 KT "Fat Man" was dropped on Nagasaki, ending World War II. Since 1945, the major powers have exploded a total of over 1,800 nuclear bombs (through March 1989). An average of close to 50 underground nuclear tests have taken place each year since 1980. There is little doubt that planet Earth is under severe environmental stress. It is not getting any better. Recently the prestigious environmental research group, the Worldwatch Institute, issued their latest "State of the World Report", which shows that the world is being pushed to the brink. "We are losing at this point, clearly losing the battle to save the planet," said the report's chief author, Lester Brown. The impending result, he warned, "will shake the world to its foundation." Ozone depletion, toxic wastes, acid rain, water scarcity and pollution, forest destruction, and topsoil loss are all part of this impending environmental disaster. Perhaps it is high time to consider underground nuclear testing as a part of this infamous list.

Patterns of Earthquakes M>=6, 1900 to 1988

For means of comparing patterns and trends of M>=6earthquakes with nuclear testing, 1950 will be used as the watershed year. There were no nuclear tests in that year and only nine covering the years 1945 through 1949. The idea is to identify patterns in the first half of this century (1900 to 1949) and compare these to the second half of the century (1950 to 1988). The most evident trend from the graphs in Figure 1 is the change in the comparative number of earthquakes of various magnitudes for the period before and after 1950. The first 50 years of this century recorded 3,419 such earthquakes of M>=6, an average of 68 per year. The last 39 years of this century recorded 4,963 earthquakes of M>=6, an average of 127 per year. In other words, the average per year for such earthquakes has about doubled in the second half of this century as compared to the first half of the century. Also, from 1900 through 1949, there were only 8 years in which there were over 100 earthquakes of M>=6. This

" The average number (of earthquakes) in the (M 6.0 to 6.5) range has tripled since 1950"

entire cluster of 8 was found between 1931 and 1941. The highest number was 182 in 1934, and this compared to a low of 17 in 1904. Starting in 1950, the trend was completely reversed. In this 39 year period, from 1950 to 1988, the overwhelming majority of years had a total of over 100 earthquakes of M>=6. Again, this compares to only 8 years for the first 50 years of this century. The highest number was 214 in 1957, while the lowest was 78 in 1962. It is interesting to note that the years 1959 and 1960 were relatively free of nuclear tests. Coincidentally, two years later, the number of earthquakes M>=6 dropped to only 78 in 1962 and 83 in 1963. These earthquake totals were the lowest for any given year covering the entire second half of this century. When the M>=6 earthquakes are divided into groups, another trend becomes evident.

From 1900 through 1949, there were a total of 101 earthquakes of M>=8, with a yearly maximum of 7 in 1906. Those 1906 earthquakes included the famous San Francisco earthquake of 18-19 April, at M 8.3, which killed over 400 people. But from 1950 through 1988, a total of only 30 earthquakes of M>=8 were recorded. The most in any given year since 1949 were 4 back in 1950. This included the great Indian earthquake on 15 August at M 8.7, which killed over 1500 people. Thus, for the first half of this century 101 earthquakes of M>=8 were recorded, as compared to only 30 of such earthquakes for the second half of the century. And for the last 10 years, there have been only three earthquakes M>=8 recorded. The last was on 20 October 1986, when a M 8.3 earthquake struck the Kermadic Islands of the South Pacific. This quake happened just 4 days after the USA exploded a 20-150 KT bomb in Nevada, on 16 October.

It appears, therefore, that given such an increase in earthquakes of M>=6 since 1950, and a decrease in earthquakes of M>=8, that the observed increase must have occurred in between the two magnitude ranges. In fact, the increase has mostly occurred in the M 6.0 to 6.5 range, as seen in the table below. The average number in this range per year has tripled since 1950, from 24 to 72, as compared to earthquakes between M6.5 to <7.0. The numbers for earthquakes M>=7 have dropped since 1950, relative to the first half of the century. There were 1145 (average of 22 per year) from 1900 to 1949, and only 699 (average of 17 per year) from 1950 to 1988.

Earthquakes of Magnitude 6 or Greater				
Magnitude	1900-1949	Average	1950-1988	Average
6.0 to <6.5	1164	24	2844	72
6.5 to <7.0	1110	22	1465	37
>7.0	1145	23	69 9	18
>8.0	101	2	30	<1

It should be noted that the ability to locate earthquakes in the world has increased dramatically since the turn of the century because of improved global communications and seismograph instrumentation. A dramatic increase in the number of recording stations has also occurred. For example, about 350 seismograph stations were operating in 1931, whereas today there are over 3,000 active stations around the world. It is generally conceded, however, that the largest earthquakes have been recorded relatively consistently since 1900, and these factors could have only a small effect on the number of events located per year for magnitudes above 6.0.

In conclusion, since 1950 the trend of the earthquakes M>=6 is as follows: There have been 1500 more in the last half of this century compared to the first half, and the average per year has doubled. Further, the increase has been most dramatic in the M 6.0 to 6.5 range, while a dramatic drop is seen in earthquakes of M>7.0. The question remains as to whether this trend will continue.

Patterns of Nuclear Testing, 1945 to 1989

The table below compiles the respective summary totals of nuclear explosions by country since 1945, while Figure 2 breaks these numbers down by year and type of explosion. The USA and USSR account for about 87% of the total.

Total Nuclear Tests by Country, 1945 to 1988						
Years	USA	USSR	Fra.	UK	Chin	India
1945 - 1962: 1963 - 1988:	304 629	166 451	6 165	23 18	0 32	0 1
Totals:	933	617	171	41	32	1
Grand Total: 1795						

Nuclear Testing began in earnest in 1951 when the USA exploded 16 bombs. They later tested 77 times in 1958, half in the South Pacific and about half at the Nevada test site. In 1962, a record of 98 USA bomb tests occurred, including a 600 KT bomb from a Polaris A2 rocket in the South Pacific. The largest nuclear test explosion conducted by the USA was a 15 megaton (MT) bomb detonated at Bikini Atoll, Marshall Islands in the South Pacific, on 28 February 1954. The largest nuclear test by any country is believed to be a 58 MT bomb detonated by the USSR on 30 October 1961, above the high Arctic island of Novaya Zemlya. Since 9 November 1962, all USA nuclear tests have been conducted underground at the Nevada test site. In 1962, a large number of nuclear tests were carried out (98 by the USA, 44 by the

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USSR) in anticipation of a halt to above-ground testing. which was a result of the Limited Test Ban Treaty signed in 1963. The French, however, continued to test above the water at the Mururoa Atoll until 1975. And the Chinese did likewise, testing some 16 times above ground at the Lop Nor test site in Sinkiang Province, until 1975. Tests are now limited to a maximum yield of 150 KT, under terms of the Threshold Test Ban Treaty signed by President Richard M. Nixon and Soviet Premier Leonid Brezhnev in Moscow, on 3 July 1974. The ban did not take effect until 31 March 1976, and remains unratified by the US Senate. Testing was stopped completely in 1959 and 1960, and the USSR unilaterally stopped their testing, during a selfimposed moratorium, for 19 months between July 1985 to February 1987. During that time, the USA conducted 26 nuclear tests. Since 1963, nuclear test sites by the five major powers have essentially been confined to the following locations:

Nation	Site Description	Latitude.	Longitude
USA & UK:	Nevada Test Site (65 miles NW of Las Vegas	37 N	116 W
France:	Mururoa, Fangataufa Atoli (720 miles SE of Tahiti, in Tuamotu archipelago)	, 22 S	139 W
China:	Lop Nor, Sinkiang Province	41 N	88 E
USSR:	1. Semipalatinsk, Kazakhistan	49 N	78 E
	2. Novaya Zemlya Island Arctic Ocean	73 N	55 E
	3. Ural Mountains, near Serov	60 N	56 E
	4. Siberia, north Lake Baykal	61 N	112 E

The French testing site is very close to the Tropic of Capricorn (23-1/2 S Lat.) and is the only nuclear test site south of the equator. The Soviet Arctic site, the Novaya Zemlya Islands, is the only nuclear test site north of the Arctic circle (66-1/2 N Lat.), and is presently used only once or twice per year. However, from 1958 through 1963, it was the main Soviet nuclear test site. The site was last used on 4 December 1988, when the USSR exploded a nuclear bomb between 20-150 KT. Three days later, on 7 December, the Soviet Armenian earthquake struck, registering M 6.9, and killing upwards of 60,000 people, injuring 13,000, and leaving half a million people homeless. Another of these dangerous coincidences.

The total nuclear tests by all countries since 1945 is 1,795.* The average for the 43-1/2 year period is one test

every 8 to 9 days. If the period 1963 through 1988 is taken, the major powers are averaging a nuclear test every 7.3 days. The yearly average in the 1960s was 56; in the 1970s it was 47 tests; and in the 1980s, 47 tests. But the period of July 1985 to February 1987 was the selfimposed test ban by the USSR, so the 1990s should show the yearly level rise to above 50 again, as they try to make up for lost ground. Perhaps the only hope on this nuclear testing path is the attempt to limit nuclear tests to 1 KT, with a view to total elimination. The Soviets emphasized a goal of immediate cessation of all nuclear tests, while the Americans stressed the need to improve verification capabilities, and the need to continue testing in the absence of significant reductions in offensive nuclear weapons. In 1988, each side visited the other side's nuclear test site, to monitor an underground nuclear explosion. The idea was to make sure that both sides can verify whether a test yields more or less than 150 KT. The Soviets prove accuracy by their preferred monitoring method, which counts seismic units such as those used in monitoring earthquakes. In the American method, an electrical cable must be placed within 10 to 15 meters of the blast.

Nuclear Testing and Earthquake Frequencies

The distribution of all earthquakes of M>=5.8 between 1900 through 1949 clearly reflects the boundries of the eleven major tectonic plate zones.** All such earthquakes were located in zones or blocks of 10 degrees of latitude and 10 degrees of longitude, to give frequency and percent distributions on a global scale. The highest percent is the Southern Philippines block at 3.95%, having recorded 135 earthquakes of M>=5.8 during the period. Japan, in the Hokkaido area, is next at 3.07%, with 105 such earthquakes. The table below identifies the major Zones of High Earthquake Frequency, in some cases combining the values for adjacent blocks of latitude and longitude. This convention for aggregating and presenting the data, in percentage values within block of latitude and longitude, will be used throughout the paper.

** Maps of these and other earthquake patterns given in this paper are available from the author.

^{*} This figure will vary some what because test dates are gathered by a number of observer agencies, and tests have been confirmed by some, and unconfirmed by others.



Figure 2. Atmospheric and Underground Tests from July 16, 1945 to December 31, 1988.

1900 to 1949 (1 block = 10 deg. of Latitude x 10 deg. of Longitude)				
	umber of Earth- quakes	Combined no. of Blocks of Lat and Long	% of All Earth- quakes	
ndonesia, New Guinea:	424	7	12.39%	
Vanuatu, Fiji, Tonga:	377	5	11.03%	
Japanese Islands:	' 310	4	9.07%	
Cent. Amer., S. Mexico:	205	4	5.99%	
Chile, Peru, N. Argent.:	204	5	5.96%	
Philippines:	187	2	5.47%	
Faiwan:	74	1	2.16%	
N. India, Pakistan:	69	1	2.02%	
New Zealand:	43	3	1.25%	
S. Greece, W. Turkey:	42	1	1.23%	

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Zones of High Earthquake Frequency (M>=5.8)

These area blocks or zones of latitude and longitude received nearly 56% of all the Earth's quakes of M>=5.8 from 1900 to 1949, for a total of 1935 earthquakes. By comparison, all other blocks of latitude and longitude each receive less than 1% of all earthquakes. This established pattern of earthquakes of M>=5.8, with highlighted zones of high frequency occurrence on a global scale, between 1900 and 1949, will act as a control against which we can compare the patterns of earthquakes that follow nuclear testing. All such earthquakes were recorded either on the day of the test, or within the four days afterward, for a five day period.

Atmospheric (Above Ground) Nuclear Testing

The first area to consider is the South Pacific. The US tests here totalled 106 and were conducted from 1946 through 1962. The principal sites are listed below:

Location	Number of Tests	Lat	Long
Enewetak	43	11 N	162 E
Christmas Island	24	2 N	169 W
Bikini	23	11 N	165 E
Johnson Island	12	17 N	169 W
Pacific sites	4		

When we review the earthquake data, the following areas emerge as receiving more than their share of the M>=5.8 earthquakes. Hardest hit following USA South Pacific Tests, relative to the pattern prior to 1950, were the blocks of latitude and longitude encompassing Sakhalin Island, the Aleutian Islands, Peru, Bolivia, Central America, Western Samoa, Vanuatu, Baja, California, Hawaii, and Japan. French testing in the South Pacific covered years 1966 through 1974 when they conducted 44 atmospheric tests, 39 over Mururoa Atoll and 5 over Fangataufa Atoll. The earthquake pattern after the French South Pacific testing is somewhat different, and the zones of high frequency earthquakes following these French tests were Western Samoa, Fiji, the Solomon Islands, the Alaska Panhandle, and the area between the Kamchatka Peninsula and Aleutian Islands. Interestingly, these regions of high earthquake activity following South Pacific nuclear testing are all confined to the Pacific Ring of Fire, a zone of earthquakes and volcanoes that circles the entire Pacific Ocean. These data are summarized below:

Percent of All Earthquakes M>=5.8 After American and French Above-Ground Nuclear Tests in the South Pacific, 1946-1975 (Five Day Period)

F	Pre-Test	After	After
F	Period	USA Tests	French Tests
F	Percent	Percent	Percent
Location 1	900-1949	1946-1963	1966-1975
W. Samoa:	2.78	4.91	12.50
Fiji:	2.31	2.45	4.17
Kermadec Is.:	0.50	1.84	0
Vanu-Coral Sea	a: 3.36	6.75	4.17
Solomon Is.:	2.98	1.84	16.67
Hawaii:	0.06	1.23	0
	0.09	1.84	0
N. Peru:	1.02	0.61	4.17
Lima, Peru:	1.26	3.07	0
Bolivia:	0.79	3.07	0
C. Rica, Panam	na: 1.05	4.91	0
South Mexico:	2.22	4.29	0
Baja, CA:	0.35	2.45	0
Alaska Panhan	.: 0.50	0	8.33
W. Alaska:	0.41	1.23	4.17
Aleutian Is.:	0.88	7.36	0
	0.97	3.07	4.17
	0.88	2.45	4.17
	0.76	0.61	4.17
Sakhalin:	0.97	7.98	0
Hokkaido:	3.07	1.84	4.17
Tokyo:	2.46	3.68	0
S.Japan, Bonin	: 0.53	2.45	0
Burma:	0.94	0	4.17
Tehran:	0.47	0	4.17

British tests in the South Pacific covered the period 1957 to 1958 and involved only nine tests at Christmas Island (1.7 N Lat, 157 W Long). Twelve British tests were conducted in Australia from 1952 to 1957. Since 1962, all British tests have been underground at the USA Nevada test site. Only the Christmas Island tests were examined here, but once again, familiar names emerge:

Percent of All Earthquakes M>=5.8 After British Above-Ground Nuclear Tests in the South Pacific, 1952-1957 (Five Day Period)

Location	1900-1949	After British Tests
Central America &	4 5 4	20.00
S. Mexico: Kermadec Is./Samoa:	4. 04 7.13	15.00
Solomon Is./Vanuatu:	6.34	10.00

Percent of All Earthquakes M>=5.8 After USSR Above-Ground Nuclear Tests In Novaya Zemiya, 1958-1963 (Five Day Period)

Location	1900-1949	After USSR Tests
Costa Rica/Panama:	1.05	8.82
Mindanao, Philippines:	3.95	6.86
Vanuatu:	3.36	6.86
Kermadec Is.:	2.81	6.86
Kamchatka:	0.97	5.88
Java/Java Trench:	0.94	8.82
S. Aleutian Is.:	1.85	10.76

From 1951 until 1963, the USA tested 100 times above ground at the Nevada test site. When these test dates are matched with earthquakes of M>=5.8 within a five day period, the following areas show a higher than normal share of such earthquakes, as compared to the 1900-1950 period:

Percent of All Earthquakes M>=5.8 After USA Above-Ground Nuclear Tests in Nevada, 1951-1963 (Five Day Period)

Location	1900-1949	After USA Tests
Kermadec/W. Samoa &		
Vanuatu:	11.61	16.05
Kamchatka/Aleutian Is.:	4,46	10.82
Taiwan:	2.16	5.60
Solomon Is.:	2.98	5. 2 2

The Soviet above ground testing involved 166 tests from 1949 to 1962. About 70% of the known Soviet tests have occurred at their two main sites near Semipalatinsk in eastern Kazakhistan (50%), and on the island of Novaya Zemlya, north of the Arctic Circle (20%). The above ground testing was very active at Novaya Zemlya in the years 1958 to 1962. When the 79 tests at that site are matched to the M>=5.8 earthquakes over the five day period for those years, the following areas emerge as high risk zones: These seven areas were struck 55% of the time during a five day period following an above ground test at Novaya Zemlya, for the period 1958 through 1962.

The USSR main testing site today is Semipalatinsk. But from 1945 through 1962, only a total of 53 above ground tests were recorded. This number also included tests conducted at their other mainland sites in Siberia and the Ural Mountains. Two regions are most noticeably tied to this particular Soviet nuclear test site: Taiwan at 9.48%, and the South Aleutian Islands at 23,28%. These two locations respectively received only 2.16% and 0.88% of all M>=5.8 earthquakes during the pre-testing period of 1900-1949. Two other high percent zones are the southern Mexico, Central American Coastal region, at 8.62%, and the western Samoa- Tonga region, at 9.48%. Another very interesting observation was that these mainland Soviet tests appeared to have little significant affect upon earthquake patterns in the Indonesia, Solomon Island region, a zone that appears tied to other above ground nuclear test sites.

Underground Nuclear Testing

Underground, or below ground nuclear testing for the USA and USSR started in 1963. Through 1988 the USA tested underground 629 times, almost exclusively at the Nevada test site. The Soviets tested underground 451 times, mainly at the Semipalatinsk location, but with 35 underground tests at Novaya Zemlya.

Percent of All Earthquakes M>=5.8 After USA Below-Ground Nuclear Tests in Nevada, 1963-1988 (Five Day Period)

Location	1900-1949	After USA Tests
Vanuatu:	3.36	6.81
Solomon Islands:	2.98	4.89
Nevada:	0.61	4.36
Aleutian Is. Block:	. 3.31	12.57
Santiago, Chile:	0.76	2.79

Observations from the table above show that around 30% of the time, during a given five-day period following an underground nuclear test in Nevada, a M>=5.8 earthquake has hit the Vanuatu Islands, Solomon Islands, Nevada itself, parts of the Aleutians, or Santiago, Chile. The 35 tests at Novaya Zemlya 1963 through 1988 tie to familiar areas again, as given in the table below.

Percent of All Earthquakes M>=5.8 After USSR Below-Ground Nuclear Test in Novaya Zemiya, 1963-1988 (Five Day Period)				
Location	1900-1949	After USSR Tests		
S. Aleutians:	0.76	9.09		
Mindanao:	3.95	9.09		
Vanuatu:	3.36	6.06		
Hokkaido:	3.07	6.06		
Novaya Zemlya: 0 18.18				
W. Samoa/Kermadec Is.:	5.59	15.15		

The major USSR nuclear test site in Semipalatinsk, and associated mainland sites, has received over 400 underground nuclear tests since 1963. Interesting patterns of earthquakes again follow nuclear tests at these sites. The South Pacific zone once again shows a relationship, but so too does the Nevada region, which previously only appeared with a high percentage following American nuclear tests in Nevada itself. The Aleutian Islands usually show an increase in earthquake frequency following nuclear tests, but this is not the case following a USSR underground test at Semipalatinsk, a marked contrast with the Novaya Zemlya test site. Further, the Semipalatinsk region itself received 3.15% of all M>=5.8 earthquakes following nuclear tests at that site, as compared to a low 0.23% prior to 1950.

Percent of All Earthquakes M>=5.8 After USSR Below-Ground Nuclear Tests in Semipalatinsk and Other USSR Mainland Sites 1963-1988 (Five Day Period)				
ocation 1900-1949 After USSR Tests				
Solomon Is.:	2.98	8.92		
Vanuatu: 3.36 6.49 Fili. New Caledonia.				
Kermadec,W.Samoa block	c: 8.33	14.86		
Honshu-Kyushu:	2.19	2.43		
Nevada:	0.61	1.62		
Aleutians:	2.55	3.24		
Semipalatinsk:	0.23	3.51		

The French have conducted 111 underground nuclear tests at the Mururoa Atoli in the South Pacific, from 1975 through 1988. As pointed out by a recent National Resources Defense Council paper, the French have accounted for some 20% of all nuclear tests within the last 10 years. Serious fractures of the coral atoll and constant nuclear contamination of the site and surrounding waters has occurred. Some observers feel that the French will have to move these tests to the nearby Fangataufa Islands. When the earthquakes of M>=5.8 are mapped within 5 days following all French underground testing, many Pacific regions again emerged as most affected and noticeable.

Percent of All Earthquakes M>=5.8
After French Below-Ground Nuclear Tests
at Mururoa Atoli, South Pacific 1975-1988
(Five Day Period)

Location	1900-1949	After French Tests
W. Samoa, Kermadec I	s.: 5.79	12.41
New Britain, Solomon Is	s.: 2.98	10.08
S. Aleutian zone:	2.61	7.76
Vanuatu:	3.36	9.30
Hokkaido:	3.07	5.43
Taiwan:	2.16	3.10
Mexico City, El Salvado	r: 2.22	3.10
Columbia:	0.85	2.33

Interestingly, the French nuclear test site itself at Mururoa Atoll (22 S Lat, 139 W Long.) has a low 1.55% earthquakes observed in the five day period following an underground test. This is quite different when compared to earthquake frequencies following underground tests at the three other test sites in Nevada (4.36%), Semipalatinsk (3.51%), and Novaya Zemlya (18.18%). This might be attributed to the fact that energy released from an underground nuclear test dissipates differently from a test site surrounded by an ocean.

Atmospheric and Underground Nuclear Tests, Combined

When all the above ground (atmospheric) nuclear explosions are considered, certain areas of the world reveal high frequency patterns of the M>=5.8 earthquakes following such tests. These areas, listed below, account for about 50% of all the M>=5.8 earthquakes that followed an above ground nuclear explosion within the five day period.

Percent of All Earthquakes M>=5.8 After All Atmospheric, Above-Ground Nuclear Tests, Worldwide, 1950-1974 (Five Day Period)					
Location	Location 1900-1949 After Nuclear Test				
Kamchatka, Aleutians:	0.88 0.97 0.76 0.88	2.06 2.06 1.65 7.27			
Vanuatu: Solomon Is.: Panama, Costa Rica: S. Mexico, El Salvador: Kermadec Is.:	0.97 3.36 2.98 1.05 2.22 0.50	4.66 6.86 4.39 4.12 3.57 3.43			
Taiwan: S. Greece, Turkey:	0.03 2.16 1.23	1.23 3.29 2.06			

The earthquake patterns following all underground nuclear tests is similar to that for the above ground testing, and when grouped together, account for about 50% of all the M>=5.8 earthquakes that follow an underground nuclear explosion. It is interesting to note that the Nevada area has a 2.65% chance of having such an earthquake. This compares to 0.61 percent for the pre-nuclear 1900-1949 period, and is slightly more than Taiwan's 2.47%.

Worldwide, 1963-1988 (Five Day Period)			
Location	<u>1900-1949</u>	After Nuclear Tests	
Kamchatka, Aleutians:	0.88	1.06	
	0.97	0.97	
	0.76	3.35	
	0.88	2.12	
	0.97	1.85	
	0.70	1.76	
Vanuatu:	3.36	6.70	
Solomon Is.:	2.98	6.70	
Fiji, Tonga, Kermadec Is	s.: 2.05	1.59	
	2.78	3.88	
	2.31	3.88	
	0.50	1.68	
Hokkaido:	3.07	3.26	
Papua, New Guinea:	2.22	3.09	
Nevada:	0.61	2.65	
Taiwan:	2.16	2.47	

Percent of All Earthquakes M>=5.8

After All Underground Nuclear Tests,

The continuation of underground nuclear bomb testing mainly by the USA, USSR, and France, should alert certain areas of the world to note when and where the tests occur. The table below summarizes the patterns of earthquakes of M>=5.8 within a five day period, following nuclear tests at various test sites.

Percent of Earthquakes M>=5.8 After Nuclear Tests at Various Test Sites (Five Day Period) After After After After USSR USA USSR French /Nevada Semipala. Zemlya Mururoa Area Affected test test test test Aleutian Is.: 3.24 9.09 7.76 12.57 Samoa, Kermadec: ----14.86 15.15 12.41 6.81 9.30 Vanuatu: 6.49 6.06 Solomons, N. Brit.: 4.89 8.92 ____ 10.08 Mindanao, Philip: 2.09 9.09 --------Taiwan: 2.09 3.10 -------Papua, New Guin: 2.79 ------------Hokkaido: 3.66 ----6.06 5.43 Honshu-Kyushu: ----2.43 --------Novaya Zemlya: ____ ----18.18 ----Semipalatinsk: 3.51 --------Nevada: 4.36 1.62 ----Mexico, El Salv: 3.10 ------------Santiago, Chile: 2.79 ------------41.07% 51.18% 42.05% 63.63% Totals:

Two areas show a significant tie to nuclear testing, regardless of who tests, notably the Aleutian Islands chain, and the South Pacific area inclusive of Vanuatu, the Solomon Islands, Western Samoa, and the Kermadec Islands. Further, the Japanese islands of Hokkaido, Honshu and Kyushu should note who tests and when. The island of Mindanao should take some precautions when the Soviets test at Novaya Zemlya. For Nevada, it is necessary not only for them to monitor American tests, but also Soviet Semipalatinsk tests, including the Urals and Siberia sites. The two most vulnerable areas in the South Pacific, the Solomon Islands and Vanuatu, should monitor tests weekly. Each of these areas have up to a 10% chance per week of having a M>=5.8 earthquake,

because nuclear tests in the 1980s are conducted on an average of one per week.

The "Killer Earthquake" and Nuclear Tests

Of all the earthquakes that do occur, the most frightening of them is the one identified as the "killer quake". It can be defined as an earthquake which kills at least 1,000 people. It is especially interesting to note a dangerous coincidence when all the killer earthquakes since 1951 are simply listed and matched to the dates of nuclear tests. The table below displays the "match" between nuclear explosions and killer earthquakes.

Killer Earthquakes, 1951 - 1988, Matched with Nuclear Tes	s (Five Day Period)
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# Tests Nuc	clear	Earthquake				Test/Quake
<u>Per Year Tes</u>	t Date	Date	Location	Magnitude	Deaths	Match?
17 1953	3: Mar.17	Mar.18	NW Anatolia	7.2	1,200	yes
33 1950	6: Jun.6-16	Jun.10-17	Kabul, Afghanistan	7.7	2,000	yes
(5 :	separate tests)					
54 195	7: ——	Jul. 2	Iran	7.4	2,500	no
195	7: Dec.9	Dec.13	Iran	7.2	2,000	yes
3 196	0: ——	Feb.29	Agadir, Morocco	5.8	12,000	no
196	0:	May.22	Arauco, Chile	>8.3	5,000	no
145 196	2: Sep.1	Sep.1	Buyin-Zara, Iran	7.1	13,000	yes
47 196	3: ——	Jul.26	Skoplje, Yugoslavia	6.0	1,100	no
67 196	6: Aug.19	Aug.19	Varto, Turkey	6.9	2,600	yes
64 196	8: Aug.27,29	Aug.31	Dasht-E Bayaz, Iran	7.4	12,000	yes
61 197	0: Mar.26,27	Mar.28	Gediz, Turkey	7.4	1,100	yes
197	0: May 28,30	May 31	Chimbote, Peru	7.7	68,000	yes
46 197	2: Apr.11??	Apr.10	Iran	6.9	5,100	??
197:	2: Dec.21	Dec.23	Managua, Nicaragua	6.2	5,000	yes
46 1974	4: Dec.27	Dec.28	Pattan, Pakistan	6.3	5,200	yes
38 197	5: Sep.6	Sep.6	Lice, Turkey	6.8	2,300	yes
45 197	6: Feb.4 (2)	Feb.4	Guatemala City	7.5	23,000	yes
197	6:	May 6	Italy	6.5	1,000	no
1970	6: Jul.27	Jul.28	Tangshan, China	8.2	800,000	yes
197	6:	Aug.17	Mindanao, Philip.	7.8	8,000	no
1970	6: Nov.23 (2)	Nov.24	Eastern Turkey	7. 9	4,000	yes
46 197	7:	Mar.4	Bucharest, Romania	7.5	1,600	no
59 197	8: Sep.13,15	Sep.16	Tabas, Irari	7.7	25,000	yes
55 197	9: —	Dec.12	Colombia-Ecuador	7. 9	800	ПО
55 198	0: Oct.8	Oct.10	Al Asnam, Algeria	7.3	4,500	yes
198	0:	Nov.23	Naples, Italy	7.2	4,800	no
57 198	2: Dec.10	Dec.13	Dhamar, N. Yemen	6.0	2,800	yes
57 198	3: Oct.26	Oct.30	Posinier, Turkey	7.1	1,300	yes
35 198	5:	Sep.19	Mexico City	7.9	10,000	no
24 198	6: ——	Oct.10	El Salvador	5.4	1,000	no
40 198	8: Nov.5	Nov.6	Burma, China	7.3	1,000	yes
198	8: Dec.4	Dec.7	Armenia, USSR	6.8	60,000	yes

Each of the 32 killer earthquakes which struck between 1951 and 1988 caused at least 1,000 deaths, with the worst being 800,000 killed in the 1976 magnitude 8.2 China earthquake. This China earthquake was the worst for deaths recorded in this century, and coincidentally the USA tested a nuclear bomb one day before the earthquake hit. Over the 37 years of nuclear testing, 20 of the 32 killer earthquakes, or 62.5%, occurred on the same day, or within four days of a nuclear test. The total death toll for these 20 killer earthquakes is over 1 million people. The following table shows the breakdown of these 20 killer earthquakes.

Twenty Killer Earthquakes Matched with Nuclear Tests, 1951-1988			
Number of Quakes	Days after Nuclear Test		
12	Same day, or 1 day later		
3	2 days later		
2	3 days later		
3	4 days later		
(When two or more nuc only the test closest to	clear tests occur prior to a killer quake, the quake date is counted.)		

Is this pure coincidence?

Conclusions

Some people would question the idea of directly linking nuclear testing with the pattern of large, powerful earthquakes which follow within days of a test. Given the large number of such earthquakes per year, and the high number of nuclear tests per year, there might be a chance match between any given test and the occurrence of a large earthquake. In the 1980s, there were an average of 47 tests and 120 earthquakes of M>=6, per year. While a chance correlation might appear to be at work, the geographical patterns in the data, with a clustering of earthquakes in specific regions matched to specific test dates and sites, do not support the easy and comforting explanation of "pure coincidence". The phenomenon clearly requires further study. The primary purpose here was to identify frequency patterns of earthquakes following a given nuclear test. One does not expect nuclear testing to stop. However, what is needed is a full disclosure of when and where tests will take place. This way, certain key areas of the world can ready themselves for the possible M>=5.8 earthquakes. It is imperative that the press become much more vigilant in alerting the world to nuclear bomb tests. If these tests are occurring on average once every week, the public has a right to be informed. And obviously, more study and research of the question of a link between nuclear bomb tests and earthquakes is needed. This effort is simply a beginning.

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Recent Abnormal Phenomena on Earth and Atomic Power Tests

Yoshio Kato *

With a preface by Shigeyoshi Matsumae **

Preface:

Recently, there have been numerous reports of abnormal meteorological phenomena and severe earthquakes occurring so frequently in the whole areas of the Earth, and also the abnormal polar motion of the Earth.

To elucidate this subject, I entrusted Professor Yoshio Kato, Professor in charge of the Aerospace Department, and Director of the Industrial Science Research Institute of our university, with preparations of research material.

Dr. Kato has performed this task exquisitely and has found that the aforementioned abnormal meteorological phenomena, earthquakes, and fluctuations of the Earth's axis are very much related to the atmospheric and underground testing of nuclear devices.

There are, of course, many primary factors controlling and affecting these phenomena. However, the evidence is overwhelming that the recent abnormal phenomena, never experienced before in recorded history, have been caused by nuclear testing. Therefore the nuclear tests being conducted by numerous countries, in competition with one another, must be stopped.

We, mankind, must place the protection of the Earth above and before the protection of our individual countries. This is the common order on which all of mankind must now reflect. If the conscience of science fails in this mission, the world may perish.

At the earliest possible date, all nations of the world should declare an immediate ban on nuclear testing.

Hereinafter the details of Dr. Kato's study are described.

September 30, 1976 Shigeyoshi Matsumae

* Head of the Department of Aerospace Science, Tokai University, Japan.

** President of Tokai University, Japan.

While it must be presumed that everyone feels a sense of crisis or fear over the repeated and almost unlimited testing of nuclear devices, it must also be presumed that most believe that this frequent release of enormous amounts of energy has affects on the nature of the Earth. The remarkable fact is, as obviously proven by our report, that nuclear testing does indeed have a serious affect on the physical structure and environment of the Earth.

Our finding is that the abnormal atmospheric phenomena and recent frequent large earthquakes are not only related to nuclear testing but that there is a direct cause-and-effect relationship.

To begin with, nuclear testing has caused the temperature of the Earth's exosphere to rise abnormally by from 100 to 150 degrees absolute temperature. It is obvious that this abnormal temperature rise affects the atmospheric phenomena of the Earth.

Also, it has been found that nuclear testing is the cause of abnormal polar motion of the Earth.

Changes in Upper Atmospheric Temperature

These discoveries have been made possible largely by Tokyo University Aerospace Institute's fifth man-made satellite TAIYO (TAIYO means SUN), which was launched on February 24, 1975, and has been sending data which can be considered solely the result of Japan's technological efforts. The TAIYO is in an elliptical orbit — 255 kilometers at perigee and 3,135 kilometers at apogee above the Earth — at a 31 degree angle of inclination to the equator, and takes two hours to circle the Earth. Compared with recent foreign satellites, it travels much closer to the Earth. Therefore data from the atmosphere not previously available from recent foreign satellites has been obtained.

Data sent from TAIYO does not include the actual temperature of the atmosphere. This is computer calculated by a complicated formula. Basically, decay of the orbital period caused by atmospheric resistance at

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approximately 250 kilometers is obtained and variation of the atmospheric density is derived. Since atmospheric density is mutually related to temperature — as temperature increases, density decreases and vice versa — the atmospheric temperature can be calculated. For this the internationally used atmospheric model may be used. The result is further applied to determine the exospheric temperature at a point approximately 1000 kilometers away from the Earth. In this manner, the data in Figure 1.1 (since March 1975) for the exospheric temperature was obtained. Great fluctuation is clearly present in this graph. To obtain a stable temperature table, the elements which cause the temperature to change, such as difference by night and day, effects of solar activity, etc., must be subtracted from the graph.

Charged particles from the Sun, commonly called the solar wind, change the activity of the Earth's magnetic field and are indicated in units of Kp. Data on these charged particles obtained from over seventy countries is collected at the International Data Center in Colorado, USA. [Now called the Space Environment Services Center] The variation in solar wind charged particles is also graphed (Figure 1.2).

Figure 1: Through computations based on data received from the man-made satelite TAIYO on the atmospheric temperature at aproximately 250 kilometers, Chart 1 was produced. If data on charged particles (Chart 2) and ultraviolet rays (Chart 3) from the Sun are subtracted, the temperature change wave should be reduced to near level. However, the wave does not disappear, but remains as shown in Chart 4. When this is compared with the periods when nuclear tests were conducted, the mutual relation between them is obvious. Particularly in October, when a series of tests were conducted, a radiical temperature rise is evident.



6 Pulse of the Planet

Data on solar radio noise which is proportional to the intensity of ultraviolet rays, obtained by each of the reporting countries, is collected in Colorado in the same manner. Intensity of energy in the 10.7 centimeter wavelength radiation, since March 1975, are arranged in Figure 1.3.

Now, if the solar activity factors which are considered to cause the temperature to change, that is the solar charged particles (Figure 1.2) and ultraviolet rays (Figure 1.3), are subtracted from the exospheric temperature graph (Figure 1.1), the wave should theoretically be reduced to zero. That is to say that the temperature line should become almost flat. In other words, the temperature change should be equal to the equivalent changes in the factors that cause the temperature change. Therefore, if the later are subtracted from the former, the large wave on the graph should disappear. Quite on the contrary, in actual calculation the wave of the temperature difference remains as shown in Figure 1.4. Therefore, it must be concluded that the wave showing high temperature is not caused by solar activity, but rather by a completely different factor which has never before been considered. When considered from the conventional theory, the result is just not logical.

Then, after the data on nuclear tests (Figure 1.5), obtained from the Foreign Ministry Information Department --- data which had originally been considered as unrelated to the matter in question --- was plotted, it was found that the graph of abnormal temperature (Figure 1.4) and the graph of nuclear tests (Figure 1.5) almost completely overlap. In other words, the exospheric temperatures rose abnormally immediately after a nuclear test was conducted.

For example, it was found that the temperature rose by seventy to eighty degrees absolute temperature after a nuclear test in the Soviet Union which was observed and reported by Upsala on the 23rd of August last year [1975]. Similarly, continuous and drastic temperature rise was observed at the time of intensive nuclear testing, totalling six separate tests, between October 18 and 29, 1975. It is regrettable that the daily change could not be recorded because data from TAIYO is received once a week only.

In considering the relation between exospheric temperature and nuclear testing, the temperature abnormality was confirmed first, then the data on nuclear testing was plotted.

Changes in Polar Motion and Earthquakes

Kato

Besides the above study, I examined the polar movements and the affects of nuclear testing. Although the Earth turns on its axis, the pole (North Pole) is not stationary, but moves in a circle of a few meters. This was discovered by Chandler at the beginning of this century. The polar movement, which makes a revolution in 430 days, is called the 'Chandler Cycle'. Presently, every country at north latitude 39 degrees has an observatory at that latitude for continuous observation of the polar movement. In Japan, there is one in Mizusawa, lwate Prefecture. Every five days, survey data from 80 observations is sent to the International Latitude Observation Bureau (B.I.H.) in France.

It has been reported in recent years that the polar movement has been deviating abnormally from the almost uniform Chandler Cycle. To illustrate this, I arranged the data obtained from B.I.H. into a graph (Flgure 2). The accuracy of this data is within one hundredth of a second, based on the unit of angle, which is excellent indeed. From the graph you can see that movement is considerably abnormal and irregular.

Generally the polar movement has a natural flow. The flow, as described by the word "natural", usually moves in a smooth curve. The Chandler Cycle has been compared to the axial movement of a children's top, which moves in a circle even when tilted. But, as the graph shows, there are very unusual, sudden shock-wave changes of considerably acute angles. I must confess that I shuddered with horror at discovering this abnormality.

I then applied the dates of nuclear tests with a force of over one 150 Kilotons [TNT equivalent], as surveyed by the Foreign Ministry Information Department, to the Graph. Again, I found it obvious that the position of the pole slid radically at the time of a nuclear explosion.

However, there was movement which could not be explained by the nuclear test data alone. After information collected at the United States Geological Survey on world earthquakes with an intensity of over magnitude (M) 7 were plotted, the affect of the earthquakes on the polar movement was also clearly evident. On the graph, the effects of the nuclear tests and earthquakes on polar movement can clearly be seen.

(See Figure 2.)

As a result of the above study, a new study theme was born. Namely, the affect of nuclear tests on earthquakes. There have been 12 earthquakes with an intensity of over M7, from February to December, 1975. Six of them have occurred within 10 days after a nuclear test was conducted.

Generally, earthquakes are caused by an accumulation of stress in the Earth's crust. However, it can be said that there is a strong possibility of earthquakes being artificially triggered by atomic explosions.

Changes in the polar movement naturally cause the rotation cycle of the Earth to change. This, in turn, can affect time, which we have always considered to be innate and invariable. Even our 24 hour day might begin to be affected.

The 24 hour day is based on the period it takes for a certain star to pass over a fixed point on Earth and return to that fixed point. It has already been observed with high precision instruments that time is exact on some days,

continued on page 9.

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and slightly different on others. Even though the difference may be only a thousandth of a second, time has begun to deviate due to the nuclear testing (Figure 3).

Conclusion

Through this study, I began to reconsider the relationship between man-made disturbances in the natural environment, and the possibility of a limit to the endurance of nature against the challenges of man. The temperature of the atmosphere is changed by nuclear tests — a change that even the Sun cannot affect. One can easily guess how the nuclear explosions affect the meteorological conditions of the Earth.

Nuclear explosions move the very axis of the Earth. This is nothing short of flaunting the fear of God. Mankind cannot afford this kind of indifference.

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In the face of these grave dangers, what lies ahead?

For example, changes in the force of charged particles and ultraviolet rays from the sun do not particularly disturb the normal atmospheric environment of the stratosphere. Yet [atmospheric] nuclear tests not only change the temperature of the stratosphere, they cause serious resultant disruption of the atmospheric circulation system.

From the information so clearly defined by our study of only a little over a year, I believe that nuclear testing must be stopped immediately, regardless of its peaceful or military purpose.

Recently, Typhoon #17 remained stationary in the open sea near Kyushu, Japan. This frightening phenomenon prompted some people to argue the possibility of using nuclear force to combat typhoons. This must never be permitted. It cannot be denied that our study has conclusively proven the large scale destruction of nature caused by nuclear explosions.

A SPECIAL APPEAL FOR FUNDS

The Orgone Biophysical Research Laboratory has recently obtained several data bases on earthquakes and other atmospheric phenomena, and likewise a data base on all past atomic bomb tests.

We seek to replicate the study of Kato in a manner that will yield more definitive and statistically significant results. However, we are badly in need of funds (approximately \$10,000) to pay for additional computer equipment, and the time of Laboratory workers, in order to undertake this analysis.

Individuals with the resources to assist with this project should contact Dr. James DeMeo or send their tax-deductible donations to the:

Orgone Biophysical Research Laboratory PO Box 1148 Ashland, Oregon 97520 USA (503) 552-0118 telephone/fax

Over the last years, a number of unusual observations have been made which add additional support to the early observations of Reich, on long-distance energetic-atmospheric reactions to low-level nuclear radiation and nuclear bomb testing. Following are some specific, telling examples.

The Oakland Wildfires of October 1991

The Spring 1992 issue of *Journal of Orgonomy* (1) carried a paper by James DeMeo describing research undertaken in 1990-1991 on the California drought, with a "Special Note on Underground Nuclear Testing and the Oakland Wildfires" that bears repeating here:

Weather Response to Nuclear Testing

In prior articles, I discussed a possible connection between underground nuclear bomb testing in Nevada to weather changes in the Western US.(2) A graph was published showing changes in 500 mb pressure over Nevada and Montana in 1990, with a generalized association with nuclear tests. Nuclear testing appeared to have increased atmospheric pressure in the upper atmosphere, a possible factor in the expansion of high-pressure drought conditions in the West. Unusual weather events in 1991 also expressed a strong correlation to underground nuclear bomb tests, and the following preliminary observations can be reported.

Following the heavy rains of California's Miracle March in 1991 (described in the original JO article), spring and summer conditions were cool and cloudy; it appeared that, after five years of drought, a normal rainy fall and winter season would occur. We attributed this partly to the strong persistence of March rains, and also to gentle stimulating draws being made periodically with a small cloudbuster in the Hayward area and from the Tomales Bay site. However, such pleasant conditions did not last.

Between May and July of 1991, France exploded a total of six nuclear bombs at its underground test site at the Mururoa Atoll, near Tahiti. The US had also exploded four by the end of July, with a fifth underground nuclear bomb exploded on September 14. That particular bomb had to be delayed several times, due to erratic and shifting wind patterns. A sixth nuclear bomb was exploded on September 19, in a special horizontal tunnel for testing of high-energy beam weapons of the "Star Wars" program. These two nuclear tests signaled an end to the cool, cloudy conditions in the West. Late September and October were characterized by hot, sunny conditions which built up to high, record-breaking temperatures in a few places. The first major forest fires of the year broke out in Washington, Oregon, and California. DORish conditions again prevailed across the state, high pressure returned, the jet stream moved north into Canada, and drought appeared to be entrenched once again.

Outbreak of Bad Winds and Wildfires

On October 18, 1991, another underground nuclear blast took place in Nevada, the most powerful one of the year, measuring close to 150 kilotons of explosive power. A 4.8 magnitude earthquake was generated in the test region. Within a day, heavy oranur conditions set into the Great Basin, expressed as raging desert windstorms. One windstorm pushed west, from the Central Valley towards the Pacific Ocean, a phenomenon called the Santa Anna winds, or plainly, "bad winds". They are hot, very dry, with relative humidities of about 10%, and can reach high velocities. They rapidly dry out vegetation, which will fuel dramatic wildfires if sparked. One such fire did occur in the hills above Oakland, California, on October 19. The flames were extinguished, but irresponsibly allowed to smolder overnight. The next day, October 20, the fierce Santa Anna winds appeared, and caused a dramatic flare-up of the fires. The winds fanned the embers into gigantic flames, which fed upon the dry vegetation and wooden structures, creating a massive urban/suburban firestorm.

I watched this fire from my front porch, in silent horror, as it moved across the hills, burning one home after another about five miles from where I live. Nobody, including the firefighters, ever expected it to get as large as it did. By early afternoon it was clear that a major disaster was in the making. Flames were widespread across the hills, and a thick column of smoke rose to several thousand feet, blotting out the sun. The firefighters and many news reporters at the scene kept blaming the Santa Anna winds. "We can't keep up with the flames! They're moving too fast!" they exclaimed, nearly in a panic.

One fireman openly moaned about the recent change in weather, wishing aloud for the moist sea breezes and heavy clouds which had characterized the region prior to late September, before the last nuclear bomb tests. According to the fire fighters, the fire would "lie down" with moist ocean wind, but would "rise up" and flare with the dry desert winds. Indeed, they appeared to describe a major energetic difference between oranur wind and the cooler, moist life-energy winds, which were previously coming in from the ocean. After hearing this, it was clear that we could do something to assist with the cloudbuster. Local weather reports held no hope for rain, and the weather maps were free of frontal activity along the West Coast, except far to the north, near Seattle. It was unrealistic to expect that cloudbusting could bring rains within the next few hours, given the prevailing cloud-free, widespread high-pressure conditions. However, it did seem possible to restore the moist ocean winds and fog which often move directly eastward from the mouth of San Francisco Bay towards the Berkeley and Oakland hills. Such cool, moist fog was a more typical condition for the area now gripped in desert winds and massive fires.

Emergency CORE Operation Initiated

By 11:00 PM on October 20, the day of the big fire, the cloudbuster was set up and operating at the water's edge, near the Oakland hills. All pipes were directed low to the horizon, west towards the Golden Gate and the opening of the Bay to

^{1.} DeMeo, J.: "Core Progress Report #26: California Drought of 1991-1992, With a Special Note on Underground Nuclear Testing and the Oakland Wildfires", J. Orgonomy, 26(1):49-71, Spring/Summer 1992.

^{2.} DeMeo, J.: "CORE Progress Report #25: Two Year Research Summary — The American West, Greece, and Germany", *Journal of* Orgonomy, 25(2):175-190, 1991; DeMeo, J.: "Research Progress Report", *Pulse of the Planet*, 3:110-116, 1991.

the Pacific Ocean. Within minutes, a gentle, westerly breeze developed, with increasing humidity. We could look east to the Oakland hills and see a thousand ghostly lights, each of which was a burned-out remnant of someone's home. While the night-time had seen a decline in the fires, if the Santa Anna desert winds returned in the morning, each of those points of light would blaze up and become a source for another raging inferno and wildfire. By 3:00 AM of the 21st, with cloudbusting continuing, a brisk westerly sea breeze had developed. Operations were then ended.

By sunrise, the fire was still not completely contained, but the Santa Anna winds did not return. Instead, cool moist air with blankets of thick fog firmly pushed into the Bay area. The fog banks thickened over the course of the day such that by late afternoon they appeared more like rain clouds than fog. And, indeed, by late that day, a light drizzle did fall in a few places around the Bay. This was just what the fire fighters needed. By sunset on the 21st, about 36 hours after the fire began, it was completely contained and under control.

Only then did the real shock of what happened become obvious. With the fires out and smoke clearing, the hillside looked as if it had been hit by an atomic bomb. Nearly 4,000 homes and apartments were completely destroyed by the fire, and perhaps 40 or more persons died in the flames — the full number of dead was never firmly established due to the complete destruction of most of the homes. The total damage was estimated at close to \$2 billion, one of the largest and most costly urban fires in US history! This event shocked me deeply, seeing it all so close up, and knowing about the possible link between the nuclear bomb testing and the weather changes along the West Coast. The only bright spot was the observation that the cooler, wetter conditions were reestablished after the cloudbusting operations. Thick clouds, cool fogs, and several new fronts with gentle to moderate rains pushed into coastal and interior California starting on October 22. These rains completely drenched the smoldering embers of the burnedout homes, and also extinguished other forest fires around the state. The weather had changed considerably for the better.

Deadly Oranur Winds Continue

Another episode tied to nuclear testing occurred only a few weeks later, in a strikingly similar manner. On November 26, a joint American/British underground nuclear bomb test took place in Nevada, with a 4.7 magnitude earthquake. Heavy oranur winds were again triggered, such that, by November 29, wind damage had occurred in various places. On that same evening, dust storms developed in the Central Valley, not too far from the same area where the Oakland fires took place. One major dust storm created blinding, zerovisibility conditions along major interstate highway I-5. The zero visibility and "normal" high-speed driving combined to create a massive automobile accident involving 130 vehicles. Some 35 people were killed and more than a hundred were seriously injured.

Did the underground nuclear tests actually cause the observed "bad winds"? Or were the events purely coincidental? Ibelieve the oranur phenomenon, discovered by Reich (3), provides an adequate explanation for the observed atmospheric effects which developed on the heels of underground nuclear bomb tests: these nuclear explosions drive the orgone

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into a frenzied oranur condition. Oranur eventually dies off, to become deadened life energy, or deadly orgone, DOR. Both oranur and DOR conditions are inimical to the pulsatory energetic processes which govern clouds and rain; consequently, the qualities of stagnant energy in the desert areas of the West may be significantly increased by underground nuclear bomb tests. The desert atmosphere expands afterward, creating droughts in bordering areas. These ideas are developed from the writings of both Wilhelm Reich (3, 4) and Jerome Eden (5), as well as from my own field observations cited above. I have also endeavored to search out evidence from other workers, completely independent of Reich and orgonomy, who have observed similar unusual energetic phenomena associated with nuclear bomb tests or nuclear energy (6-15). Reich and his followers are not alone in observing unusual phenomena associated with nuclear energy, or long distance environmental reactions to underground nuclear bomb tests which violate classical theory. However, virtually every researcher investigating connections such as these has been censured and attacked for suggesting that the influences are real. We are forced to wonder how big a disaster will finally be required for people to wake up and take these issues seriously. 🔳

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³⁾ Reich, W.: The Oranur Experiment, First Report (1947-1951), Wilhelm Reich Foundation, Maine, 1951; partly reprinted in Reich, W.: Selected Writings, NY: Farrar Straus & Giroux, 1960.

Report on Nuclear Accident, at Tomsk, Russia, 6 April 1993

The following paragraphs are extracted from memos circulated within the USA CORE Network, giving stark testimony to the intensification of widespread, hemispherical atmospheric oranur from recent nuclear pollution.

"MEMO: To CORE Network,

From Dr. Stephen Nagy, 10 May 1993:

Record high temperatures were set today in Seattle, Olympia, Portland, Stockton, and Fresno. Winds gusted to 47 miles per hour through the Klamath Basin, reducing visibility here to three miles at times because of dust. More dramatically, the sky changed abruptly, from this morning, when it was soft and dappled with clouds, to later in the day, when the clouds were dissipated completely at times, to be replaced by dark DOR clouds on the western horizon. Through the day I have been parched, a dry sense in my mouth, a feeling of being out of contact and headachy, and many people were observed to be irritable. After months of soft pulsation in the atmosphere, the change is dramatic and shocking, and cries out ORANUR. American Peace Test at (702) 386-9831 reports that the last US nuclear test was on Sept. 23 [1992], and the last test worldwide was Sept. 25 at Lop Nor, China, with a yield of 5 to 30 KT. Their report was last updated on April 29... Another possibility of the current dramatic change is the gradual downstream effect of the radiation blast in Siberia in the week of April 9. Apparently a tank at a nuclear waste depot exploded near Tomsk, with uranium and plutonium salts released into the atmosphere. In the week ending April

23, record high temperatures were recorded in Beijing, rising to 90°, making it the hottest April day since 1949. Frightening electrical storms developed in the Sichuan province on April 25th, spawning large hail that killed 12 people and destroyed thousands of homes in Chongqing, a major industrial city on the banks of the Yangtze. (*Earthweek*, weeks of April 9, 23, and 30) It seems possible that the oranur cloud has now crossed the Pacific. Please let me know of observations at your locations."

"MEMO: To CORE Network,

From Dr. James DeMeo, 18 May 1993:

Regarding Stephen Nagy's prior memo on oranur along the West Coast, he is absolutely correct here. Following the nuclear accident in Russia (April 9th) I received telephone calls from contacts in Germany, indicating a drought/heat wave and oranur crisis there following the accident, with unusual easterly winds blowing from Russia towards Germany. Over the next several weeks, that area of oranur migrated eastward around the globe, and finally arrived in California during the first 10 days of May. The feeling on the West Coast, which nearly everyone in the Network noticed, was similar to that of a nuclear bomb, with high air temperatures, cloud-free conditions, incredibly rich blue skies with a milky quality near the horizon, and wild angry winds. In fact, a number of wildfires developed in the hilly areas east of Los Angeles, reminiscent of conditions in early 1992. Thankfully, a cut-off low developed in the Pacific, sending streamers of moisture and clouds inland over the next days, and so the oranur crisis here was short-lived. It continues in Europe and Asia, however."



Following the 6 April 1993 nuclear accident in Tomsk, Russia, sharp precipitation contrasts marked the Midwest and Eastern USA, and other places in the Northern Hemisphere. Massive floods occurred with droughts lying just to the east of flood areas, in both North America and Asia, suggesting a block in global atmospheric flow patterns.

"Earthweek, 14 May 1993:

An awesome sandstorm, which swept through China's Gansu and Ningxia provinces and Inner Mongolia for several days, killed at least 43 people. Many of the victims drowned when the 'black wind', as farmers called it, swept them into canals. The wind turned day into night as it whipped up sand and pebbles. Crops were buried by vast quantities of sand, and 300,000 head of cattle were smothered by the whirling cloud of earth. The leading edge of the sandstorm looked like a halfmile-high wave that came crashing down as it advanced across the Gobi Desert."

"Scientists: Russians Erred at Nuclear Site.

MOSCOW (AP) Scientists say Russia's government has grossly underestimated the contamination from last month's radioactive waste explosion in Siberia, the ITAR-Tass news agency reported. The April 6 accident was the worst in the former Soviet Union since the 1986 explosion and fire at Chernobyl, which killed 31 people and spread radioactive contamination over a wide area. The explosion near Tomsk contaminated about 46 square miles of land. Much of the area. about 1,700 miles east of Moscow, is covered by dense forest and is uninhabited. Authorities had said the explosion at the Siberian Chemical Complex posed no immediate danger to the health of people living in the area. But a non-governmental commission made up of local environmental officials, independent experts from Russia's Ecology Union, and scientists from nearby Krasnoyarsk have found "extremely high levels" of betaray radiation in soil around the area... The commission focused on farmland and private plots around the village of Georgiyevka, the news agency reported. It said the biggest danger was posed by radioactive dust particles - known as "hot particles" - that could be stirred from the ground or other surfaces and breathed in. The commission compared the "hot particles" to the residue around Chernobyl. It said they could cause fatal diseases if they settle into bronchial tubes or lungs. The independent report was disclosed by local Altai Radio, ITAR-Tass said, a week after local authorities banned work on 1,200 to 1,500 acres of farmland around the site of the explosion of Tomsk-7." (Herald & News, Klamath Falls, Oregon, 13 May 1993)

"MEMO: To CORE Network, From James DeMeo, 14 September 1993:

Further to our discussions about the hemispherical effects from the April 6th nuclear accident in Tomsk, Russia, I enclose a xerox from the Weekly Climate Bulletin of 8 September, showing daily cumulative precipitation amounts for two representative weather stations - one from the flooded area of the Midwest (Des Moines, Iowa) and another from the drought region of the Southeast (Greenville-Spartanburg, South Carolina). The graphs on the xerox indicate that the weather in the Southeast became stuck in a drought condition at the same time the weather in the Midwest became stuck in a flood condition. The timing of the onset of atmospheric stagnation appears very soon, within days, after the April 6 nuclear accident in Russia, and the stagnation has continued without letting up, through May, June, July, and August, up to the present. I read again the newspaper report on the Russian nuclear accident sent by Stephen Nagy from the Klamath Falls newspaper; this report probably only tells part of the story. I have other reports now in hand of massive nuclear accidents in Russia within recent years, suggesting that the problems there are far worse than anyone here could

imagine. I enclose a few relevant items [see the Nuclear Notes section reporting events in Russia in this issue of *Pulse*]. Recall my last mailing with the *Earthweek* and *Global Climate Highlight* maps for these recent months, indicating other major floods in the Northern Hemisphere, with droughts immediately to the east. This suggests the atmospheric stagnation is hemispherical in nature, having attached itself to the surface possibly at several places. If the situation continues, it may be that the only thing which will break it up will be some cloudbusting work in the Southeast, similar to that undertaken by John Schleining, Bob Morris and myself, back in 1986. As suggested in the last batch of maps, the complex of nuclear facilities in South Carolina is the central location of the Southeastern drought, and this appears to be the place where the North American stagnation is anchored."

An End to the Moratorium on Nuclear Testing

On October 5, 1993, the Chinese broke the worldwide moratorium on nuclear bomb testing. According to the Testing Alert Network Hotline (702/386-9831), the bomb was set off at the Lop Nor test site at 2:00 AM, GMT (6:00 PM Pacific Time) with a strength of <90 Kilotons, producing a local earthquake of 5.8 magnitude. It was detected by 71 seismic stations around the world. Following this test, the Clinton administration has issued instructions for the Department of Defense to resume nuclear testing in the USA, probably by next spring. France is also expected to resume testing in the Pacific, and so we can expect more disturbed weather and a possible Spring 1994 return of the drought on the Pacific coast. Several members of the CORE Network experienced unusual biological reactions around the time of the Chinese test, without knowing why; these included intense urges to sleep moments after the bomb was detonated, contactlessness, irritability, aching fingers, and nausea.

POSTSCRIPT, 27 October 1993:

This note is added as *Pulse of the Planet* goes to press. The West Coast of the USA, primarily California, is once again in the grips of a heat wave, with wildfires on the hills consuming grasslands and homes. Widespread *oranur* conditions prevail over the eastern Pacific and western USA. This pattern, like that which followed the above-mentioned nuclear accident in Russian Central Asia, developed approximately three weeks after the Chinese nuclear test in Central Asia. Taken together, these observations suggest:

a) A powerful *orgonotic shock* is propagated globally within seconds following a nuclear test, triggering biological reactions and subtle weather changes.

b) Atmospheric oranur mixed with dorish qualities develops at a nuclear bomb test or accident site, but quickly spreads over wide areas, certainly downwind, but possibly in all directions like a slow chain-reaction.

c) A time interval of approximately three to four weeks is necessary for atmospheric oranur to travel from Central Asian nuclear test or accident sites to California, a distance of some 8,000 miles.

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The Petkau Effect: Nuclear Radiation, People and Trees by Ralph Graeub Introduction by Dr. Ernest J. Sternglass Four Walls Eight Windows Press, NY, 1992. Reviewed by Theirrie Cook, B.A.

This book provides evidence, mostly from European scientists, that low-level nuclear radiation has a much more powerful biological effect than is accepted by traditional physics and biology. The findings are probably not known to many American scientists, because this book constitutes one of the first English-language disclosures of the evidence. This research has not been greeted well in either Europe or the USA, because its findings suggest the need for a quick shut-down of nearly all nuclear energy facilities. For individuals who have studied Reich's work on the *oranur effect* (1) which showed a powerful reaction of the life-energy of people, trees, and the Earth itself to low-level nuclear radiation, this book constitutes an indirect and independent confirmation.

The Petkau Effect is named after Abram Petkau, an associate professor in the department of radiology of the University of Manitoba, who accidentally discovered the very damaging effects of chronic, low-level doses of radiation. In 1972, while a scientist at the Canadian Atomic Energy Commission's Whiteshell Nuclear Research establishment in Manitoba, Petkau conducted experiments on phospholid membranes which, though artificial, are similar to cell membranes in living cells. He irradiated the artificial cell membranes while underwater and found that the membranes would tear with a much lower total radiation dose, over an extended period of time, than if this total dose were given in a short, intensive radiation burst, as from a medical x-ray machine. In other words, the more drawn out the radiation, the lower the *total* dose required to break the membrane.

Most investigations into the biological effects of nuclear irradiation are focused on the cell DNA, which is known to be directly damaged by impacting radiation. From this, the cell nucleus became the primary focus for the major concern of "genetic damage". However, Petkau discovered that a very different, indirect damaging mechanism caused by nuclear irradiation operates on the cell membranes. A cell membrane not only holds a cell together, it also has many important functions in the biological processes which are necessary for health. In the cell fluid, which contains oxygen, the irradiation caused the formation of an unstable form of oxygen, or free radical. A chain reaction occurs which successively oxidizes and dissolves the cell membrane causing the cell to leak and die. It is how the unstable oxygen is created which is believed to cause the problem: the fewer free radicals in the cell fluid, the greater their ability to damage. Free radicals can deactivate each other to form ordinary oxygen. The more free radicals in the fluid, the more chance they have to neutralize each other before damaging the cell wall. High doses of

1. Reich, W.: "The Blackening Rocks: Melanor", Orgone Energy Bulletin, V(1-2):28-59, 1953; Reich, W.: The Oranur Experiment, First Report (1947-1951), Wilhelm Reich Foundation, Maine, 1951; partly reprinted in Reich, W.: Selected Writings, Farrar, Straus & Giroux, New York, 1960. radiation create large numbers of free radicals which then recombine and become ineffective; sustained low doses of radiation create fewer free radicals, which are then more capable of disrupting the cell membrane. The cells that appear most vulnerable to this form of attack are those connected to immune functions. Due to the Petkau Effect, small, extended radiation doses such as those following atomic testing fallout or exposure to the emissions of nuclear power plants are 100 to 1000 times more dangerous than those experienced by atom bomb survivors in Japan.

The Petkau Effect has been confirmed by numerous other studies conducted in the past twelve years. The effects of lowlevel radiation on humans have been observed frequently in the past, but were considered inexplicable and therefore were dismissed. Some examples:

— Workers at the Hanford, Washington plutonium facility had an extremely high rate of cancer in 1977 in spite of only minimal, low-level radiation exposures. Attempts to reduce the maximum dose for workers were rejected.

- Navy shipyard workers in Portsmouth, New Hampshire who repaired nuclear submarines had a leukemia rate 5.6 times higher than non-exposed workers, according to a 1978 study.

— Internal studies by the Department of Energy in 1984 on workers in twelve different nuclear facilities found 50% higher leukemia rates and higher rates for lung, lymph, and brain cancers.

Prior to the discovery of the Petkau effect, "questionable" statistics, such as the above, were routinely dismissed as the radiation doses from fallout and emissions from nuclear plants were considered far too low to have any effects upon humans. However, with the discovery of the Petkau effect, these studies now become plausible.

The author, Ralph Graeub, also chronicles the effects of iodine 131, strontium 90 and other isotopes on such factors as intelligence, fetal development, bone marrow and immune systems development. He continually stresses that the subtle effects on the hormonal and immune systems by the indirect chemical action of radioactivity on the human body contribute to premature childbirth, infant mortality, infectious diseases and cancer. Abundant citations to published studies are provided.

In addition to the alarming findings above on the indirect effects of low-level radioactivity, in 1981 the most important high-level radiation protection data for humans was found to be wrong. The Tentative Dose Estimate, developed in 1965, was based upon the radiation doses received by the Japanese A-bomb victims. However, in recalculating the radiation fields of the two bombs dropped over Hiroshima and Nagasaki, the neutron radiation was found to have been overestimated by a factor of 6 to 10, whereas the gamma radiation had been slightly underestimated. This finding shook the entire basis of the radiation protection standards - the currently estimated cancer risk has been shown to be too low, even for short bursts of high-dose radiation. The 1982 report by the United Nations Scientific Committee on the Effects of Atomic Radiation estimates that the risk of cancer is actually twice as great as previously believed, and that all dose limits should be reduced by half --- but then nuclear power plants could not operate economically.

The danger is not only to humans and animals. Graeub presents enormously important, but little known evidence, that nuclear plant releases are also contributing to the death of the forests. "Forest death", as it is now called, has reached epidemic proportions, not only in Europe, but also in North America. Classic forest death has been observed since the dawn of the industrial revolution and was usually centered around coal-fired power plants, metal processing facilities, heating plants, waste incinerators and ceramics factories.

In the 1970s, a new kind of forest decline was observed, first in the central European mountains, and it has gradually spread. A Special Report by the Environmental Council of the West German Federal Ministry of the Interior, published in 1983, states:

"The new areas of declining forest are not comparable, or only partially comparable to the known central European areas of smog damage, such as the Ruhr Valley, etc. Moreover, the type and extent of forest decline observed can no longer be explained on the basis of traditional forestry experience."

This new forest death, instead of affecting only evergreens, or just one species of tree, affects a broad spectrum of all trees, even including fruit trees. The danger emerging is that the basic process of the life cycle of plants, photosynthesis, is being threatened. Plants often show a greater sensitivity to their environment because of their intensive ventilation of air which provides them with carbon from atmospheric carbon dioxide. The effects of air poisoning are therefore noticed much earlier in plants than in animals or humans.

Dr. F.H. Schweingruber of the Swiss Federal Institute for Forestry Experiments in Birmensdorf concluded that the "decisive" physiological damage resulting in current forest death must have begun during the 1950s. This decline was evident in a reduction of density and width of tree rings and in reduced growth, which occurred across the entire Northern hemisphere. The closer the growth rings are spaced, the less growth of the tree. The trees examined in his study show extreme retardation of growth since the 1950s and virtually no growth since the 1970s. Comparable phenomena in historical and prehistoric spruce trunks do not exist, according to Dr. Schweingruber. The Swiss Federal Office on Environmental Protection notes: "This [discovery] is without parallel in the history of forests."

Other symptoms of forest death are "a general thinning of the crown, discoloration of the needles of spruce and firs, weak foliage on individual branches, premature fall coloring in beach trees and twig and leaf deformations." Organisms can call upon great reserves for reproduction if their environmental conditions deteriorate dramatically. Alarmingly, trees showing symptoms of forest death have been uncommonly fruitful in recent years. Sickly apple, pear, and cherry trees are yielding rich harvests. In Switzerland, Operation Noah's Ark is collecting seeds from valuable stands of dying trees in order to make a biodiverse reforestation possible.

Something in the 1950s and 1960s caused this global decline in the forests of the northern hemisphere. First the cause was thought to be SO₂, then acid rain, then ozone, and now, "stress" is suggested as a cause, or perhaps a combination of all these factors. However, the northern hemispheric belt not only contains the world's major industries, it also contains the most nuclear power plants — 300 of them — and almost all nuclear processing centers, which are the world's most important radioactive polluters. In addition, this zone was also the site of the majority of nuclear weapons tests —

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especially the above-ground tests of the 1950s.

In 1982, the carbon 14 content of tree leaves was still 25% higher than the natural level prior to the atomic age; the carbon 14 content of human blood and hair has increased in direct proportion with the carbon 14 content of the troposphere. In the vicinity of various nuclear power plants, significantly increased carbon 14 concentrations were found in leaves and bark. An American study even recommends that no agriculture be carried out in the vicinity of nuclear power plants. In contrast to classic pollutants, carbon 14 can't be washed out of the air by rain or snow. The normal production rate of carbon 14 in the atmosphere is dependent on cosmic radiation linked to sunspot activity. However, the unparalleled increase of carbon 14 in the atmosphere, along with other fission products like tritium and krypton 85 due to nuclear bomb testing and power plant emissions, parallels the unprecedented global retardation of tree growth and forest death.

In the early 1980s, Prof. Gunther Reichelt of Germany found spots of forest death near nuclear power plants and uranium mines in Germany and France which could not be explained by air pollution (See Figure below). Reichelt believes the damage is caused by a "synergistic" effect with radioactive emissions. The actual mechanism for the causal link between the radioactive emissions and the forest damage is not stated decisively, however, and it is here that Wilhelm Reich's observations on the effects of the Oranur Experiment can lead to more positive connections.

Emerging from all this new knowledge is the growing awareness of the truly deadly effects of so-called "low-level" radiation on all living systems. To fully understand the causes of these effects — the underlying energetic principles scientists will have to look beyond the theories of mechanistic physics and biochemistry which have brought us to this impending ecological disaster.



Forest decline around the uranium mines at Wittichen in the Black Forest

Editor's Note: Oranur Effects from the Three Mile Island Nuclear Power Plant Accident?

In 1951, Dr. Wilhelm Reich published a report on his experiments combining high concentrations of orgone energy with nuclear energy. Relatively small sources of radioactive material (20 millicuries of Phosphorus 32, and 2.26 millicuries of Cobalt 60) were brought into contact with a very high charge of orgone (life) energy in Reich's laboratory. The high charge of orgone had been developed in Reich's lab from many different powerful orgone energy accumulators, including a large room-sized accumulator. This combination of OR energy (as Reich called the orgone) and nuclear energy created a powerful chain reaction which spread beyond the laboratory walls, into the surrounding environment. Almost instantly, workers at the lab were made ill, while laboratory mice being used for experimental purposes died in large numbers. Specific subjective bodily reactions were noted by almost everyone present during the crisis, and many new observations were recorded regarding the behavior of the atmospheric orgone during episodes of assault by nuclear energy. The phenomena observed were new, and could not be explained by classical radiation theory. Reich called this energetic phenomenon *ORANUR*, for the ORgone Anti NUclear Radiation effect.

Reich and his co-workers observed that the air in the orgone-charged, oranur-influenced rooms became heavy and difficult to breathe after the nuclear irritants were introduced. Nausea, cramps and various bodily pains occurred, as well as strange tastes in the mouth. The air in the room appeared stagnated, and took on a hazy characteristic that could be seen, even from outside the building, through the windows. The oranur phenomenon persisted over time, even after the nuclear irritants producing the effects had been removed; it could not be shielded through ordinary means, such as lead plate. Laboratory workers and visitors acquired symptoms of illness from exposure to the irritated energy field of the lab. These included symptoms of nausea, weakness, conjunctivitis (eye irritation), headache, sinus pressure, edemas, dizziness, hot flashes and cold shivers, mottling of the skin, fainting, and loss of equilibrium. In later months, the laboratory had to be abandoned, even though the nuclear materials had long since been removed from the building and property. Weather patterns over the laboratory were observably changed, with a shift towards droughty conditions. Clouds developed a ragged appearance, and a dull, greyish haze dominated the landscape. Trees were badly affected, dying in the areas surrounding the lab, with a loss of leaves and needles at the tops and ends of branches. Unusual blackish and whiteish substances were observed precipitating out of the air onto exposed surfaces. Exposed rock surfaces on the Laboratory building developed a blackish discoloration, and began to crumble away. Several years passed before the oranur effects diminished.

With the exception of Reich's co-workers, and those who have followed in his footsteps in recent decades, the scientific community has ignored these new findings about oranur. Unusual biological and atmospheric reactions to nuclear energy, nuclear power plants, and atomic bomb tests have tended to be dismissed, even when reported by persons with no connections to Reich or orgonomic research. From the paper that follows, author Katagiri recorded many observations of oranur-like phenomena from persons living and working near the Three Mile Island nuclear power plant in 1979, shortly after a major reactor accident there. At the time of his field research, neither Katagiri nor the people he interviewed knew about Reich's work on oranur, and so these observations stand as a partial independent corroboration of Reich's observations. The reader is invited to compare the following sample quotes from Reich to the materials gathered by Katagiri.

From The Oranur Experiment: †

"...every one of us could feel the heaviness of the air, the oppression, the pulling pains here and there in the body, headaches and nausea... ventilation did not seem to remove the oppressive air from the laboratory building. After one hour ventilation, it was still impossible to enter the OR energy room, the radium having been removed long ago." (p.281)

"A penetrating salty taste, turning slightly bitter or sour on the outstretched tongue, was felt by all present everywhere within the building and even outside...as far as 50 feet." ... "THE OR ENERGY ITSELF SEEMED TO HAVE CHANGED INTO A DANGEROUS DEADLY POWER." (p..282)

"Three experimental observers remained outside the laboratory within about 100 yards. One assistant rushed the experimental piece of radium into the OR energy room and into the 20x charger... A few minutes later, we could clearly see through the large windows that the atmosphere in the laboratory had become 'clouded'; it was moving visibly, and shined blue to purple through the glass... I felt severe nausea, a slight sensation of fainting, loss of equilibrium, clouding of consciousness, and had to make an effort to keep erect on my feet." (p.283)

"The OR energy seemed to have run amok, possibly even to the extent of a chainlike reaction in the atmosphere, far outside the building." (p.285)

"I put my head inside [the accumulator] for a moment, and felt suddenly as if hit with a sledgehammer..."(p.307)

From The Blackening Rocks: Melanor: ‡

"...after a while, it felt like sitting under an ultra-violet sunlamp. Our faces were burned up, flushed and hot. On the whole, the physical and emotional situation under Oranur felt like a chronic, mild SUN-STROKE". (p.56)

† W. Reich, *The Oranur Experiment, First Report (1947-1951)*, Wilhelm Reich Foundation, Rangeley, Maine 1951. Partially reprinted in W. Reich, *Selected Writings*, Farrar Straus & Giroux, NY, 1973.

(Xerox copies of both citations available from the Wilhelm Reich Museum Bookstore, PO Box 687, Rangeley, ME 04970 USA).

^{\$} W. Reich, "The Blackening Rocks: Melanor", Orgone Energy Bulletin, 5(1-2):28-59, March 1953.

Three Mile Island: The Language of Science Versus The People's Reality^{*}

Mitzuru Katagiri (Nakao Hajime) **

"In my throat I had the feeling that my breath was cut off. It was in my throat, not my chest, but in my throat. I couldn't breathe. It happened on Wednesday, Thursday, and Friday. I feit like something was draining and I had to keep spitting but I couldn't get anything. When I got to Lewistown, it stopped. I was up there for ten days and I didn't have it at all. When I came back here, I had it again for a while." (statement by Joan Fisher, who evacuated the area of the Three Mile Island nuclear power plants plants with her eight-year old son, David, and his grandmother on Friday, March 30th, two days after the accident.)

Joan's husband, Jeremiah, stayed to take care of the cows. He got a burning sensation in the back of his neck and his face down below the cheekbones. His eyes burned badly.

Jane Lee describes Jeremiah's symptoms. "The whites of the eyes get inflamed for one thing. He could see all right but I don't know why... but I was able to see that the inside of the eye here, you know, where the lid's supposed to be up against, and it was almost like it fell away from the eye. And I figured how did his eyes get so red all the way around? He looked horrible. Now, a lot of people complained about this, burning of the eyes."

Those apparent symptoms disappeared quickly and haven't been taken seriously in the media nor by the experts. Today, not only is it said that the accident at Three Mile Island was blown up excessively by the news media, but it is also thought that what happened there was not really very serious. Moreover, this very claim is being spread through that same news media. In such circumstances, how can we, who in our daily lives are utterly dependent on the news networks for information, be sure that the nuclear accident actually even happened?

Are we going to give up our ability to speak and act beyond this closed circuit of manufactured information? Of course not. Efforts are still being made to restore the right of lay people to speak up on such seemingly specialized issues as nuclear accidents. First of all, by the victims.

* Translated from the Japanese by Sara Acherman and Rebbeca Jennison. Parts I and 2 are reprinted from *Kyoto Review* 12: 1-21, 1980 and 13: 36-53, 1981. The author traveled to the Three Mile Island area after the nuclear reactor accident of March 28, 1979.

** Dean of Academic Affairs, Kyoto Seika University, 137 Kinoty, Iwakura, Sakyo-ku, Kyoto 606, Japan. People living near Three Mile Island (TMI) whose well being was and still is being threatened are fighting back; several citizens' groups have been cooperating and have set up an office called the TMI Public Interest Resource Center in Harrisburg. Following are the observations of those people.

Flowing beyond a hillock, the Susquehanna river bends, turning in a southerly direction, and grows in width from twothirds of a mile to one and a half miles. One of the two long, low islands lying there side by side is Three Mile Island.

It is said that when the river flooded in 1972, the islands were completely submerged. At that time, Three Mile Island Nuclear Station #1 must have been under construction. In 1975 another flood forced local residents to evacuate, but that time, the island was only partially covered with water. It seems only natural then to wonder why anyone would undertake to build a nuclear powerplant at a location where such potentially unfavorable conditions exist.

Three Mile Island had already come into the possession of the power company or its predecessor by around 1900. At that time, looking at both Pittsburgh's industrial belt in the Ohio River basin of western Pennsylvania and the Philadelphia Industrial zone along the Delaware River basin in the east, it would probably have appeared that those areas had already been saturated with industrial development. Perhaps this saturation was anticipated by the original speculators who were planning to develop the Susquehanna River basin, making use of its plentiful water supply. It is also possible that in around 1900 it was a nationwide trend for the major industrialists to procure the land along the major river basins. Today, there are indeed a great number of industrial facilities lining the banks of the Susquehanna River. Even if events may not have unfolded exactly as industrial speculators envisioned, those in possession of property continued to profit.

Undoubtedly, then, it was the time and trouble of land acquisition, compared to the lesser cost of potentially damaging floods that might or might not strike, that led to the choice of this site for the nuclear power plant.

On a sunny day in August we set out by car from Lancaster, passing through the lush, green countryside to visit the town of Goldsboro which is situated on the western bank of the Susquehanna River adjacent to the two big islands. When we arrived, we stood looking at the power plant's four cooling towers over the trees on the shore of Shelley Island, which lay between us and Three Mile Island. We were a party of a few Japanese visitors and three local residents.

"It's useless," I had been told by a friend in Japan.

"This deafening roar occurred at least six times before the accident; it shook the houses of people living nearby, and when it sounded late at night, they lept out of their beds in surprise."

"Even if you go there you won't get anything out of it. Do you think you can learn anything from just looking at a power plant? All you'll see is a bunch of buildings."

Yes, that's generally how it is. No matter which plant you go to, whether it's at Tsuruga, Mihama, Takahama or Oi, all you can do is look at the bare, white concrete buildings without any idea about how to really begin to approach them -- the only thing one can do is just have a look and go home. It's not easy to imagine the laborers beyond the wall of the building on their hands and knees scrubbing the floors to mop up the invisible radioactive dust. It is generally true, we can only see things that are reflected in our eyes, but even then we fail to really see many of those very things that are reflected.

From this bank there is nothing in the landscape either to indicate that anything serious has happened. I can even see fishing boats and people water skiing. Wouldn't it be a good idea to take a souvenir photograph with the power plant that has achieved world fame overnight there, standing in the background? Yes, that's about the best we can do.

There is almost no way even to begin to feel interested. But of course, there is no doubt that the nuclear power technocrats are well aware of this unexpressed sense of helplessness and alienation which afflicts the average person. (Wise administrators also undoubtedly realize that when an alienated person has some destructive impulse he/she can, ironically, become an active participant). Doesn't this invisible wall represent the tacit understanding prevailing in the technological society that it is prudent for people who are not specialists in a certain field to stay out of it? And doesn't it remind them that there is no need for them to understand?... By now you should have learned not to just plunge into territory where you're not even sure whether or not your efforts will amount to anything. Don't you know that whatever the new territory is, you will just be faced with an endless number of extra chores? Why would you want to add to your life new and complex problems which will just rob you over and over again of your time and energy? Aren't you already losing control over your life? ...

Articles we read by special correspondents, whether they have been written on the banks of the Susquehanna or in a room in a New York building, do not convey the chaos that actually existed at the scene; rather they are well-organized packages of information, proof of the correspondant's ability. For the most part, we accept what is written in them as representing the world as it really is. The reporter endeavors to do his/her best as a reporter and the reader increasingly devotes him/ herself to becoming a better reader. Thanks to this, our modern world has become easy to understand, and there seems to be no necessity to harbor any doubts.

The woman acting as our guide, Jane Lee, is a rapid speaker. She says Mr. Whittock, who lives on the shore of Goldsboro near where we are standing, heard a series of deafening roars which sounded like a Boeing jet flying toward him, skimming close to the surface of the Earth on the moming of the accident. Jane Lee also heard this kind of roaring noise. Gesturing as she speaks, she tells us about how she was terrified and worried -- what on Earth could have happened?

We have heard nothing about this in Japan. A deafen-

ing roar? What was it? How should I know? I'm a layman. But what could this noise have been? If it was such an impressive roar, and if it occurred at the time of such a major accident, its importance surely cannot be questioned. But we really don't know. Fujita-san and the other lawyers from Osaka also have puzzled looks on their faces; even these knowledgeable lawyers who have been preparing themselves for several years to work on the lkata nuclear plant lawsuit, and who have outshone the government scientists serving as witnesses for the state, making them lose face, these same lawyers also shake their heads in dismay.

An engineer specializing in the mechanics of power plants would most likely answer that it was simply a sound that occurs when the acqueous vapor circulating in the secondary cooling system under some tens of atmospheric pressure units is discharged into the environment. To Jane Lee, however, someone who lives near the plant, it was an extremely alarming experience, something beyond comprehension. And listening to her, I can't even begin to think about it -- I must simply take in what I can and try to make some sense out of it later. To the confusion of innumerable unclear and unsolved problems, as well as to the overwhelming quantity of half-baked, superficial interpretations and explanations, yet another question mark has been added.

When I visited the area again in October, I heard another account about this roaring sound -- a footnote to this question mark. This deafening roar occurred at least six times before the accident; it shook the houses of people living nearby, and when it sounded late at night, they lept out of their beds in surprise. Why is it that this kind of simple, straightforward and frightening experience which has been directly confirmed by sensory perception is of no value to the press?

One more footnote: this roaring blast was also heard on the morning of March 30 when the tension about evacuation was continuing to mount. In the Daily Local News of the liberal town of Westchester it was noted that UPI reporter Emil Sveilis had heard the blast when he was at the Observation Center located right on the eastern bank across from the island. At 8:42 a.m. a hold-up tank whose pressure had risen to a dangerously high level emitted radioactive gas into the atmosphere. There must have been many people from the press there, but the DLN was the only paper that reported it. No, to be accurate, other than this report, I have not personally come across any references to this incident in any of the piles of newspapers I have gone through. Of course it didn't appear in the Japanese newspapers, not in the New York Times, nor the Washington Post. No doubt the specialists will tell us that it is a matter of course, to be expected, perfectly natural... There is nothing to be fightened of; what's important is the number of curies of radiation, the number of microcuries, how many roentgens the dose is, how many rads, how many rems, how many millirems and so on. Whatever their minds are really like, to the representatives of the utilities company, the reactor's condition improved somewhat, and the stage where the maximum disaster could be diverted has been reached. (Of course the accident didn't just disappear in a vacuum; and however ironically absurd their circumstances, the operators and engineers on the site deserve no end of respect.)

"At Charles Conley's farm...some kind of white powder-like substance had fallen long before the accident, covering the fields with a thin, white coating. "

And indeed, by noon of Friday, March 30, when the state governor had advised that all pregnant women and preschool aged children should evacuate, radiation which by far exceeded even the politically determined "permissible" levels set by the government and the industrial sector had been released and had undeniably already done irretrievable damage to human life and health.

And practically speaking, it would not have been at all odd if the people of that area had fled every time they heard that deafening roar which sounded repeatedly before the accident. And those hundreds of news reporters who are supposed to be our surrogate eyes and ears, to become our source of knowledge, daring to risk their lives -- they should have followed the shifting wind currents with Geiger counters in hand through the towns, the fields and the woods. This is of course a mean joke, a bit too cruel. Yet we must ask what should have been the function, the responsibility of each sector of society when the top officials of the NRC were forced to admit that they, too, were as helpless as the blind. AP knew enough to send its reporters respirators and protective clothing to shield them from the radiation.

П

Jane Lee lives on a farm owned by the Fishers located about three miles away from the island to the west. She has appealed to public offices, specialists, to anyone who will lend an ear, about the abnormal births, underdevelopment and numerous other strange symptoms of illness that have become increasingly conspicuous on farms in the area since about two years after Three Mile Island Nuclear Station #1 began operation. But as is always the case, up to this very day, nobody has taken any action. Even now, after the accident, no one does a thing. She talks on and on about the cats, the ducks, the cows, and the fact that when the wind blows from the east where the power plant stands, the weather grows bad, or that whatever is in the air is carried down into the gently sloping valley where the farms are. Jerry Fisher had been wearing a hat and the back of his neck felt as thought it has been sunburned after the accident; his eves were also badly affected...and so the unending stream of facts and concerns continues to pour forth.

While listening to Jane Lee's voice rattle on through the haze of the foreign language which we cannot adequately understand, suddenly, though belatedly, I begin to understand what is happening. We haven't come here to learn what the people of this country have found out nor to hear the conclusions they have drawn, but to be thrown into this unmanageable confusion. Although as amateurs, we have a fair amount of knowledge about the effects of leaked radioactivity from power plants on the environment and human beings, we find that we cannot provide any answers to dispel her anxieties. The only thing I can do is try and keep up with her and do my best not to let her words slip past me and not to forget them.

At Charles Conley's farm which we visited earlier, some kind of white powder-like substance had fallen long before the accident, covering the fields with a thin, white coating. He said that when he tried to take the material out that had settled

at the bottom of the trough, the water just turned milky white. We were shown apple trees that had lost their leaves even though it was summer. The farm was located at the top of a hill that sloped down to the river bank; from there we could see very clearly the power plant located about two miles away. The smaller, younger trees had hardly any leaves on them at all, and the larger trees were also losing their leaves from the tips of the branches; on taking a closer look, we could see that they had unusually small fruits on them. The tops of the pine trees lined up in back of the house were bent over, and many had strangely twisting branches and brown needles; those that were not protected by the house were more badly damaged than those which were sheltered. Yes, viewed from the power plant, the less damaged trees were hidden behind the house. A large portion of the foliage of a dome-shaped tree, probably some kind of maple tree standing at the southern corner of the house, had been stripped away leaving a wide, bare section above the middle; the leaves remaining at the top appeared to be new ones, but at that height and against the bright sky, it was difficult to tell.

Here we are just a few minutes later, looking at the familiar shape of the white cylinders of the cooling towers with their spread-out bases. Almost all of the trees on the riverbank near here have lost their peripheral leaves as well as the leaves from their smaller branches... It's like looking into the first layer of hell. You might think us crazy for saying so, but a few months ago this place really was a hell. Nurses left their patients behind and teachers fled, leaving their students in the classrooms. The siren went off, and many people ran from their homes thinking they would never return to them.

Listening to the gentle hum of the motorboats, we looked up at the trees in Mr. Shittock's garden as Jane Lee continues speaking...This big spruce tree didn't used to be this ragged. I remember because two years ago when we let balloons loose here it was perfectly healthy. And she repeats again and again that the air was "steel blue" and that they had a "metallic taste" in their mouths. Disconcerted, we listen. All we can do is soak her words up like a sponge. There is no way to answer her. Everything she says merges into one large question mark. To avoid misunderstanding, let me say that this question mark refers to our own inability. It is not that we had any doubt concerning the existence of the events themselves.

We are going to have to set foot into the quagmire, for we have already heard so much that we must begin a dialogue. Who, when, where? Who saw this steel blue atmosphere? When did they see it? Where was it? What kind of metallic taste? When did the trees begin to lose their leaves? Where? I have to throw these questions back at her. But she hasn't finished talking yet. We have to listen, for she is our hostess.

The time for departure draws near. We, the guests, must hurry so we will be on time for tonight's meeting of the Susquehanna Valley Alliance. We are their guests also. The Susquehanna Valley Alliance, located in Lancaster which is about twenty miles from Three Mile Island, is a citizens group suing to prohibit the dumping of the 3,000 tons of radioactive, contaminated water which leaked out of the reactor vessel. The people living in Lancaster drink the water from the Susquehanna. Feeling just like a person who on a TV talk show has been told, "Sorry, time's up," and is about to be left in emptiness, we climb into the car, and Jane Lee returns to her home. How many times since the accident this spring has she explained the same things to visitors like us? And how many times have visitors like us hurriedly run away? The accident has affected a wide geographic area, or more accurately, its effects extend limitlessly. Pressed for time, we have to run to listen to the people of Lancaster. However, we have undoubtedly left behind accounts of many incidents of equal importance which must sometime be hauled up from the depths and clarified.

In the car, 1 leaf through copies of the records of abnormal animals, records which Jane Lee has been collecting since 1977 from neighboring farms and which are signed by the farmers. I shudder anew as I think that I, like her -- no, even more than her -- am an amateur. I am neither a veterinarian nor a plant pathologist. I have never milked a cow and I don't even know the names of the trees. By what fate have I gotten into this kind of thing?

There are about twenty sheets of neatly typed records from local farms about diseased and stillborn animals. Invariably the farmer's signature can be found at the bottom of the page. She explains that this is done so that their credibility won't be questioned. Even Jane Lee, a private citizen who holds no public position, has been compelled to conform to the quasibureaucratic procedure when dealing with public officials. I wonder how many times they refused to deal with her before she adopted this method. One sheet is headed with the name of Charles Conley: Vance is Jerry's brother. This area is filled with people who are closely related to each other. There are many Fishers and also many Conleys who have probably been here since the land was settled. And this is the kind of thing that is recorded. But what does it all mean? Jane Lee told us about the cat whose back weakened and who couldn't stand up and the butcher who claimed he had never seen cows with such soft bones; but is there some relationship between these things and the veterinarian's prescription for mineral deficiencies? Does it have anything to do with the power plant? And the white, powder-like substance? As far as they know it fell about the beginning of this year (1979). But what about last year, and 1977? ...

.Nakao-san, what is this white powder? Why ask me? ... You mean nobody's investigating it? That's right, nobody's investigating it. Isn't that a bit backward? Don't they have any universities in this society where there are nuclear power plants operating all over the place? And don't they even know what the white, powder-like substance that has fallen on the pastures is? Aren't there any specialists or intellectuals?

Since the moment I arrived on the West Coast, I have been asking everyone I meet the same few questions: Has there been any investigation made since the accident of the effects on the environment? What about investigations on the health effects of the people living in the area? Or the accumulation of radioactivity in plant and animal life in the area? There are almost no answers. In coming here, at last, that has been made clear to me. In any case, what do all these records mean?

Charles Conley, Etters, PA (within 1 mile of TMI.) Mr. Conley has farmed all his life.				
1978:	Sept.	Steer Died - was down unable to get up.		
	Dec.	Steer Died - was down and unable to get up. One steer down and drags itself about. One steer appears to be normal.		
These anin followed th sometime	nals were tr trough and a in April 197	reated by the vet with shots of vitamins and minerals. Mr. Vance Fisher administered the shots every day for a week. These animals were purchased 8.		
Mr. Conely is puzzled about the white powdery substance that he finds in the watering trough every morning and also on the grass. When he sweeps the substance away, the water turns milky white.				
Animals al \$100.00. T minerals for if the miner 10 kittens f	so suffer fro he vet infor or the animal rals loss in t from two se	om diarrhea and weakness. Also, walked in a humped fashion, vet bills over med them that they will have to have 2 1/2 times the required amount of to survive. Sixty dollars was spent in two months for minerals. The vet said he ground continues, the farmer will be unable to grow hay. Last summer parate litters all died.		
	1978 - 1 1979 - 1	Pigs for this year did not develop as rapidly as in the past. Kittens - litter of three - one unable to turn its head - died.		
-		Charles Conley		
		Date:		

Diarrhea. Weakness. A cow that drags itself about. Is this cow the same one we were shown a little while ago? The record reads that the animals were brought in spring and died in September of that year. Now I get it. They buy the calves, raise them, and then sell them. Where did they buy them? What happened to the other calves that were being sold at the same place?

How about all the other farms? Yes, there are others, I don't know what it means, but cases of stillbirth, premature birth and deformities have all been recorded. Nothing but things that I can't really understand. But isn't it reasonable to say that it is the high concentration of abnormalities that have appeared in this area that has made Jane Lee keep all these records? She isn't just compiling data so that she can make a display of the percent of abnormalities that might be expected to occur anywhere; and there is no doubt that backing her up are the voices of the local farm people who live within this several square mile area in this valley. This has been going on since before the accident last spring which

brought Three Mile Island to the world's attention.

On the day after Joseph Conley, Charles' brother, learned of the accident, it is said that he gave up his farm land because he though the couldn't continue farming here anymore, and that he himself was dragging his feet when he left. It is meaningless to say, then, that because Jane Lee's records are not epidemiologically or statistically valid, that they have no meaning.

I would like to comment upon one thing that occurs to me every time I refer to the information that Jane Lee has compiled. For the most part, looking at such records, people quickly dismiss them as being inadequate or as having no value. I am not referring to the evasive words of the officials whose careless attitude we can take for granted; I have heard this reaction from the mouths of people who are afraid of how the accident at Three Mile Island is going to affect their children's future. And I have even heard it from the mouths of people in the movement who gather at meetings. It's an understandable response. Of course Jane Lee's data is not, epidemiologically speaking, solid. Anywhere you go there are abnormal births, and her records don't show how many cases appeared in relation to the total. But can't you people understand the nature of things? Is there no significance in the grievances of people who have, since their childhood, been observing the animals in their pastures? I know you may want proof that can be used quickly at a court trial. Neat, instant, "scientific" proof. You don't understand the meaning of science: someone must make the effort, must struggle to find the answer if the necessary proof is to appear. Are you going to tell the farmers to do epidemiological surveys? Or tell Jane Lee that she had better become an epidemiologist? Why should even you mimic the tone of the bureaucrats?

Ш

The world we had suddenly found ourselves hurled into seemed very unsettled not only to us, but to the people who were living there as well. It is no wonder that they were worried, knowing about the high incidence of abnormalities in farm animals and the leaves that had been falling in such a strange way during the summer after the accident—and all of this going on right around them. And those symptoms that at the time had felt like sunburn, inflammation of the eyes and so on were undoubtedly not to be forgotten. But for the present, at least on the surface, all of them seemed to be continuing their lives as though nothing were wrong. Even though somewhere deep within there lurked this undeniable anxiety, people had to go on working, had to continue their daily lives; they were enduring everything, unclear as it was.

In spite of lengthy discussions of the issue of atomic power, and in spite of the reality of an accident of such magnitude, there seemed to be almost no signs that the experiences of the people living in the area would be taken up in the expected manner. In my view, they were unable to believe for a second that this was reality—that no one was going to do anything. During that week, or those weeks, or that month of fear and anxiety, those people who had done what they believed to be their best, waited for the concerned specialists to arrive on the scene. Surely, they thought, the experts would be anxious to help them answer their questions.

We are supposed to be social animal who, through communicating with each other, maintain the society in which we live; but in this case we were not awakened by the crisis and did not take action. One might say this society of ours has come to be like a row of signboards which professes to provide solutions to all our problems; or isn't it just like a bunch of partitioned, rigid departments, filled with personnel, that make up the kind of public office one would find in a swelling municipal administration? If you go there with a problem, you are given the run-around by each office you approach as they tell you that they are not in charge of that particular thing. Moreover, narrowly specialized work can only be dealt with by specialists; those outside the field who intervene are generally a nuisance. And then again there is very little communication about practical problems between departments at the bottom.

But even in the case of an incident like this, where it was made so clear that such central administrative agencies as the NBC were incapable of dealing with the situation, there were extremeley few independent individuals who ventured to start



Three Mile Island Nuclear Power Plants, as seen from Goldsboro bank.

inquiries on their own. Was there anyone who had the feeling that he himself should go? It seemed that the experience of anxiety known to those people who had been thrown into that uncertain situation, would only sink further into oblivior.

... The day after we visited Goldsboro, we came to York to talk with a group of citizens called "ANGRY"---Anti-Nuclear Group Representing York. We were in a small restaurant called *Sprouty* which is run entirely by women. One of them is called Cindy Braus. As with everyone else I met, I completely forgot to ask her age; but I would say she is under thirty. "...cases of stillbirth, premature birth and deformities have all been recorded. ...This has all been going on since *before* the accident last spring ..."

She is a small, vigorous-voiced person.

On the fourth day after the accident began, Saturday, March 31st -- to be exact, at 2:00 o'clock in the morning -together with the other five members of her family and their three dogs, Cindy ran away from the area, crossing the Appalachian Mountains toward Pittsburg. She said that she had wanted to have mountains between themselves and the nuclear power plant (and good or bad luck aside, we have only our own judgment and physical actions to resort to in such situations). They went along the old Route 74 in a north-northwesterly direction; after crossing the first of the high ridges, they began to head west and then turned onto the highway that leads to Pittsburg.

Most of her family were feeling nauseous and they had to stop at every rest area along the way. The dogs seemed to be in the same condition. Moreover, of the three dogs, two later suffered such symptoms as scabs around the eyes.

Sproutry, the shop where Cindy works, is in York City, about twenty kilometers south of Three Mile Island, and her house is on the south side of the city. According to records from the weather tower located on the north end of Three Mile Island, northerly winds were blowing into this area from the direction of the plant for about two hours during the morning and again from around 3:00 p.m. to 11:00 p.m. on March 29, the second day of the crisis. If they had been exposed to something harmful coming from the plant, would it have been during those times? If the nausea had really been caused by such exposure, then it is probable that these symptoms would have appeared about a day later, isn't it?

Or was it that the direction she chose for their evacuation was an unfortunate one? From the afternoon until late in the evening of Friday, the 30th, the wind had continued to blow in a north-northwesterly direction. That is, until three or four hours before they left the house, the wind had been blowing at several meters per second from the direction of Three Mile Island toward the area into which they were about to travel. If something had in fact been released from the power plant, it is as though they chose the old Route 74 running in a northnorthwesterly direction in order to meet whatever that something was as it was being carried along in the wind.

But who can say with certainty that what they felt were the acute symptoms caused by exposure to radiation? Who can decide whether those were symptoms occurring after such and such number of hours? What I have heard and what I am writing here is, if left just as it is, an account of just one isolated incident. What if it had only been car-sickness caused by the tension of their late night exodus? And the dogs' nausea? Could it have been that they just appeared-to be in that condition? I didn't make certain whether the dogs had actually vomitted or not -what on Earth was I doing? Was there really any value in checking the time, direction and speed of the wind? And there is of course no way I can prove that they didn't just make these things up; nor can I prove that they were related to the accident. And all of these experiences are scattered and isolated so every person involved feels uncertain. Now it is January, 1980. Soon a year will have gone by, but I believe no one has even begun

to solve the problem. ...

Cindy says she doesn't remember reading any accounts of significant statistics or findings and that those things she does remember she has heard in conversations with and among friends or acquaintances as they were talking of their experiences.

"But that kind of thing is very important."

"Yeah, but it's also obviously important that they didn't do anything. They didn't record that. They didn't make a note of it."

"So, you can record things."

"Yeah... We put a notice in the newspaper saying that if anybody had had certain symptoms such as diarrhea, nausea, skin rashes and so on to please call in, and I took... and I have a list of about 23, no, 25 names of the people, with how long the symptoms lasted and so on. And I want to get back to them again just to see how they're getting along. But some of them called up and they did have problems with the skin rashes around their eyes, particularly, and said that their doctors had noticed an unusual number of such cases, and they the doctors said it was unusual. They hadn't really seen anything like it."

Having come this far, you might think we have only to take one more step to be able to get hold of something by the tail. I felt the same way, but that single step is an incredible distance away.

There is daily life, inertia and there are things which we have to do as a matter of course. And these things, combined with the complexity of our narrowly specialized society, its extreme degree of centralization, and the chronic state of crisis we find ourselves in because of our technology, seem to be molding the impotence of our generation. I can say this to myself as well and thus can never quite take that final step. In the end, I'm only maintaining the status quo, even though I don't know enough to say that it ought to be maintained.

Cindy has related almost everything she knows. Resourceful as she is, she tells us that if anyone wants to drink coffee, he or she can go to a shop down the street to get it. All at once, everyone begins talking about coffee.

Now I regret that I didn't ask for a copy of the list of the 25 people. Even with only 25 examples it might be possible to come up with some sort of consistent information; even starting with only 25, four times 25 equals 100, ten times that amount is 1,000. All that is needed is the accumulation of simple efforts -- not an act of genius that transcends common sense. But I missed my chance. That's where I allowed myself to be vague, and that's exactly why and how I can't take that extra step forward.

When I went to the area for the second time at the end of October, this thing was weighing on my mind, but I was unable to make arrangements to meet Cindy again. Although this isn't confirmed, I have heard from others that Cindy and her friends perhaps felt that the results of their efforts were inadequate. I really wanted to go to that shop one more time... certainly, 25 is not a large number, but wouldn't that give me something to hold on to at first? I suppose that those symptoms they talked about were just dismissed as being nothing more than products of the imagination under stress. If there really had been nothing to worry about, it would be fine. But who is to decide whether the symptoms had nothing to do with the emission from the crippled plant? And wouldn't it be too bad if both their telephone survey and their methodology had aborted.

At a meeting held on October 23rd in New Cumberland, across the river from Harrisburg, Chauncey Kepford asked from the speaker's podium how many people there had suffered sore throats, nausea, diarrhea or headaches at the time of the accident. To my surprise, about one third of the two hundred or more in the audience raised their hands. At that moment, everyone looked deadly serious. At the same time, honestly speaking, I thought it was all very peculiar. Why then weren't

they trying to determine the facts on their own?

To return to the conversations we had at *Sproutry...* Fujita-san, the professional lawyer with us, asks me to inquire whether the dead pigeons were taken away somewhere; we have heard there were many people at the time who saw a lot of dead pigeons or who hit them while driving.

Cindy says, "I don't believe they were. I mean it wasn't specific, it was quite generalized. I live about a mile, a little over a mile right out of town, straight south, and I noticed in the country -- I'm surrounded by trees on all four sides -- and I noticed, I walk my dogs, and noticed them here, there, and still... and I remember, I don't think it's my imagination, but I seem to remember lately, that is, since the occurrence, that more ani-



"I agree with you. There's an awful lot of road casualties," says Joyce Johnson.

Cindy continues, "It's pure conjecture, but I noticed the difference 'cause I do travel that way all the time. I just noticed there are more animals. You expect some, but it seems to be a higher amount, a higher estimate."

This is certainly not what would be called "hard information." Someone who has just received technical training would without doubt make quick judgment of it saying that it was useless, that it would not even be worth talking about. It's true that when Cindy says she wonders if it wasn't just her imagination, I too feel myself wavering. However, we must have some definite ground to stand on. Just as Cindy had wanted to have mountains between her and the power plant, in order to take action we need to rely on what our own bodies tell us, and our intuition which can provide a base for our suppositions, whether or not they are false or mistaken -- if we had been mistaken, it would be fine, Doesn't the situation clearly demand some action from the people?



Most trees on the Goldsboro bank, across the river from Three Mile Island, have bare branches, regardless of age.

What Was That Metallic Taste?

"On Wenesday morning (March 28, 1979) we left the news conference that Met Ed had held there and I believe it was around 10:30, 11:30. As we crossed the street from the Observation Center to our car which was parked on the opposite side of 441, I noticed a sensation in my mouith, ah ... like a metallic taste, is the best I can describe it.

"One way I might describe it is at amusement parks they sometimes have bumping cars, and when I get off there I have this kind of bad taste in my mouth, and it would be similar to that. Anyway, I made a joke about something to the effect that that must be something to do with what they were releasing. At that point I felt because of my previous education and belief that you could not see, smell, or taste radiation.

"The following day I had started to hear area residents comment about such a similar metallic taste. And it made me start to wonder if something related to that... what they were doing there was causing this. It's possible that the air stored in that tank they were releasing had a taste to it. But nonetheless, if that was the case, I wouldn't be anymore happy because it would indicate a fairly strong concentration of that air at that point.

"The following Friday, I had come back from my normal route of advertisers and it could have been somewhere between 2:00 and 5:00 that I was on a hill. I'll show you where, (spreads map out, points one mile east of the plant, near the junction of Locust Grove and Covered Bridge Road). I was taking pictures there and I saw a car, and I don't know whether I started to taste this first or whether the car was there first. I would imagine they were with the NRC, they had a federal government car. They had a driver and a passenger and the passenger was holding a probe out the window, monitoring. And I asked him what his reading was and he said, "Oh, we're not getting anything," or something to that effect and I pursued it further and it basically came down to he wouldn't

tell me... In fact, they had been driving back and forth, up and down the hill. Because generally if they get a reading and they don't, they'll usually go back and forth to try to pinpoint the reading; I know they were getting some type of reading. There's not much doubt in my mind.

"Also, while I was up there then, I started to get this very strong taste in my mouth. And after that, The whole way home, until I got home, which was a period of about five miniutes, I could tatse this in my mouth. And it was so strong at that point that I had to, I had to like ... I don't know if I ate something or washed my mouth out. I can remember doing this and telling my wife that, you know, about this, and the fact that I felt like something was happening there. The wind was coming directly from the plant toward the hillside. And that I was very upset that these gentlemen had not told me if the reading was low or what it was."

> David Graybill at the *Press & Journal* Middletown, Aug. 27,1980

" I was on the way to a class with my neighbor (about 7:00 p.m. of March 28), and I said to her something about my lips felt really chapped and she said hers did, too. And we were even looking for herchapsticks at the time. And as we licked our lips, there was a strange metallic taste on our lips.

"But I really do not believe that it was something that I had made up because I didn't have any fears, you know. I had heard it (the accident) had happened, but it didn't mean a thing to me.

"We sent her (the oldest daughter, Meredith, who was then seven) to school that Friday morning, the 30th. And at that time, we still weren't that fearful because we still didn't understand it. An then, I listened to the radio and heard that they were going to evacuate some people or they were thinking about it. And so, one of my neighbors went to school and brought her home. And when she came home she said that a lot of

the children that were down on the corner (waiting for the school bus between 7:40 and 7:50) were very upset beacuse there was a terrible taste in the air. But she didn't describe it to me as mettalic. She didn't understand what it was. She just said there was a strong tatse in the air and that her mouth tatsted funny. That was all that happened then."

> Terrel Stohler Hummelstown, Aug. 17, 1980 (8 miles north of the plant)

The world reflected in our eyes might be warped with anxiety; but still, we see things that we ought to see. And to put it ironically, it is the work of the specialists to produce the crises and it is the general public who suffer the effects. What we need in order to deal with those crises is the point of view of the general public who are more than a little upset and bewildered. The accident itself was awful enough, but even more lamentable is the way our society has somehow led to such an accident. That action on the part of the common people should begin is only natural.

Wouldn't it be all right if the people themselves -- not the bloodless administrating agencies -- came to conclude how laughable it was that they had been mistakenly concerned about insignificant things? And there is absolutely no need for them to become part of the elite themselves. It is not those who seem to have their view of the world blocked by piles of papers who are neglected and to whom no attention is paid. Qualifications are something everyone has. There is no reason that they can't begin to do something themselves.

Even concerning the problem of just when and where the birds were hit by cars, if such information were simply gathered and plotted on a map of the area, some clues would probably emerge. Is there any way to make clear what those occurrences were, instead of just accepting the uncertainty that the word "probably" implies? "Someone asks if I plan to publish the results of what I have gathered here;... What we have been able to obtain (working from Japan) ... is only a small part of what you could do if you would only start doing this yourselves."

IV

Stephen Horcebein is another member of ANGRY; well, at least he came to the gathering on August 14 at *Sproutry* and was sitting there while we were talking. He had been working at the State Department of Health until shortly before then. I never really asked him whether he had been a full-time employee there, just working temporarily as a part-timer, or what. In any case, while working for the Health Department, he interviewed about 150 families living within five miles of the Three Mile Island plant concerning the accident.

His accounts were not of his own personal experience, but rather of what information he gathered after hearing what the people said in those interviews. And as he didn't have the records there with him, no doubt there were things that he was unable to report correctly to us. Once again, however, we were surprised to hear someone describing what had happened in the area; once again we felt it somewhat peculiar that these things had not been spread in the news. ...

He says that those interviews were the informal part of the Health Department's survey -- but what the hell does 'informal' mean? And is the survey he is talking about the one that was conducted in June, jointly by the Health Department and the U.S. Public Health Service, the one intended to provide an accumulation of basic data for long-term studies on the state of health of all the residents there over a period of 25 years? Informed or not, if the Health Dept. has gotten hold of what he is telling us about, why don't they make it public? What? Because of the 'ethical' problems involved? He says that he doesn't have the records that he *"was not permitted to keep them because there are ethical problems involved."*

What really happened at the Pennsylvania Department of Health? In the little time that we have, we are unable to make much of anything clear; all that remain are the things he has said.

"I've had many people describe...like a sunburn feeling to me. You know, I didn't suggest anything to them; they mentioned it to me first. And it was like a sunbum feeling, a very dryness of the skin. It would be a drying of the skin, basically, a reddening of the skin, slightly. I don't...from what people have described that. Let's see. It lasted apparently between March 28 and I would tend to think about the 3rd or 4th of April. There were basically...all the people would have at least been outside their houses, uhh, or exposed, you know. You might, I don't know if you want to, call it exposure. But they would have been outside their houses, maybe just within the yard or doing something like that, umm, between March 28 and April 6. And really, I don't know if there's a whole lot else I could tell you about it, really.

"Apparently it just disappeared, uhh, after a few days. The same sort of thing happens when you get a sunburn. I guess that's why people describe it as sunburn.

"Some people that I spoke to had gone to see their family doctor. From what I understand, most people thought that it was something to be unconcerned about. But I don't know. I can't answer your question directly because I really don't know. Some people have gone to the doctor, I know that, but as far as the doctor's responses, all I can say is from what I understand, what they told me was the doctors didn't think it was that serious."

Kuman-san asks about the eggs that didn't hatch...

"From what I understand, the hens tended to the eggs, but they just did not hatch. I think the gentleman said it was something like four out of fifty-two eggs hatched, which is an incredibly large difference. Every person that I spoke to who mentioned anything regarding that said their animals wouldn't mate correctly or something.

"Well, every person I spoke to except one said that it was not happening prior to the accident at Three Mile Island. The only person that told me that the birds were dying off and things like this were happening the spring before Three Mile Island was an Amish woman, who umm—Amish is a very conservative form of Christianity in the United States, O.K., and other than that... I don't even know if her religion is relevant to any of this, but that's the only person who told me that it was even happening..."

Steve must have been talking about the same kinds of things I have written about in the first part of the article: that from years ago there had begun to occur abnormalities among animals on farms in the area. But it's odd that almost no one said that there had been such problems before the accident; rather, we can probably trust the story of the Amish woman which he emphasized was a unique exception. It seems consistent with accounts of the experiences of farms which Jane Lee has gathered.

"One other thing I don't know if I mentioned before -- I think someone else did -- was nausea. People were very nauseous during this. Let's see, people who left and also people who stayed here, who I interviewed, but In think both groups told me that. Also, diarrhea was a big thing. As far as I know... I don't know... but it seems right now, I'm tempted to say that it were small children who were most affected by that; school-aged children were more apt to get nauseous and diarrhea than adults. So, other than... I can't really think off hand of any other strange things..."

The clock already shows 6:25 and everyone has to eat something before the next meeting begins, so they bring us Sproutry's homemade pizza and we begin to bite into it. Steve looks a little left out and forlorn.

Probably he is adding his own interpretation to the things he is speaking of, to the material, as were the people who answered his questions when he inquired at each home as well as the farmers. Even so, these certainly are accounts with some substance. Somehow I should get hold of what this guy, who looks a little helpless is contrast to his strongly built body, has to say. And I just tell him I want to go with him and meet the people he interviewed, and he's saying he'll take me. At least I should get his address. But why should it be me who goes? It's true, we are eager to pull together all the things we can to take back home, but we will be able to get only as much as we can. Isn't that the way it is? How can you expect us to do more? Tomorrow we have to head off for Washington.

Yesterday, we also heard quite a lot from Jane Lee. These two days have kept us going at a high level of intensity, haven't they? It feels like all of a sudden we have gotten a handhold on the heart of the problem; yes, we have at last

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August 8, 1979

Honorable Joseph M. Hendrie, Chairman U.S. Nuclear Regulatory Commission Washington, District of Columbia

Dear Chairman Hendrie,

I am entirely baffled by the apparent refusal of the U.S. Nuclear Regulatory Commission to have extensively reviewed the reports by hundreds of Three Mile Island area residents who, during March 28-31, 1979 primarily, and at times subsequent, experienced:

- (a) metallic taste in their mouth
- (b) metallic or Iodine-like odor in the air
- (c) irritated and watery eyes
- (d) moderate or severe respiratory inflammation
- (e) gastro-intestinal dysfunction and diarrhea
- (f) disruption of the menstral cycle in females
- (g) skin rashes (some appearing as radiation burns)
- (h) sharp, abnormal pains in joints.

The U.S. Public Health Service and Pennsylvania State Dept. of Health are jointly conducting a survey of TMI area residents to record medical histories so that the full health consequences of TMI' radiation releases in the next 25 years will be documented. That is all fine and should be done. But why is there a complete dismissal by the NRC of any immediate indications of exposure to levels of radiation higher than what were immediately thought the first dates of the accident? Psychosomatically induced ailments are possible with some, but not with hundreds or even more persons and I suggest this matter has heen conveniently laid aside.

The NRC is charged with ascertaining full details about the TMI accident. You are further charged with knowing the full effects of even low level radiation on populations near to nuclear reactors. Failure to pursue the aforementioned reports from TMI area residents is a dismal failure of your most important safety responsibilities to the tens of millions of people living near reactors, not to mention the people around TMI.

I therefore recommend that all available expertise be applied to ascertaining the cause of these physical ailments associated with the TMI accident and a completely accurate public disclosure made of its cause and the level of radiation or contamination that people may have been exposed to. The inability of both Metropolitan Edison and the NRC to know even to this day (or at least to have disclosed if you actually do know) the levels of exposure is in itself a major, most serious failing of pre-TMI accident obligations by both parties. And if it is determined that the exact cause of these physical ailments cannot be determined due to the lack of adequate research on the subject pre-TMI, then the public should know the extent to which we indeed are unprepared to deal with nuclear plant emissions.

STEPHEN R. REED State Representative

State Representative Stephen Reed's Letter to the Nuclear Regulatory Commission (8 August 1979) ...

of the Three Mile Island Nuclear Power Plant. Technical staff members of the Nuclear Regulatory Commission (NRC), the Department of Health, Education and Welfare (HEW) and the Environmental Protection Agency (EPA), who constituted an Ad Hoc Dose Assessment Group, prepared the report. The report concludes that the offsite doses associated with the accident during the period March 28 to April 7, 1979, represents minimal risks of additional health effects to the offsite population. The projected number of additional fatal cancers due to the accident that could occur over the remaining lifetime of the population within 50 miles is less than one. This report, of course, did not address the immediate physiological reactions addressed in your letter. However, we have consulted with Dr. Marvin Goldman, a medical consultant for NRC and he has stated that at the radiation dose rates involved, as described in the report, none of the effects identified in items (a) thru (h) above can be expected to be caused by radiation.

If we can be of further assistance to you, please do not hesitate to write us.

Sincerely,

Original Signed by H. R. Denton

Harold R. Denton, Director Office of Nuclear Reactor Regulation

... and the NRC's Response (20 Sept. 1979) The above is a part of the NRC's reply to Stephen Reed which was written by Harold Denton on Behalf of Chairman Hendrie. It stated that "The only knowledge that we have of a large number of people exeriencing physiological reactions to the accident comes through Mr. Arnold of ParaScience International." Enclosed with the reply was a copy of Larry Arnold's letter to the NRC in which literally the same eight kinds of symptoms Mr. Reed had listed can be found. It is apparent that Mr. Reed's letter was based on Larry Amold's report. It is as though the "information" went round that closed circuit: after sspending much time and energy, one throws one's results in front of those bureaucrats only to receive in return, if anything at all, the empty echo of one's own voice. No, it is worse than empty -- it echoes maliciously.

entered the territory of the Three Mile Island Plant.

But at the same time a great sense of dissatisfaction that is very hard to dispose of has come to plague, has risen up as far as the tip of my tongue. This dissatisfaction is neither with the government, nor with the power company. It is a discontent with the seeming fact that in this society ordinary people, the common people themselves, have almost no means of taking practical action other than lobbying activities; why do the people practice their own science and politics so little? With even this much of a grip on things, why couldn't you, of your own initiative, begin to make your appeal to the world by clearly identifying your unsettling experiences and the direct harm you received at the time of the accident?

No doubt there are people who, hearing me speak, become angry. What a self-centered and selfish person you are! What have you come here to do? Have you come to live off the sorrows of other people? Aren't you just making use of those events that occurred in a corner of Pennsylvania merely as a lesson? Aren't you only interested in your own country's welfare? At any rate, you'll soon leave here, so what's this about a 'people's science'?

Someone asks if I plan to publish the results of what I have gathered here. I am caught off guard, taken by surprise.

What we have been able to obtain in this limited amount of time and with our limited language ability would only amount to a small part of what you could do if you would only start doing this yourselves. And in fact, aren't you listening right along with us? That's what I'm going to take back to Japan with me, as it is, and tell people about. Is it that you are thinking the knowledge about your own experiences, which has not been 'processed' by specialists, is of no value? We are from a country far away from here and are only amateurs ourselves. Why is it that you are counting on our information? You are living here and are capable of many times more, many tens of times more than we are. Yes, I'll probably write down what I have just heard here; but you should write it down too, just as you have heard it.

"...Yes, I'll do something in some form or another, but why are you asking me this?" I ask them in return.

This time, they are surprised.

"Well! We live here. I mean, if you're going to put the information together..."says Beverly.

"... in Japanese."

"Yeah, in Japanese. We can even get an interpreter to translate it. But I mean it is of as much interest to us as it is to you, I believe."

She's right. I didn't really understand. More than any-

one, as those most concerned, they have the right to know what information we have gathered. My saying that it would be in Japanese was senselessly cruel.

"Yes, we'll send it."

"Oh, well thank you. But why did you ask me such a dumb questions?" (Everyone laughs)

Nevertheless, I had already come to a decision: there is no other way than for you to do it yourselves. Where are your journalists? Where are your intellectuals? There's no way we outsiders, though we do as much as we are able to do it ungrudgingly, can be expected to have any decisive influence.

Postscript (September 26, 1980):

At the time this article was written, I had not heard of any individuals who were conducting their own investigations except Mr. Larry Arnold, whom I mentioned in the comment on Mr. Stpehen Reed's letter to the NRC. Since then, I have learned of two independent researchers. The first, Norman Chupp, a commissioner of the Fish and Wildlife Service of the U.S. Dept. of the Interior, stationed then at Harrisburg, has been doing work on the contamination of animals. Mr. Chupp felt that the thyroids of animals in the area should be tested. Upon discovering that there wasn't a government agency undertaking to do such tests, he began them himself. During the period frm April 24 to May 1st, he trapped a number of specimens and sent them to the University of Missouri to be examined. The thyroids of the rabbits showed 161 picocuries per gram of lodine 131. He presented this data to the NRC, but they dismissed it as not having any significance, pointing out that there was not a control group and other weaknesses in the study.

The figure 161 picocuries per gram is said to be considerably higher than the maximum of 5 picocuries previously reported possible. The figure 161 is from the time of detection in June, and the concentration in the earlier weeks should have been much higher. It is said that it might have been possible that some portion of this lodine concentration in the rabbit thyroids came from the April 14-16 releases during the replacement of vent filters at Three Mile Island. But, besides the significance of those contaminations, it seems also significant that those studies on lodine 131 in animal thyroids were not done immediately after the accident by those government agencies such as the Pennsylvania Bureau of Radiation Protection which had the most sophisticated equipment for this kind of test.

The other research I have learned of was initiated by a gradiate student of biology. I heard this summer that he found apparently high concentrartions of lodine 131 in some wild animal thyroids. His study had been rejected by a couple of scientific journals because of methodological weaknesses. He and his colleagues, having refined their techniques, expected it to be published in another journal in a few months. The copyright laws and scientific procedures are such that if they talk about their own study ahead of its publication, they lose their rights to it; once the paper is accepted by a scientific journal, then the paper is the property of that journal, and only then can they make the announcement about their own study. As far as I know, the study has not been published anywhere. The reader might at least see the contrasting gap of pace between the neverhesitating technological threatening of man's environment and the scientific procedure of ascertaining facts. (to be continued...)

Editor's Postscript: On 3 March 1983, Mitsuri Katagin and Aileen Smith Katagin testified before the Three Mile Island Commission, Philadelphia, Pennsylvania. This Commission is now spearheading a number of studies on the epidemiological effects of the TMI accident upon surrounding populations. The State of Pennsylvania also circulated a questionnaire to gather additional data on the subjective effects of the TMI accident. To the best of our knowledge, however, all research is centered upon searching for a chemical compound to explain the biological reactions to human beings. Wilhelm Reich's discovery of oranur is probably not being evaluated in any of these studies.

The following are extracts from a document prepared by Richard Martyr, Ph.D., for the TMI Public Heatlh Fund, 1622 Locust St., Philadelphia, PA 19103. (10 Jan. 1989)

Project 14 Taste and Smell Implications of the Hypothetical Emission of Nonradioactive Chemicals at TMI by Richard Martyr, Ph.D.

"Now it is generally agreed that 'metallic' is not in itself a primary taste, but rather a combination of several factors including smell and taste... It has also been observed that the 'metallic' taste can be produced by olfactory stimuli alone..."

"In addition to oral and nasal stimulation, 'metallic' taste has been reported in cases that apparently have no association with sensory perception of the oral/nasal cavity such as: problems within the circulatory system; gastrointestinal disorders; iron and B-complex vitamin deficiencies; during menopause; during illness; and a variety of metabolic stresses. Thus, the experience of a metallic taste may originate from oral or nasal stimulation or from a systemic dysfunction."

"[It is suggested] that the experiences of a metallic taste following the TMI accident might have had an olfactory rather than a gustatory origin."

"Burning Mouth Syndrome: ...patients report a burning of the tongue or mouth and a distortion of taste which is frequently perceived as metallic in quality. "

"Following the accident at TMI on 28 March 1979, a number of residents in the surrounding area reported various symptoms... there is an apparent pattern among those who reported experiencing a 'metallic' taste. Some experienced the 'taste' before they were aware that there had been an accident at TMI. Some also reported that they experienced additional symptoms such as: a dryness of the mouth and throat; a 'sunburn-like' sensation; a sore throat; a choking feeling in the throat; a hot feeling in the throat and chest; headaches; dizziness; and nausea."

"There were 30 individuals included in the Katagiri testimony who mentioned experiencing a metallic taste, and Osbom and Molholt compiled separate lists totalling another 65 individuals who reported a metallic taste following the accident. [Ages] ranged from 28 to 53."

"...52% of those reporting a metallic taste on a specific date experienced it on 30 March. 26% reported the taste on 28 March and another 13% on 29 March. "

"In several instances the metallic taste...[was] accompanied by unusual atmospheric phenomena, such as heavy fog, mist or haze of varying colors."

APPENDIX:

Three Mile Island: The People's Testament

Aileen M. Smith March 27, 1989 Full document available from here: <u>http://www.orgonelab.org/TMITestament.pdf</u>

Interview with Marie Holowka, Zion's View

Farmer August 12, 1986

...

And Paul left me about six o'clock. He wanted to listen to the radio to hear what was going on, if it was an earthquake or what. And I finished milking cows a little bit after seven. And I came in the milk house and I cleaned it up to get ready for the milk truck. And so, about ten after seven I started for the house, 'cause I've been working since early morning. And I looked outside. *It was so blue! It was so blue!* I couldn't see ten feet ahead of myself! And I got scared.

So I walked out and I'm going to the house. There's a stone walk there. And I fell down, see. But was scared and I thought, "Well, maybe I stumbled." And I went about twenty feet away from the milk house. That poison gas must have hit me. I tumbled. And then I finally got myself up and I'm goin' in. And I went about forty feet more, and I fell down again. And I said to myself, "Well, this must be poison gas, because I know I didn't stumble. I just collapsed." And I couldn't get up. I'd try to get up and I couldn't get up. I couldn't get no strength to get up. I finally got myself up, and I went towards where those flowers are. Then I fell down [again]. And I said, "Oh, my. Now I really know something happened at Three Mile Island! It must be poison gas." I just fell down. I had no strength to get up. I said, "Must I really die at Three Mile Island?"

And I stayed there and I struggled. Nobody came out of the house to see me or nothing. So, I finally got up after struggling there maybe five minutes or so. I walked to the house. I opened the door. I stumbled into the house. I said to them, "Did you hear anything about Three Mile Island?" They said, "No, we didn't." I said, "You know what happened to me. I fell down three times before I could come to the house." I was just something like a drunk.

We stayed in the house. It was blue. You couldn't see anything or nothing. And we were scared. Everything was blue. Everywhere was blue. Couldn't see the buildings or anything. It was just heavy blue all that time. We closed up our doors. We stuffed rags underneath the door so this wouldn't come in. But I think it was all the way in.

You just got to feel funny. You'd just get an awful feeling in your body. Just like a pinching feeling going through you. Like electricity would be going through you. Did you every get pinched with electric fence? That kind of little shocks. All the way through all your body. You could feel it going through your system. And in my nose, and in my mouth. And then you could taste like a copper taste in your mouth. I could taste that. And then I just got to feel so bad. Nothing was biting me, but you just had that feeling. I just started to get weak. I just got real weak. I thought I was scared. I guess I just folded up and fell over. I couldn't get up. I didn't have no strength to get myself up. Or my brain or something wasn't working. I couldn't get my coordination to get up. I don't really remember if I was conscious or not. I guess I wasn't conscious when I went down, 'cause I don't remember going down, see. And I fell on the stones. I was lucky that I didn't get broken bones. Nothing like that ever happened to me before or ever since. Nothing.

[Marie says the blueness, as well as the taste, lasted several days.]