

Remind us of Chernobyl

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I would like to dedicate this talk to my friend and fellow scientist and pioneer, Alexey Yablokov, who died recently this year. He was one of the main instigators to do and to collect research about the medical and ecological effects of Chernobyl, gathered a lot of data and put them together in a book. Actually, Timothy Mousseau, an evolutionary biologist, who has been collecting data on insects and birds in the exclusion zones surrounding Chernobyl and Fukushima, helped Yablokov to get these papers which were written by scientists, physicians and epidemiologists on the medical data from the Chernobyl accident. However, because the New York Academy of Sciences has many pro-nuclear people on its board, they were annoyed about Yablokov's report on Chernobyl – so, they denied it. They said the papers were not properly peer reviewed à la America, and said the report means nothing. It's actually one of the most fascinating documents that I have ever read in medicine; the description of the medical implications is outstandingly dreadful and, contrary to the official reports of the WHO (World Health Organisation) and the IAEA (International Atomic Energy Agency), who didn't get on the ground and actually examine patients. They made calculations, estimated the dose each person received and extrapolated how many cancers would appear; but this is fake science that means nothing - these people are totally in the lap of the nuclear industry. The IAEA promotes nuclear power and the WHO signed an agreement in 1959 with the IAEA not to report or investigate any atomic accident. So, the WHO prostituted itself to the nuclear industry. For that I feel very resentful as a physician.

The accident of Chernobyl happened on 26 April 1986. What happened was that the man in charge that day was an expert in hydroelectricity, not nuclear electricity. There was an experiment that the nuclear industry had wanted to do for some time and it had yet to be done. I can't exactly remember what it was but it was a nuclear engineering experiment and he started to do it late at night. He didn't spend too much time doing it before there was a huge bang from an explosion. He said to his two younger assistants 'go out and see what has happened'. They came back and said, 'it's gone'. He said, 'What? What's gone? Don't be ridiculous. Go back and have another look.' They came back and said the reactor is gone while the control room filled up with dust and smoke, which was radioactive. Those three people died soon after the accident of acute radiation illness, vomiting, and bleeding to death. A huge fire ensued which burned ferociously for over ten days because the moderating rods used to control the flux of neutrons in the reactor were made of graphite, which is highly flammable, forcing massive amounts of radiation into the stratosphere and all over Europe.

Thus, a fallible human being instigated the accident. That's how we could have a nuclear war, induced by a fallible human being, because all human beings make mistakes. I'm sorry about this but it's mostly men, who are subjected to all sorts of things. I mean, they might have had a fight with their wife, they might have developed an acute psychosis; some of my patients have become acutely psychotic overnight, or they can develop a cerebral tumour, or become clinically paranoid and do crazy things. And so, we've handed these people, the politicians, military men and scientists the

power inside the centre of the Sun, both in the nuclear reactors and in the nuclear bombs. How stupid are we? And, as our former Australian speaker said, women should play a greater role. In Japan, Saudi Arabia and many other countries the women are put down all the time - well, I'm sick of this. It's time that women take their place. We are 52% of the population. I am not being sexist. I am being realistic that the world is in a terrible situation! I actually am not sure if we're going to survive. If you ask for my prognosis, it's grim. But 52% of the population are women and we are very smart and its time we said 'stand aside, you've had your go and you've screwed up and now its our time to try and save the planet.' I think we are the golden key to the future. That boils down to a wonderful hormone called oxytocin, whose release is stimulated by breast-feeding; it's a very nurturing and caring hormone. I should tell you about an experiment in a San Francisco lab: A scientist was examining hormone secretion. She noticed that after an altercation, men would go into their room, shut the door and fume, whereas women would come in the next day, clean the benches, make coffee and make friends with everyone. The women's oxytocin went sky high! It's a lovely hormone. The men's testosterone went sky high. Do I have to say anything else?

So, the accident was dreadful, but it is interesting because there was a man fishing in the river outside Chernobyl after the accident. The people in nearby Pripjat, about 3km away, didn't really know what had happened. There was a Mayday celebration or whatever, they were out on the streets, the children were riding their bikes in the playgrounds and it wasn't until 36 hours afterward that those people were evacuated but they never came back. They were exposed to a lot of radiation.

Now, what you need to know is that in a reactor there are over 200 isotopes produced from the random fissioning of the uranium atom. All we seem to hear about these days is caesium-137 and strontium-90; that's only 2 isotopes out of 200.

Some have tiny half-lives of seconds and those are terribly radioactive as they decay very fast. Some have half-lives of thousands or even millions of years. The spectrum of radioactive time for the isotopes is very wide. There are two mechanisms by which people are exposed to the short-lived isotopes: (1) cloud shine - people are immersed in a cloud of radioactive isotopes with short and long half-lives that give out a lot of gamma radiation, which resembles hard X rays. If you have an X ray, you are told to hold your breath, while the technicians hide behind the lead-lined glass and when they come back you've been exposed. Then (2), there is "ground shine" originating from short-lived isotopes that radiate gamma radiation. This is the so-called external radiation, like when radiologists wear a monitoring device on their belt, which is an x-ray film monitoring how much radiation they get. So, that's what the IAEA talks about and the nuclear industry measure and are concerned with - external radiation. But probably the most dangerous types of radiation exposure are internal ones where isotopes get into your body either by inhalation, by ingestion or by penetration through the skin, beta emitters can land and radiate on your skin. For instance tritium, a radioactive isotope of hydrogen is a beta emitter and is readily absorbed by the skin.

Further, you can inhale radioactive isotopes like plutonium-239 that enters the lung where it can cause lung cancer, and it can be transferred to macrophages, white blood

cells that ingest nasty things, and they travel to the lymph nodes in the center of the chest where the radiation can mutate the DNA in white blood cells leading either to leukemia, Hodgkin's Lymphoma or non-Hodgkin's Lymphoma. Plutonium is an iron analogue, so it can bind to transferrin, the protein that transfers iron. From there, plutonium is stored in the liver where it can cause liver cancer. And it is also stored in the bone marrow where haemoglobin is made, inducing osteogenic sarcoma, cancer of the bone, or leukemia, or polycythemia vera, a cancer leading to elevated numbers of red blood cells. And the last thing which must be mentioned about plutonium is the foetus: the placenta lets nothing deleterious through such as viruses or toxins, but plutonium gets through because it is an iron analogue; therefore, it enters the developing fetus, and in the first trimester it can damage cells involved in organ development; for example those that are destined to form the left arm or the right half of the brain. Organ malformations of various types have been observed in Chernobyl.

In conclusion, plutonium is a potent pathogen and an alpha emitter; its half-life is 24,400 years and is therefore radioactive for 500,000 years. It is the fuel for nuclear weapons and 250 kilos are manufactured in each one of the 1000-megawatt reactors annually. It is highly carcinogenic, such that one millionth of a gram will induce lung cancer. It is the most evil substance ever created by man.

If you go to Chernobyl, there are homes, many hundreds of them, full of grossly deformed children. These children are similar to those exposed to the drug thalidomide. Remember when pregnant women took thalidomide to stop morning sickness. Thalidomide obstructs vessels in the developing fetus and, therefore, these children were born with no arms or other appendages. I employed a man who drove a truck through my farm; he had no arms and ran a radio station with his toes. That's called teratogenic transformation and that's what plutonium does; well, not just plutonium but also many other elements. So, we know already that babies *in utero* in the first trimester were affected by plutonium and probably still are because it is still in the soil all over Europe.

So, what about Europe? Forty percent of Europe is contaminated with long-lived isotopes and will be for the next hundreds to thousands of years. And what Yablokov made clear in his Chernobyl report was that plutonium-241 decays to americium-241; americium has a shorter half life than plutonium but it is much more water soluble and much more transferrable into ecosystems by water, it easily enters food chains. He says that because plutonium-241 is going to decay into americium-241, Europe is going to become more and more and more radioactive over the coming years.

In Australia, I don't buy European food because the radioactive fallout from Chernobyl fell over Europe and Russia. It is impossible to know what radioactive isotopes the oil or olives if I buy from Spain or Germany may contain. There are wild boars in Germany who eat mushrooms and fungi, which efficiently concentrate caesium and they get so radioactive – they almost glow in the dark – which they are classified as radioactive waste and have to be shot and buried in radioactive waste facilities. That situation is not just in Germany, it pertains in many parts of Europe in isolated places. There are sheep farms in Wales where the government told the farmers that 'you have to kill your lambs

because they are full of caesium.’ The farmers said ‘well, how long will this go on?’ And they replied ‘Oh, about a hundred years’. It is not hundred years: the half-life of caesium is 30 years, and you multiply by 10 to obtain 300 years after which still about ten percent of the radioactivity is left. It is most important to study the cancer rate throughout Europe. In Turkey, they got massive radioactive fallout and the Turks were so annoyed that they picked all their radioactive tea and sent it to Moscow, so the Russians could drink the radioactive tea. For this very reason, I do not buy Turkish dried apricots or figs or whatever; but if you go into Health Food Shops that sell Turkish apricots and ask if they are radioactive, they say ‘they are organic’ which means nothing. But the fact is, all food is organic, not inorganic like this desk made of metal.

Now, after the Chernobyl accident, Gorbachev, whom I admire enormously as he helped to save the world, denied the accident for about 3 or 4 days. What happened was that Sweden was measuring the radiation in the air as they normally do and they noticed a high level of airborne radiation just after the accident. The fact is that Sweden has since done some very good epidemiological work: Swedish scientists found that babies *in utero* at the time of the accident had a lower than normal IQ. This abnormality was verified by Yablokov *et al.* related to Chernobyl that children, after exposure to radiation *in utero*, can be born with lower than normal IQ. Some areas like Belarus got terribly high fallout. Initially 80% or more of the children were healthy. I am a pediatrician so I talk from a medical point of view about children. But now, only 20% of the children in Belarus are healthy. What is happening is that many of these children are prematurely aging. This condition is called progeria. Have you ever seen a picture of a boy aged 10 with a bald head and a wrinkled face? What happens is that the radiation damages the cells in the body and some of these children die of heart attacks. I talked about a man called Yuri Bandashevsky yesterday, a doctor, who, with his paediatrician wife, studied the dynamics of caesium in the body. Caesium is taken up and concentrated in the heart muscle. So it damages the heart muscle causing cardiomyopathy and these children develop cardiac arrhythmias. I get cardiac arrhythmias but I am nearly 80 and I’ve got a monitor implanted in my chest to make sure my heart beats rhythmically, otherwise I could drop dead. Well, these children are dropping dead.

The other organs in which caesium concentrates are the endocrine glands. So, the thyroid, which accumulates iodine-131 - half-life 8 days - and iodine-129 - half-life of 15 million years - also concentrates caesium, which is very mutagenic. Cesium also concentrates in the pancreas where it destroys the beta cells in the islets of Langerhans which secrete insulin. Dr. J. Gould said that radiation causes diabetes. I got really mad at him and said that there was absolutely no evidence. But that was before the work of Yablokov and Bandashevsky’s. A very high incidence of diabetes type 1 in survivors of Chernobyl has been documented. So, the children in Belarus are really suffering.

The other thing is the liquidators. The Russians recruited some 800,000 young men from all over Russia, who were mostly in the military, to come and help them stop the dreadful fire that lasted 12 or 13 days at Chernobyl. It burnt because they lost the cooling water during the accident and the control rods were made of graphite, the stuff

that is in pencils, it is carbon. The fire was so intense that it lifted the radiation up into the stratosphere. From there, it fell back down all over the place, all around the Northern Hemisphere. (Incidentally, the air masses in the Northern and Southern Hemispheres do not mix at the equator. Therefore, the Chernobyl and Fukushima accidents only affected the Northern Hemisphere, not Australia, although we provided the uranium for the Fukushima reactors.) So, the radioactive fire burned for 12 days. It was just dreadful - a huge amount of radiation was released. To put out the fire, the liquidators dropped lead from planes into the reactor, they also dropped boron and hundreds of thousands of containers of sand, and, eventually, the fire stopped. But in the interim, huge amounts of radiation was scattered all over Europe. Many of the liquidators are now dead and Yablokov said that 92% of them were already sick by 2002. They suffered from all sorts of diseases: Cancers of almost every organ, premature aging, psychological problems, heart attacks - because the alpha particles of plutonium and other alpha emitters damaged the endothelium of the coronary and cerebral blood vessels blocking the blood supply to the heart and brain and causing heart attacks and strokes.

The liquidators were in a dreadful, dreadful, dreadful state. So, Russia really sacrificed 800,000 young men for the sake of trying to protect Europe. Those people are heroes! Instead of statues of horse-riding men who have killed people, like Napoleon and others, in almost every square throughout Europe, we should have had statues for these real heroes. It has been a tragedy: Their wives lost their husbands and their children have been affected with chromosomal abnormalities, being born deformed. The incidence of Down syndrome rose enormously in children of the liquidators and also in many other European countries. But it was not just Down syndrome, there were other trisomies that were lethal and the various trisomies increased in incidence in many European countries.

Many of these isotopes landed on the soil all over Europe and then the soluble radioactive elements like strontium-90, caesium-137 and -134 and americium-241 were taken up and bioconcentrated by the roots of the plants. And so we eat the plants that have concentrated these isotopes. In Japan, the spinach and the vegetables were very, very radioactive after Fukushima. The rice was and is radioactive and the food grown in the Fukushima's prefecture is still really radioactive. So, the Japanese took non-radioactive rice and mixed it with the radioactive rice and said 'its okay'. They were and are exporting food to England and other countries. Taiwan won't take their food but other countries do. Stupid Prime Minister Abe, a really dangerous man, really dangerous, loves nuclear power and he just eats fruits and stuff from Fukushima, to prove that it is safe. The man is an idiot. He says 'oh, its safe' but you know when he gets his prostate or liver cancer, he's not going to feel too good because he will probably die. So ingesting radioactive food is a very bad thing and, of course, your senses cannot taste, smell or visualise radiation in your food. If you eat fish or sushi from Japan you will have no idea whether it is radioactive or not. In New York sushi restaurants are still selling fish from Japan.

Because cancer takes 5-80 years to develop - a long incubation time - we don't know which isotope initiates which cancer, except that we do know that smoking causes

cancer. I notice that people in this community in Basel smoke like chimneys. In Australia, smoking has declined enormously; we sort of understand that it kills you. But you are living in Europe, in dangerous areas and you don't know where your food is coming from or what fields are radioactive or whether the milk and cheese are radioactive - there is little talk or discussion about it. I know that people were concerned soon after Chernobyl. This situation of poisonous food will continue for hundreds of years. Nuclear accidents never end. They murder people. We heard this in previous talks about Japan and about Mayak: Those people were murdered. Those people were killed by the nuclear industry and by the politicians, wicked politicians, who won't admit it. I have sat and listened for 2 days about laws, but countries don't abide laws. Look at America: She never abides any laws, except those that only affect her. She will bomb and kill people all over the world, which is illegal. 'Thou Shalt Not Kill'. Yet, they call themselves Christians.

There is a man called Wladimir Wertelecki, a wonderful doctor who understands foetal development and he examined women in Rivne Polossia in Belarus where there is a huge amount of caesium in the soil from the Chernobyl fallout. The local people grow their own food - potatoes and the like. The pregnant women have high levels of caesium in their bodies and Professor Wertelecki discovered that there is a very high incidence of babies born with neural tube defects or spina bifida - this is when the spine doesn't properly fuse, they are paralyzed from the waist down and their bladders are abnormal. Children also were born with anencephaly, no brain. I have delivered such a baby. They have a nubbin of mid brain on the base of their skull. They cry, suck, sneeze and, within a week, they are dead. Incidentally, these defects are being found in Fallujah and Basra in Iraq because America has been using depleted uranium in the war they fought against the former Ba'athist Iraqi government. So, a very high incidence of neural tube defects.

The evolutionary biologist Tim Mousseau has been examining the wildlife around Chernobyl and Fukushima. He discovered that half of the male barn swallows are sterile and have smaller than normal brains. They exhibit mutations which produce abnormal white feathers, and tumours in many parts of their bodies and also cataracts. Actually, there is a very high incidence of cataracts in people who live around Chernobyl and who were exposed to radiation. So, radiation also damages eyes.

A large variety of malignancies have arisen amongst the Chernobyl victims. One of the earliest was thyroid cancer, which appeared in children around Chernobyl within 4 years after the accident. The Japanese government is now examining its Fukushima victims but they are only looking at thyroid cancer: I have to tell you the Japanese government is evil. But the truth is that radiation causes all forms of cancer! Japan suffered terribly in Hiroshima and Nagasaki. Those survivors have provided most of our scientific information about radiation. Leukemia appeared 5 to 10 years after the bombs dropped and other cancers started appearing after 15 years but thyroid cancer appeared early, like in the children around Chernobyl within 4 years. The only cancer the Japanese government is daring to look at is thyroid cancer. They are working with the IAEA, which has built a large cancer hospital in Fukushima, which tells you everything. And the

Fukushima University is also involved in Japan. They are only looking at children who were under the age of 18 at the time of the accident. They have examined about 350,000 thousand children and found so far 190 thyroid cancers, and each year they are finding more. The incidence of thyroid cancer in that particular population of children is normally 1 in a million cases. Some of these cancers are nasty: They metastasize and spread to the lymph glands, the lungs, etc. So, a similar situation has occurred in populations exposed to the Chernobyl fallout. Cancers are still arising in Belarus and in fact in many parts of Europe.

The Ukraine has got 15 nuclear reactors, plus Chernobyl. Plus there is a war going on in the Ukraine orchestrated by the United States government and the US State Department. How dare they? One missile to a nuclear reactor and we're going to have another Chernobyl in the Ukraine. You can't have wars in countries where there are nuclear power plants. If the Second World War had occurred in Europe with the number of reactors you have now, Europe would be uninhabitable for the rest of time. Politicians don't understand this because they are not very bright and most are scientifically illiterate.

Okay. I just will end by saying that the Russian government threatened doctors when they made diagnoses of diseases related to radiation. The same is happening in Japan: The doctors are threatened to lose their government funding if they talk to patients about radiation-induced diseases. The Japanese government also has recently passed a secrecy law stipulating that a journalist who reports on Fukushima could go to jail for 10 years. - I rest my case.