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GARY NULL SHOW: LOW LEVEL RADIATION - PAGE 1

: Hi, everyone, I'm Gary Null. We take on a lot of issues on this program, and with every program that we do we try to influence at some point a person's behavior concerning their health. Yes, we talk about diet and exercise and behavior, and the nature of pollution within our city and our counties, in fact, we've done more on environmental health issues than any other radio program, or television program in the United States. More hard hitting investigative reporting than any other show. Sometimes we do shows that are not originated as investigative reports, but rather as commentaries. One such show was recently completed where we spoke about the potential for many Americans to be adversely affected by low level radiation fall out from Three Mile Island. After that program I received numerous letters from scientists in our audience claiming that the specialists that we had in our program were not specialists, had no evidence really outside of their own opinion, and therefore it was an irresponsible program and that we should not alarm the public after all, making a claim that low level radiation was dangerous when there's no proof that it's dangerous is not responsible. And that it's only high level radiation that we should concern ourselves with. Fine. The gu^{nt}let was thrown, I was challenged, I pick it up. I intend during the next

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hour, or if you stay with us and are one of the stations in the United States that carry both hours, two hours, to give you an in depth comprehensive analysis of the following, with even stronger charges. That there are numerous studies that show that low level radiation is killing Americans. That this information is not a secret except to the American public. That various agencies in the United States government have had this information and wilfully withheld this from our knowledge. That up to 50,000 Americans may have died due to Three Mile Island, as a result of low level fall out. We do a lot of investigative reporting, this is a special investigative report. The subject low level radiation, it's effect and impact on our health, both in short and long term. We have contacted in the past three weeks, with more than 150 calls, virtually every governmental agency, and department that handles information or research on the subject of low level radiation, or that was involved in the research, follow up, and dissemination of information on Three Mile Island. Later on in the program I'll give you a name, the names of individuals that participated with us in sharing information, not one of those agencies or individuals agreed to participate in our program. We then went to various members of the university community who have research background in epidemiology, and

physics, nuclear physics, only one agreed to participate in our forum to take issue with the basic assertion. That person hopefully will be on later on in our program. Most claim and I'll be mentioning their affiliations and positions, that they simply didn't want to appear on a program that was dealing with this issue, or with these guests. My statement was that you have an opportunity to come on and unlike other shows that deal with controversial issues, this show respects the individual to have a difference of opinion, and not attack the individual. I simply don't allow that on my program. This is not a slash and trash program. Where two individuals or five individuals or whatever can share differences of opinion, and still show respect for one another in other areas. Still, they refused to come on. So we have done everything possible to balance out the statements of our guest, but no one we could find would come on to take up the issue that these statements that you are about to hear are incorrect. Only that we shouldn't give them air time. And I said, then you come on and explain why. Well, the statements were that they don't have the academic qualifications, that there's no published proof, that there's no shred of evidence, I said fine, then if you say there's not a shred of evidence, then needless to say I will make it my job before I allow them on

the air, to see that they have evidence. Doesn't matter, that there is no scientific background. What if I produce it? Doesn't matter. They have no academic standing. What if they produce their academic credentials. Doesn't matter. Well, then it seems that everything you were saying that would keep you from coming on air, and that we have responded to, it's going on a different level, there's something else you're not telling me. I could not get to the bottom of that. So, they've had their chance, if they choose on a later date to come on, I will still offer them that opportunity. I want to waste no more time, we will get to people who agreed to come on our program. We have nine. Let's start with the gentleman who originated some of the more provocative statements, there are actually two, Doctor Stern_oglass, professor emeritus of radiological physics, University of Pittsburgh School of Medicine, also Dr. Jay Gould. Dr. Gould is an expert in data processing, PhD from Columbia University, and was on the EPA science advisory board in the Carter Administration. Gentlemen, welcome to our program. I'd like to begin please with you Dr. Gould and ask our other (Inaudible) on the line to stay with us, we'll be with them each in time. Dr. Gould first to the following issue, do you have evidence that any individuals

died as a direct or indirect result of the Three Mile Island accident.

: I believe so. If you examine the mortality statistics, the age adjusted mortality rates in the United States over a long period you will see from 1979 to 1982, there was a jump in that mortality rate that suggests as many as 50,000 or more Americans died, whose deaths had been accelerated by some factor. The only factor that I've been able to ascertain could account for this, is the low level radiation from the Three Mile Island accident, which affected in particular a three state area consisting of upper New York State, Pennsylvania and Maryland, but there were counties within a 500 mile radius of Harrisburg that were also affected.

: One of the individuals that I spoke with said he knew of your data and said that it was weak. Substantiate your data to this audience.

: Well, statisticians use the concept of a significant excess of deaths. And the significance is based on a purely scientific analysis of a probability that the excess could be due to chance, and the probability in this case that the excess could be due to chance is of such a low order that it has to be ruled out. We get p values as low as 1 in a million, or even less,

which means that if low level radiation is not responsible for the excess than it's up to the scientific community to come up with an alternative hypothesis.

: Have you shared this information with governmental agencies, or any of the groups involved with Three Mile Island.

: Yes, I was asked for example to appear before Senator Kennedy's public health committee by litigants in Three Mile Island. Let me just say parenthetically, that there are now 2500 law suits, plaintiffs who are suing the local utility for damage sustained by the radiation. This is a fact that I haven't been able to find mention of in any of the media outside of Harrisburg itself. But in their behalf I presented my data, before Senator Kennedy's staff twice in 1987, and they've had ample opportunity to investigate themselves, the only thing I can suggest that did happen is that at the end of the year, Senator Kennedy wrote a letter to the National Institute of Health asking for a study of mortality near nuclear reactors. -

: and what happened from that study?

: The study was passed on to the National Cancer Institute, and they have announced

plans to complete a study sometime in 1990, but their study is restricted only to cancer, and to counties very close to nuclear reactors, which I think does violence to what we have found in the Case of Three Mile Island, which is that the damage extends to areas that are hundreds of miles away too, because the low level radiation is dispersed by inland waterways, and affects people who could be quite remotely situated from the point source of the radiation.

: Thank you Doctor Gould.

Doctor Sternglass, is a professor emeritus of radiological physics at the University of Pittsburgh School of Medicine, author of numerous scientific papers, and a member of the academic elite when it comes to understanding the affects of radiation. Dr. Sternglass, do you have any knowledge that the United States government or any agencies or individuals of the United States government are aware of what Dr. Gould is saying, and have kept it from the American public.

: Yes, because when we

examined the vital statistics, of the states involved, and the U.S. monthly vital statistics, we discovered that after both Three Mile Island and after Chernobyl, the original infant mortality data were altered in subsequent years in such a way as to minimize or essentially erase the peaks of mortality that occurred. That means that individuals who are

doing this must believe that something serious occurred, or else there would be no incentive to commit what is essentially a criminal act, namely to falsify government data in the interest of national security, which is not very different from what happened in the Iran Contra case, except that we are now dealing with millions of lives of Americans, that had been endangered deliberately in order to protect essentially what government believes is the necessary deterrent to prevent anyone from thinking that we would not be willing to use nuclear weapons even though this material would blow back on us, affect our children, and our older people who have lost their immune resistance, or who have never yet developed it, and cause enormous damage to the health and future of our society.

: Some of that is assumption, some of it is fact, let's try to stick with fact. Fact, you're stating that you have proof that they altered at the federal level the statistics, that's a criminal offense, tampering with federal documents, have you sought to have an investigation by the Attorney General's office? - -

: We have hoped that this would be undertaken by Senator Kennedy's staff.

: We have attorneys, we have district attorneys and we have all forms of people in the legal community who listen to this program, or who have access to the material of this program. We will make a transcript of this program and tapes available for any attorneys or public interest research groups and citizens groups to bring the legal action to any agency that has what you state and what you can prove has committed this illegal act by covering up the deaths of 50,000 Americans, if indeed you can prove that, you will have a lot of people in this audience, who will certainly support that action. If you can prove it, that still remains to be seen. Let's go to the next issue. At the time of Three Mile Island, that's a private utility, private utilities, especially nuclear facilities frequently have close connections with governmental agencies, especially nuclear regulatory agencies, can you tell us anything about workings between a private utility and the governmental agencies, and how the government would have known to have covered this up, since it obviously at the time didn't know of all these deaths, it would have taken some time for it even to have known of these deaths.

: The government has known for many decades that much larger numbers of leukemia and

cancer cases occurred around the bomb tests sites in Nevada at levels of radioactivity in the milk and diet that were comparable to what happened at Three Mile Island. And in fact, an investigative report by Bill Curry, in the Washington Post published in April 1979, just a few weeks after Three Mile Island began to release its deadly radioactivity, found under Freedom of Information that the government deliberately at the top order from the White House and the Pentagon decided that findings by Dr. Edward Weiss, that leukemia had risen much beyond what anyone had expected in Utah and the near by area around Nevada, and that thyroid disease in Utah had increased much beyond anything that anyone had anticipated, that these reports were prevented from being published, and did not appear in the scientific literature until many years later, so that the government knew as early as the late 1950's and early 60's that very low levels of radiation were much more deadly than anyone had admitted.

: Explain the difference to our audience between high level radiation and low level radiation, how they each kill, and why we should be concerned about low level radiation.

: The tragedy has been that we were really misled by the lack of serious very serious

side effects from ordinary chest X-rays, medical X-rays, in nearly three quarters of a century in the use of X-rays. It turns out that fallout from a nuclear bomb test gets into the diet, exerts its influence over a period of many weeks and months, and turns out to produce entirely different kind of effects in the sense that the totally different biological mechanism involved, than at high doses. At high doses it's like bullet like action that damages the DNA, which is the center of the cell containing the genetic information to make a cell work, and you have to really hit it in order to destroy these molecules. It turns out that nature has provided for very efficient repair processes, that repair these genes because our future generations health depends on the genes, and apparently nature has found a way to do that. On the other hand, the low level radiation produces an indirect effect which only was really fully understood in 1972 by Doctor Abram Petkow at the Canadian Atomic Energy laboratory, in Pennawah Manitoba, who published an article in Health, Physics in March of 72, that showed that gentle radiation, milligram for milligram is a thousand times or more deadly in its damage to cell membranes than for instance a short X-ray, or a pulse from the flash of a nuclear bomb. And that information has been essentially suppressed in this country. The important part

radiation are up to a thousand times more serious to the genetic code within our body, and could be affecting genetic birth defects, ...

: No, no, not quite. Let me say the following. Fortunately the genes are more resistant, and the greatest effect is on the function of various hormone producing glands, like the thyroid, or the bone marrow, which is extremely sensitive to radiation. The genes which carry the information for future generations, appear to be much more resistant to radiation, than say the developing fetus, which is particularly sensitive because of cells multiplying so fast.

: Thank you, when we come back, we're going to be speaking to Dr. John Goffman, professor emeritus of medical physics, University of California, MB PhD on the effects of low level radiation, he's one of the world's greatest authorities on the effects of low level radiation, and then we'll be talking with Dr. Ellis Stewart, Dr. Carl Morgan, Dr. Erwin Brawls, Dr. Thomas Mancuso, Dr. ^{Kaku} Micho ~~Cochrane~~, and Dr. Neil Ward. In this special two hour in depth investigative report on the effects of low level radiation and your health. What the government did and did not tell you. Our conference phone. Dr. John Goffman, professor emeritus, University of

California, medical physics, welcome to our program Dr. Goffman.

: Thank you.

: Dr. Goffman, first I would like your opinions on the effect of low level radiation, what we know, and can prove, and what we can speculate, might be the effects.

: My work is largely focused on the occurrence of leukemia and cancer, and efforts to understand the effects on the genetic heritage. But largely on leukemia and cancer. And from my work on cancer, and I want to make it very clear that I'm restricting my statements to cancer, I can't speak to the issues of immune system disorders, ear infections, or any of these things that would add up to the deaths that Dr. Sternglass and Gould have talked about. I have not investigated that, I could come back to that in a moment. But on cancer, I have found this by careful study of some 20 different investigators work around the world on medical exposures to radiation with subsequent follow up, and extensive studies that I have done now for over 15 or 20 years on the results of the Hiroshima and Nagasaki bombings. And from the most up to the minute data, and from all the past data from Hiroshima and Nagasaki, it's very clear to me that we find

cancer being produced in excess, down at very low levels of radiation, in the Hiroshima and Nagasaki experience, that goes down to 10 rads, a rad is a unit of dose, or 10 ^{rems} ~~rads~~, as people are used to talking about it. Now the claims have been made by governmental scientists and others, that no effects have been observed below 50 or 100 rads, that simply is untrue, it's untrue from my investigations, and it's untrue from the government's own representative scientists within the Radiation Effects Research Foundation, at Hiroshima, Nagasaki, if you look at their recent reports from the RERF, you'll find that they too agree that cancer has been demonstrated to be a significant effect at 10 rads. But what is much more important than that, is what we call the shape of the dose response curve. If you were to plot how many cancers are occurring at various doses, the shape of that curve is exactly the opposite of what governmental scientists, and quasi-governmental scientists, a number of international and national bodies supported by governments have said. The shape shows that the most likely fit to the data would say that at low levels the increase in cancer rate per unit dose, per rad, is the steepest in the low level region, and then gets less steep as you go to higher doses. The government scientists and the quasi-government scientists have said that it is the least steep in the low

levels. Now, if you look at the radiation effects research foundation's reports, some that I could number for you such as 9-87, 12-87, 5-88, you find that they concede over and over in those reports that the shape is as I'm describing it, namely more steep in the lower region than in the higher region, which says that the hopes on the part of the promoters of nuclear energy, the U.S. government, and other governments being prime promoters, the hopes that you might have a safe amount of radiation down at low levels, simply is at variance with the evidence. That's a fact. It's not speculation, that's not my opinion, that's a fact.

: Dr. Goffman, how do people get exposed, and how many people are exposed to the amounts that you're referring to?

: 10 rads is not a common exposure. That's a lot. But the point I'm making is that the dose at 10 rads is showing you the shape of a curve, and the shape of the curve says that at one rad, or a half a rad, you'll be getting a worse effect than you would get for one rad or a half a rad added on to 10 or 50.

: How do we get a half a rad, where do we get it from?

: A half a rad we can get from a variety of medical procedures, we can get that from occupational exposure.

: Give us some examples.

: If you have say a flourosopic procedure in association with a medical problem, you get more than a half a rad, you can get five or ten rads, to a limited region of the body. Now, I'd like to clarify that when you expose only a limited region of the body, the risk of cancer is reduced, not exactly in proportion but nearly in proportion to the fraction of the torso that you expose, arms and legs are not very seriously affected by cancer, but the torso, if the flouroscopy is over say only a fifth of the abdomen or a tenth of the abdomen, the risk is a lot less than if you were to expose the whole abdomen, but you can get doses of 5, 10, 15 rads, as a matter of fact, there was a very famous study by Ian MacKenzie in Nova Scotia, in the 60's, of women who had been in a tuberculosis sanitorium, and his studies resulted in showing these women had a great excess of breast cancer if they recovered from their TB. And this was because they had had radiation exposure, in the course of the treatment of their tuberculosis, and they had things like seven and a

half rads per sitting in the chest region, so they had quite a dose to the breast.

: What would be some of the other forms of radiation exposure.

: Well, there's natural radiation. We're exposed to about a tenth of a rad, whole body radiation, aside from what we get additionally from radon gas, which is regarded as the equivalent in cancer producing by some people of the order of maybe two tenths of a rad of other exposure. So medical exposure is a very large one. People who work in nuclear power plants, get excess exposure. The nuclear industry doesn't do a bad job by the way on the exposure to its workers, because they do try to control it very carefully, and the evidence indicates that they're doing a pretty good job with respect to keeping the dose down in their workers, but they have workers getting a rad per year, and some getting more than that per year. There are some objects that are getting to be less and less frequent that are possible sources of exposure, such as luminous dial wrist watches, or luminous faces of other instruments, there used to be an aircraft instrument where you could get a fair dose of radiation by wearing these instruments or being near them, but they're pretty much being phased out.

: How about dental X-rays?

: Dental X-rays I'd

classify just the same as medical X-rays, dental X-rays and medical X-rays are not serious sources of radiation, and the point about both dental and medical X-rays, and this again is not my speculation, it's fact based upon governmental surveys, is that there are facilities in this country, both dentist offices, radiology offices, hospitals, there are facilities that for a given procedures, whether it be a dental procedure or a chest film, or an abdomen film, for a given procedure some places give two, five, ten, 20, even 50 times the exposure necessary to get a good picture. And unfortunately the average person going into any one of those places, doesn't know if that place is one that gives an overdose or doesn't. That's a tragedy because we're giving an awful lot of unnecessary radiation to people, that's unnecessary. I don't have an objection to having necessary medical X-rays, I think a person would have to be crazy to object totally to medical X-rays, or dental X-rays, there are places where I'm sure that the risk to a person is less by having the radiation and founding out a proper diagnosis than the risk of not having the radiation, but when you give a person five times the amount of radiation necessary to get that information, that's tragic.

: It sure is. I just want to mention to our stations around the United States, that this hour and the next hour we'll be skipping our national network break at 42 minutes after the hour, because of the amount of information we have to dispense on our program. Dr. Goffman, how many deaths from cancer would you estimate based on your research or the research that you've read of others are occurring each year that we haven't acknowledged or been aware of from low level radiation.

: Well, I think my estimate would be in the ball park of at least 15% of cancer deaths in the country each year are due to radiation, a combination of sources of which natural radiation, and medical radiation, are definitely part. Now, as far as government sources, and by the way I would say in connection with what I said about medical and dental radiation, I think if you were to cut the medical and dental exposures down to the necessary dose to get a good picture, and cut out these overdoses, it would be easy, by based on careful studies by scientists in Wisconsin, and Toronto Canada, it would be easy to cut the dose on the average to one third what it is now, I think about 50,000 cancers would be prevented each year in the United States from that measure alone, which in one generation of thirty years would be about a million and

a half cancers prevented. That's the preventable part from all sources of radiation, I would say it's about 15 or 16 percent of our cancer problem.

: And you're talking about 75,000 Americans dying each year due to this form of cancer induced ...

: that's a pretty good ballpark ...

: Why is it that you're telling us this and the National Cancer and the American Cancer Society have not told us this?

: Are you sure they don't tell us that? I've read some things in the Cancer Society literature, they have a lot of radiologists that support the Cancer Society, I think sometimes they aren't the best witnesses on this subject, but I've read some of the things in the Cancer Society literature where they definitely tell you you ought to be concerned about any unnecessary X-rays from medical sources ... I think they're recognizing it, and the government's recognizing, my argument about the government is this, their scientists are I think, approximately from my data, my analysis of the data versus theirs, they are estimating the cancer risk of radiation in general at approximately one twentieth of what I estimate

it. The United Nations estimate made in 1977, is approximately one thirty-seventh of what I estimated, so we're far apart. But the government people now are about one twentieth of what I say is correct, and the interesting thing is that now the Japanese Radiation effects research foundation has come out with two papers in the last two years, and they're now saying that the government estimates that have been proposed, and the United Nations estimates are between 10 and 16 times too low, so the real difference is now no longer between me saying that the United Nations estimate is 37 times too low and the government's estimate, such as their Academy of Sciences committee is approximately 20 times too low, the real difference is that on one side the radiation affects research foundation scientists and myself we're about a factor of three apart. I say it's three times worse than they do. The two of us are far far away from the governments.

: there's another issue here, Dr. Goffman, and it's not just to play with statistics. I really don't care if the government says that they're 20 or 30 times worse than you are, if they're not looking at the same data, or coming up with the same conclusions ...

: We're looking at the same data, but it's how you manipulate the data.

: The American public's lives could be hanging in the balance by this form of manipulation.

: It could be, and that's why I've written a book in 1981, and I tried to show exactly how I handled the data, and exactly how I arrived at the results, in fact I'm writing an updated book now, on the newer data, and I propose in answer to your question, I proposed to show every step in my procedure. Now when somebody gives you a black box report where they don't show you what they did, how they got the data, and you're supposed to believe what their answer is, I think that's worthless. The report should show you exactly what they did step by step in getting from raw data to final answers.

: Okay, but Dr. Goffman, the people listening right now have this concern. Many of these people for their entire lives, have undergone procedures, some of them as kids when they were, they had their thyroid irradiated, many of them have had other forms of dental X-rays, when the dentist on routine examinations, would say, every six months, well let's just take an X-ray to make sure, and just to check it out. Some of these

people have no knowledge whatsoever of what it means to receive low level versus high level radiation, are not aware of the dangers, and if they saw in the headlines of the new York Times and the local newspapers, that 75,000 Americans were dying a year from low level exposure, from natural and medical usage, I can promise you that there would be a radical adjustment in how many X-rays are used each year.

: I wish that were true.

When I wrote the book, Radiation and Human Health, 1981, I was on the Donahue show, and spoke about the results for an hour, got a lot of press attention, but not really very much happens from it. You get one hour attention from the public, what it does take is it takes a constant reinforcement, constant provision of evidence, constant careful analysis, but you need to remember Gary, one thing you're not taking into account, the vested interest in having people think the hazard of radiation is low. The vested interest is enormous, it involves medical, dental, industrial, nuclear activities, amounting to billions of dollars, and they put on a very very good counter campaign, in fact they now have mounted a campaign to tell you that taking some extra radiation is good for you, and they've given it a scientific name, it's called hormesis. Everybody needs a little jolt of radiation to get their immune system

working, they tell you, and they're sponsoring this. If you look at recent reports, from the Department of Energy and some of its scientists, they tell you that the net effect out of Chernobyl might be close to zero extra cancers. My estimate for Chernobyl world wide is a million extra cancers. So don't under estimate the counter-campaign, you can put out some truths, you can try to get people from both sides to come forward, and say where they're coming at this from and what their findings are, and you can finally get a lot of things out, but remember there will be a counter campaign that would make your head swim. Remember, 90-95% of the funding of all medical research comes from the government of the United States, one way or another, and the government of the United States is the chief sponsor of activities that irradiate people, and you're not going to find many scientists who are going to get what I will call in quotation marks, the wrong answer about radiation, you don't survive long with your funds if you don't get the right answer. So when somebody tells you and I tell the public all the time, well, the consensus of scientists is that there's no problem here, that Gary Null has some far out people, there's just no problem here, a little bit of radiation is good for you, or it doesn't hurt you, you bet

they'll get a consensus, they can get scientists that will tell you that the sun revolves around the earth.

: Hold your thoughts.

We'll come back and continue our discussion on the effects of low level radiation, you say a million cancers from Chernobyl? I want to say what Dr. Sternglass will say about how many he thinks have died because of Chernobyl. Welcome back, I'm Gary Null, Dr. John Goffman on our phone, Dr. Goffman has just suggested that upwards of a million people have cancer due to Chernobyl, that the effects of low level radiation are not being countered in part because of the vested interest in the billions of dollars a year, that if you were to watch Dr. Goffman on a program or hear him here, if you were the average person, you could go to your dentist tomorrow and say, I heard Dr. Goffman on the Gary Null show, and he said this was dangerous, all these X-rays, are they really needed, and the likelihood would be, that you would have someone say, is he a dentist, what does he know, he's just writing, he's probably angry at something and getting his frustration out with some statements that are untrue, all the literature that we have shows that they're absolutely safe, and may actually benefit you, and we couldn't tell if you have tooth decay if we didn't take the X-rays, the person then feels the sense of confidence that

this Dr. in hand knows better than the one that's he's not seeing, what the motives of that doctor might be, whether it's an unwillingness to bend and look at new information, or whether its a stridency that they are against any change, or doing something wrong, maybe it's very profitable, a lot of podiatrists for years were responsible for taking \$1.75 X-ray and charging \$75 for it, so everyone who walked in had their feet X-rayed, a lot of chiropractors were doing the same thing, we don't always know the motives, but we do know that it's big business. One statistic that I did see recently showed that one half of all X-rays were unnecessary, and we have hundreds of millions of X-rays, billions of X-rays taken in a year. Dr. STernglass from your research, how many people have actually died, Americans died, from Chernobyl.

: Well, the statistics show that somewhere in the neighborhood of 30-40,000 died of various causes beyond normal expectation across the United States in direct relation to the measured amount of radioactivity in the milk which came down from Chernobyl. And that will eventually lead to many millions who will die all over the world over the next generation, and that of course, is what Dr. Goffman was referring to.

: Dr. Jay Goldman, a closing comment before the end of this hour. Did you communicate any of this with people at the national level.

: Well, when the results of Chernobyl were first announced, Dr. Harry Rosenberg of the National Center for Health Statistics, conceded that the figures should be examined carefully and with the hope that we can throw new light on the impact of low level radioactivity on immune systems.

: That doesn't answer my question, he could say that about anything. Are you saying that he found there was a peak, or not a peak?

: What he was saying in effect was that he could not find anything wrong with our analysis.

: So that doesn't how anything. Not finding anything wrong, doesn't tell us anything, in any case, this is the end of this particular hour, I want to thank you gentlemen for having shared your insights, and for the audience, to at least have a different perspective on the effects of low level radiation. Not harmful, we've been assured that it isn't. We've been told by different agencies not to worry, but we have to worry, because many of those agencies have simply lied to us. Why

they've liked I don't know, the fact that they have, we can document. We will document the fact that we have been given a complete scenario written as if we didn't count, as if our lives didn't count, we have invited people from both sides of the issue on our program. You will hear from people who will give you statistics and background on why we are dying of low level radiation, these people have impeccable credentials, professors emeritus at different universities, former heads of major institutions, including the Oak Ridge National Laboratory, and the former head of health, there, on the other side, we have invited Dr. George Dicotia, the Department of Health at Harrisburg, Pa, to come on and he declined. We invited Dr. Dade Muller, Harvard School of Public Health, declined, Dr. Jacob Fabriconti, University of Berkeley's donor laboratory, declined, National Cancer Institute, National Regulatory Commission, Columbia University Department of Epidemiology, the Atlanta Center for Disease Control, Dr. Falk, said, quote evidence not clearly credible, unquote. Would these people come onto the program? None. Plus, at least 14 others who were in major institutional positions, all declined to come on to tell us why low level radiation was not a hazard, or why the guests you are about to hear are not giving us the facts or the truth. Well, these individuals are here, they have put

their reputations on the line, this is an important public medium, what you say can be held against you, if what you say is found to be untrue or irresponsible. We feel you should know how dangerous the story is. Stay with us, we're going to explore it after these messages. (END OF SIDE A OF TAPE) Individuals willing to share their side, and ironically, these individuals one and all are all members of the traditional conservative scientific and medical community. And they have found in their own research or clinical practice, that there was information that was not being presented to the American public that would make a difference in their health. Low level radiation is something that all of us, at one time or more than one time are exposed to. It can lead to a lot of adverse affects. Why aren't we being told the facts? Professor Micho Kaku, is the first panelist to give us his views. He's professor of nuclear physics at the City University of New York, an author on the subject, and welcome to our program, Professor Kaku.

- : Glad to be on.

: First off, I would like to have you address three issues, the first. Are you familiar with the work of Dr. Ernest Sternglass, and Dr. Jay Gould on their findings that upwards of 50,000 Americans

died due to immune related disfunctions following the accident at Three Mile Island, that this information was with held from the American public, but was known by statisticians who illegally according to them, changed statistics so it would not show that the accidents actually occured, or that the deaths occured. Are you familiar with any of that information?

: Yes, I am, I'm familiar with their studies.

: All right, if you are, do you also have information that would show that the United States government or any of its agencies involved in the nuclear area, has deceived with held or in any way caused the American public to be exposed to radiation that would hurt them.

: Yes, I can address that.

: Then give us your documentation.

: First of all, with regards to the study by Professor Stern^uglass, and Gould, their study says that these people were already in a weakened state, but we're talking about essentially kicking grandma over the stairs, that is people who are already in a weakened state, were pushed over by the impact of radiation.

Now, let me explain. The establishment says that very little radiation came out of Three Mile Island, in fact, so little that it is virtually a medical impossibility that anyone could have died as a consequence of that accident. However, if you read their figures very carefully it turns out that the accident took place on Wednesday, but it wasn't till Saturday that the thermo luminescent decimeters were put into place. In other words, that's like trying to corral the horses after the horses have already left the corral. In other words, most of the radiation left that damaged reactor on Wednesday and Thursday, and then the NRC was able to get most of the radiation counters in place after the radiation had already escaped. Therefore, when the government said that approximately 13 million curies of xenon gas, and roughly 10 curies of radioactive iodine escaped from the reactor, that is only a best estimate, nobody knows for sure precisely how much radiation got out, simply because the radiation detectors for most of the important fission product was not in place during the course of the accident. Second of all, the government statistics do not tell you the truth because radiation is now known to be perhaps 5 times more dangerous than previously expected. In other words the Hiroshima data is the largest epidemiological source of information by which we calibrate

radiation. But it's been known for 40 years that the Hisoshima data shows that the radiation is not actually dangerous compared to other studies done for example to British subjects exposed to radiation for their spinal column, and we now know the reason the Livermore National Laboratory has exposed the fact that the Hiroshima data was miscalibrated, in other words for the past 40 years, we've been using radiation figures that were miscalibrated, and we think that next year the international standard setting bodies, the ICRP and the NCRP will officially acknowledge that they goofed, that for the past 40 years they've been using Hiroshima as a yard stick and we now know that radiation is perhaps 5 times more dangerous than previously expected. Now the international bodies are very conservative, and we expect them sometimes next year to say radiation is perhaps twice as dangerous as previously expected, however, if you read the figures very carefully, coming out of Livermore National Laboratory, a case can be made that radiation is perhaps five times more dangerous than previously expected, which would then put the Hiroshima data in agreement with all the other epidemiological data. So for those two reasons, I think we have to say that the figures of Sternglass and Gould can not be dismissed out of hand, in other words, the fact that we're talking about

people who the immune system was already weakened, we're talking about the fact that radiation, most of it escaped during the first hours of the accident, no one knows how much iodine came out of the reactor, and third of all the fact that the Hiroshima data, the bedrock upon which all radiation studies have been based, is now known to be miscalibrated, the T65 data upon which the Hiroshima data was calibrated, is now known to be absolutely incorrect.

: All right, give us other examples, then, specific examples, of dangers that have occurred at nuclear power plants as just one case where this information has been withheld or denied later on, to be confirmed.

: Let's take a look at the whole nuclear (Inaudible) cycle. Starting at the very beginning because it goes back many years, it turns out that in the 1950's, President Eisenhower issued a top secret memorandum, quote keep them confused unquote, about the dangers of radiation. In other words a proclamation at the highest levels of government, because of the arms race, stated that the radiation level should be deliberately fabricated during the 1950's. We now know for example that the doctor who registered the amount of radiation that GI's got during that horrible testing in the 1950's in Nevada, we

now know that the doctors kept double books, one book as to how much the soldiers actually got from the bomb, and another set of figures as to what they were told. We know this because one of the doctors died just a few years ago, and before he died, he had a guilty conscience, and he went to the New York Times and other media, and simply said, I lied, I carried out the edict of President Eisenhower, to quote keep them confused unquote, and he kept double books, and it bothered him for many decades, and before he died, he wanted to set the record straight about how many people, the real impact of radiation in Nevada. Then we have the commercialization of nuclear power in the late 60's and early 70's. We have the fact that many of the utilities were saying that if radiation were declared to be very dangerous, nuclear power plants could not be operated at all. Workers could not be set in, because as far as workers would only be sent in for a few seconds, it would be very expensive, you would have to recycle workers at a tremendous rate, each worker getting only a few seconds to a few minutes worth of radiation. As a consequence pressure was placed on the standard setting bodies to relax the radiation setting standards for radiation workers, as it is radiation workers can get ten times what the general public is allowed to get. Now this to me is criminal. A radiation worker is

not ten times healthier than the average person, and yet radiation workers are allowed to get ten times what the general public gets, because if they didn't bend the rules, then commercial nuclear energy would be virtually impossible, so we have from the very beginning, a history of obstruction of justice, and the obstruction of truth, going all the way back to the fifties, and the sixties, and now we are essentially inheriting this legacy of playing with the truth.

: Someone could say all right, that's histrionics, that doesn't happen today, if there are problems to the community, if there are threats, of any form of low level radiation from any of the nuclear power plants, any of the nuclear weapons arsenals, surely we would know about it, and you can not condemn the people currently for the mistakes made by Eisenhower or other people at that time. Do you have documentation, if you do substantiate it and story to back it up, as to what may be happening today.

: If you're talking about today, you're talking about the deliberate obstruction of science, and truth taking place for example at the 17 nuclear weapons sites. Where we now in Fernald, Ohio, almost a half million pounds of uranium dioxide was

deliberately released over the people's communities, we know that because we have now the documents themselves, showing that the government was fully aware of the dangers of the release of uranium dioxide in Fernald, Ohio, the release of tritium gas in Savannah, in Aiken South Carolina, where the Savannah complex is located, and the deliberate release of radioactive products including plutonium at the Rocky Flats installation. Now these of course are weapons facilities so the government essentially used the blanket of national security, but we know that the documents up to last year, showed clearly that the government has been knowingly releasing plutonium, tritium, and radioactive by products like uranium dioxide in Fernald, Ohio, and it was only because crusading journalists were able to get most of these documents into the public, that we now know that the Department of Energy knowingly released these into the general atmosphere. Second of all, with regards to commercial nuclear power plants. Many of them of course run fairly normally and release only trace amounts of radiation into the environment, however, these radiation releases if you really look between the lines, many times they exceed the NRC regulation for what is allowed to be released into the area. Now we know that many times, reporting does not occur to the NRC, in other words we're talking about

reportable occurrences that are not being reported to the NRC, where reactors are releasing much larger amounts of radiation than previously expected.

: Who would that hurt though. How much is being released around the United States that the American public is not being made aware of, and how many people would that impact on.

: You ask a very important question, because it turns out that the government even though it knowingly released tritium at Savannah, plutonium at Rocky Flats, and uranium dioxide in Ohio, deliberately prevented any kind of scientific epidemiological follow up study of the rate of increase in cancers. Only now the National Institutes of Health and the federal government is thinking about funding massive health studies to follow up exactly what happened to these workers and these people at Savannah, Fernald, the other 17 nuclear sites. it's only been within the last four months, that the government has finally acknowledged the fact that there has been deliberate release of radiation into these areas, and now belatedly, the National Institute of Health and other government organizations are setting up medical teams to investigate precisely how much got out and how many workers were exposed to this radiation. However once again, it is the goat

guarding the cabbage patch. That is, the same institution, the federal government that sited national security as the reason for lying about these numbers, is now being asked to find out how many workers and how many children have come down with cancer over the last several decades. I personally think we ought to set up an independent body, a body set up by perhaps the AMA, the American Physical Society, other reputable professional organizations, which are not tied to the government, have them investigate exactly what was the rate of cancers, what was the rate of health problems in these areas, around commercial nuclear power plants, and around weapons plants, and until that takes place, I really don't think that the American people are going to believe the same institution which released this massive quantity of radiation into the environment to begin with.

: How bad are the leaks at these plants that are causing low level radiation over a long period of time to be affecting people.

= - : If you take a look for example at the Hanford site, we're talking about a half a million gallons of liquified toxic waste that had leached into the soil. A half a million gallons, that's an incredible quantity of high level waste. It reputedly has

*actually
so
low!*

reached the water table, and perhaps has contaminated the Columbia River. The aquifers underneath Idaho Falls, the Snake River aquifers are now known to be polluted, and once aquifers are polluted, they remain polluted for several hundred years, because water does not move very quickly in these underground reservoirs. And around Delglalla aquifer, in Pantext, Texas, in Amarillo Texas, that's also known to be contaminated, and remember in the Bible it says that ye shall not contaminate the wells of your enemies, however, now we're in the strange situation where our own government has been contaminating the wells not of the enemy but of it's own citizens, for an extended period of time.

: Professor Kaku isn't it correct that city water municipalities generally do not test for nuclear low level isotopes in their water?

: That's correct. Even around New York City there was a little flash in the news about a year and a half ago about plutonium showing up in New York City's water supply, but again, the quote authorities, unquote, were investigating it, and it simply died. And I think it's one of the tragedies that the Departments of Health of most municipalities do not have the scientific equipment like a full scan analyzers or whatever,

that can calculate exactly what is the alpha, beta, gamma emission that occurs in drinking water or whatever.

: Okay, we have in the studio professor Ernst Sternglass, Professor Sternglass is professor emeritus in radiological physics, University of Pittsburgh School of Medicine, welcome to the program Dr. Sternglass.

: Yes, thank you. One of the things that we need to be mainly concerned about is milk, because the milk is brought from the place where it is produced in a matter of hours, or less than a day, into our cities, and even very tiny amounts of radioactivity, like strontium 90 and iodine 131 are now known to be 100 to 1000 times more toxic because of the low level chronic irradiation they produce compared to the flash of a bomb. Therefore, not only do we need to be concerned about our drinking water, but we must ...

: Might it not also be possible that if we were being exposed through our milk to low level radiation, that all those children who have immaturely developed immune systems, could be developing immune related diseases later on in life, because of starting off with low level exposures of radiation.

: As a matter of fact, Dr. Gould has done some research that shows that in the mid-50's, there was a complete change, after strontium 90 got into the diet.

: Yes, as a matter of fact, if you look at the mortality rates in the 50's, you find that they flatten out for a period of nearly a decade, after four decades of coming down systematically. There has never been any explanation other than, this representing the immune damage that was done by atmospheric bomb testing.

: The atmospheric bomb testing dropping those low level radiation particles onto the soil which was eaten by the cows, their milk drunk by kids developing immune ... we'll be right back. We're going to be speaking with Dr. Alice Stewart. Dr. Stewart formerly of Oxford University has completed from 1953 to the present monitoring of childhood deaths in Great Britain. 23,000 cases studied by 1979 alone. Welcome to our program Dr. Stewart. Dr. Stewart would you please give us your evaluation of the effects of pregnancy on X-rays, and the effects of fetal exposure to background radiation, including childhood cancer.

: This study that we started way back in the 1950's almost accidentally tumbled

across the fact that to give a single X-ray to a child before birth, was sufficient to increase the risk of an early cancer death. And what we've done is we've gone to the mothers of children who recently died from leukemia, and asked them to complete a questionnaire, and we also went to a similar group of children who died from (Inaudible) diseases, and for each of the dead children, we also interviewed the mother of a live child, who was of the same age and sex, and came from the same region. And we were just looking at that time for any sort of collective memory of the mothers of the dead children, which could throw some light on why their young children were experiencing a rather unusual increase in leukemia mortality, at the same time there was also a general increase. And we didn't expect, because this increase had affected children between two and four more than younger children, I did have an idea that it might have something to do with pre-natal events. We just routinely asked all the questions you would ask in this situation, including of course whether the mother had been ill, and whether she had been X-rayed, and whether it had been a chest X-ray, or if it had been an X-ray to see the position and shape of the baby. And it was when we examined these records that we found that both groups of dead children, both the children who had died of leukemia, and

the children who had died of solid tumors, had been X-rayed in vitro twice as often as the live children. That was the beginning. Of course it was very difficult for people to believe that the apparently safe X-ray was having this effect, so the scientific world had some difficulty in believing that we hadn't made a mistake. And, we decided that the best way of settling this point was to continue. We had in fact succeeded in tracing 82% of all the children who died in Britain under the age of 10 years in three years, the three years were 1953, 54, and 55. And in each of those years, there were only 300 children who died of leukemia, and about 300 who developed solid tumors. So we had about 1800 of these children. Now, for various reasons we thought this was enough to prove our case, but as we met with our opposition, the real opposition coming from the fact that the follow up of A-bomb survivors, had not produced anything similar effect, on the survivors who had been exposed in (Inaudible), we decided the best way of establishing our case for yes or for no, was to continue and to take the deaths from, to go on forwards, to go 1956, 57, 58, our plan of course was to take in all the children who were already born, who had not yet reached the age of 10 years, who wouldn't do so until the year 1965, and then at least we would be able to have a sample, a large sample of

children, to see whether the test, and test them in various ways to see if our finding was correct. And then as time went on, we had increasing difficulty in convincing people, although we went on monitoring year in and year out, and we found exactly the same effect all the time. Then, of course, the effect began to decrease a bit, because the X-rays were safer, but the long and the short of the matter was that doctors did go on X-raying the mothers, in spite of the finding, so we eventually found ourselves in the early 70's, and we gave a risk estimate. I heard somebody earlier in the program give you a risk estimate for 10 rads as being a not safe dose of radiation. Well, what we found we summed up in a paper and said, giving a child one rad of ionizing radiation shortly before birth was sufficient to double the normal risk of getting cancer. This was challenged very fiercely, so by this time we were steadily grinding, so we decided to go on monitoring, and fortunately the English national health service helped us to do this, and we were able with a very small research center to keep tabs all over Britain. We in fact enlarged the survey so we followed up all children under the age of 16. And come the 1984, steadily going on and finding out other things about how cancers related to the X-rays, we finally came to the moment when we could test whether or not background radiation was

having a similar effect to the X-rays. I should perhaps explain that background radiation or natural radiation is coming to us, from cosmic radiation, and from the type of soil that we're standing on, rocks, and of course in Britain all the cosmic radiation is exactly the same (Inaudible). So you can't measure any effect. But the background radiation coming from the ground, there it is, the West Coast of England has higher doses than the east, and there are other differences, and the point about it being 1984, was that our national radiation protection board was doing a survey, measuring this terrestrial gamma radiation component of background radiation, and producing a dose estimate for every 10 km square of Britain. Now, we couldn't divide the country up into 10 km squares, from the point of view of who'd been born in those squares, and who had died from cancer in those squares, but what we could do, is divide the country into approximately 1000 subdivisions.

: What was your conclusion
Dr. Stewart?

: And we could therefore fit the national radiation protection board, those estimates to our children, and test whether there was any effect from two types of fetal exposure, background radiation and the pre-natal X-rays. We had arrived at the point where we said

that if we were correct about the pre-natal X-ray, then there must be an effect from background radiation, let's see if we can measure it.

: What were your results?

: Well, we found

(Inaudible) types of X-rays, and we were able to measure the contribution made by the two types of X-rays. And because only one of ten children were ever X-rayed before birth, the contribution from the pre-natal X-rays turned out to be only 8%. Calculating that of these 22,000 childhood cancer deaths, about 8% had been caused by pre-natal X-rays.

: That's still a high

amount, you're still talking about a substantial number of children having cancer, and deaths due to those cancers that were unnecessary, I'm going to have to put you on hold because we have many other people, I want to tell our network sponsors, I'm sorry, and our stations around the country, we're not taking this break, because we have so many guests still to get to. Please hold on, Dr. Stewart, I want to speak now with Dr. Carl Morgan, Dr. Morgan is the former head of the Oak Ridge National Laboratory, the health division there, and the founder and first president of health civics society, and he is the first president of the

international commission on radiation protection, welcome to our program Dr. Morgan.

: Thank you.

: Dr. Morgan would you

first tell us what your feeling is on the argument that low level radiation is non-harmful and really shouldn't be of concern to people.

: First of all, I'd like to make a correction, I was not the president of international commission of radiological protection, but a member, of that commission and a chairman of the internal toast committee. Now, my view of the effects of low level radiation is that all radiation is harmful there is no safe level of radiation exposure. No safe level, any more than there is a safe time to go without your seat belt. So, I think one should avoid all exposure to (Inaudible) radiation. I've been working with ionizing radiation, that is X-rays and gamma rays and so on for 58 years, and during this time, I've seen quite a change in our attitude toward the effects of this low exposure. During the other period of my experience, we accepted what we called the thresh hold hypothesis, mainly that you had it made, there was no risk whatever so long as you did not exceed a certain limiting dose, a dose of a few rads per week at that time. But then in the early 60's,

other studies, a very careful study by Goffman, and Dr. Nussbaum that is in publication I understand, have looked at the Hiroshima Nagasaki data, and those studies there, they've carried out, are indicating the same relation, that is that low doses you get more cancers per rad than you do at high doses. And this is just the opposite from what was thought a couple of years ago.

: That's excellent information, please hold your thoughts Dr. Morgan. I'd like to bring in Dr. Thomas Mancuso. The doctor is with the University of Pittsburgh in pathology, he has done a great deal of work on the effects of low level radiation. Welcome to our program.

: Thank you, I'm a research professor, and professor emeritus here, my field has been in environmental cancer not pathology.

: Would you please tell us from your background what you see as being some of the larger issues, especially when it comes to the government telling us we do not have anything to fear, the nuclear power industry telling us we have nothing to fear from low level radiation.

: The basic problem I see is the credibility. The fact that you can't believe the

animal data and scattered human data began to indicate to us, that that was a rather reckless assumption, and we adopted what we call the linear hypothesis, namely that all exposure to this radiation is potentially harmful, that there is no safe level, and that the risk of cancer increases with the increases dose. You double the dose, you double the risk. And now during the past ten years in particular, 10-15 years, we've been examining more carefully the effects of quite low exposure, (Inaudible) studies such as done by Mancuso, Stewart and Kenniel ^{Greale} of the Hanford workers, and they found there, that you had an increase of statistical significance in the cancer incidence at very low doses, Dr. Modern in Israel, studied the children that had been X-rayed because of ringworm, and other studies, indicated to us also I should mention Dr. Alice Stewart's (Inaudible) exposures, all of these studies of low doses indicated a higher cancer risk than one could estimate on the linear hypothesis, so now it's quite evident that we must go to another stage, and we call this the supra linear hypothesis. That is, as Dr. John Goffman indicated, the scope of the curve is greater at low doses than at high doses, you get more cancers per unit dose, more cancers per gram at low dose than you do at high dose. And so this is a matter of great concern to all of us. Now, we have to add

government representatives anymore, because of the misleading information that has gone over for several decades, and the with holding of vital information for several decades, and the suppression of data, particularly if it's positive findings, findings that are contrary to what they'd like to see.

: Are you familiar with specific instances where any information that would be counter to their opinion or belief were with held from publication or information from the public.

: I can give you my own experience. ~~I was~~ ^The director of the AEC a number of years ago in 1964, approached me to conduct, determine and evaluate whether I could design the systems to evaluate the health effects of the atomic workers of the United States in all the facilities in all the divisions that were involved in the Manhattan project, and I undertook those series of studies and worked on that for 14 years, and basically in 1974, Dr. Sam Miller had made an observation that cancer was higher among the Hanford workers and we were in the midst of our study, and efforts were made to get me to agree to a press release that would say in effect that the findings that Dr. Miller had were not so because we were conducting a study, and I didn't go along with it, and I wouldn't agree

with it, and the time that we had our positive findings, I want to say at this point, that this was made possible through the superb excellent work of Dr. Stewart and Dr. ~~Needle~~, that when we had our positive findings, I remember going over to the AEC and Dr. Stewart and I, and we were providing them with the information, and the plan, and they were suggesting in effect to me, in a very quiet but quite clear way, well, maybe more research is necessary and perhaps you don't need to publish it at this time. They said, of course you can publish it, but it came quite across to me what they meant, and the irony of this was during the time when we were doing our research work, and progress reports showed negative findings because in the latent period, the cancers had not materialized as yet, they were encouraging me to publish negative findings, and I refused. And then when we had the positive findings by this, various forms of suppression as I call it, they took the project away from me, and they gave it to another organization, that happened to be the associated universities in Tennessee who did not have any expertise at all in this field, and did not have any staff for this survey purpose, and there was no protocol there was no director at the time, another form of suppression was when they wouldn't allow me to have access to my other data, which I developed, data at Oak Ridge, and

in case we can get him back. We're coming back to the studio now, and our last guest, just for a brief few statements, because he's already been sharing information on our previous program, is Dr. Jay Gould, Dr. Gould, let's summarize the facts, closing out our special on radiation. What is the government not telling the American public?

: The government is not telling us about the impact of ingested fission products on the immune system. This is a big secret that has never been discussed, although it was known as far back as 1943, if you read Richard Rhodes, the making of the atom bomb, you find on page 155, the interesting discussion between Firmey, Oppenheimer and Teller on the following subject. If they could not produce the fission bomb in time, would it not be possible to kill as many Germans as would be necessary by simply spreading strontium 90 over the whole land mass, and they decided that that would be a very efficient way of killing as many people as would be necessary. So that as far back as 1943, it was known that strontium 90 would go to the bone marrow and do it's damage to the immune system, so this debate is now in it's 50th year.

: I think after all these years, and knowing how many people today have cancer, knowing that we have 500,000 Americans dying of cancer, we

have an estimated 7 million people with cancer, with all these other forms of immune related diseases, and knowing how toxic our environment is, I think it's time we stopped the politics and got people in these agencies to be open and honest, irrespective of the type of influence that the nuclear industry has had in keeping the facts from us. I want to thank Dr. Ernest Sternglass, Dr. Jay Gould, Dr. Karl Morgan, Dr. Alice Stewart, Dr. Thomas Mancuso, Micho Kaku, and Dr. Goffman, for sharing information with us. I hope this has given us an insight into the fact that we can no longer just arbitrarily trust government decisions, I'd like to thank Sharon, our producer, for having made about 300 calls to put this program together, and John Needer and others. Thank you very much.