After Hiroshima Research interview
Interviewer: Sam Martin (SM)
Interviewee: John Mecklin (JM) editor of *The Bulletin of Atomic Scientists*
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(SM) Ok, ok, Sam Martin interviewing John Mecklin on the 1st of September 2015. Um, John could you just give an overview of *The Bulletin of Atomic Scientists*, uh, to start off with? Um, its origins... uh, what it's trying to do?

(JM) Ok the *The Bulletin of Atomic Scientists* was founded directly in the wake of World War Two … it was banded by Albert Einstein and a few of the major Manhattan Project scientists in the wake of World War Two. They were concerned about atomic weaponry and that society wasn't really ready to control...world leaders and world society just didn't understand the advanced power of this new technology. As Einstein said, you know, 'this technology requires a new kind of thinking' even, because, you know, not just in theory, but in not very many years there would be enough nuclear weaponry around to literally end life as we know it. Um, and in the initial years Bulletin was more like a newsletter than, uh , you know, anything more formal, uh, anybody who is interested can get onto the Bulletin's website www.thebulletin.org, click the archives' link and actually see uh, scans of early Bulletin publications, uh, it was run by the scientists entirely, up to, I believe the late '70s.

[3:08]

(JM) Over time it gradually morphed from a newsletter which scientists tried to convey to policy makers and the general public the dangers of nuclear weaponry, and morphed into, formally, a magazine, and became a very well-known and well respected magazine, that won various magazine awards in the United States, national magazine awards a couple of times. Since then it has morphed into a… an all-digital publication that focuses not just on nuclear power, a topic [inaudible]...but on a whole variety of technological threats to humanity, uh, technologies that humans have created, that pose, what we call, existential threats to humanity, in English, they have the capability to either end humanity, or, you know, make...affect civilisations in such horrible ways that they would in essence end civilisations. So we cover, in addition to nuclear power, we cover, uh, climate change, a whole range of emerging military technologies, and specifically bio-security, synthetic biology and the threats it poses to the planet.

[4:45]

(SM) So why did the guys who worked on the Manhattan Project, why did they...can you describe this kind of change of heart, so you've been working on a project and then suddenly start a movement, almost against it?

(JM) Well...well people sort of, I mean, forget, World War Two was literally a...fight...to the death. Initially, the Manhattan Project, many of the scientists who joined it, were most interested in making sure that the United States beat Nazi Germany to the bomb. Um, Germany was working on atomic weapons, as was the, you know, the much less advanced state of Japan. But they were initially working on, you know, making sure that Nazi Germany essentially didn't take over the world, uh, Germany, um, surrendered, before nuclear weapons were tested, atomic weapons were tested, so that use for the sort of American...and when the weapons were used in sort of, Hiroshima and Nagasaki, um, I think in theory everyone knew the power of nuclear weapons, they had seen the tests in the desert, but then it's different seeing entire cities essentially evaporated, just gone, with you know, tens of thousands of people immediately killed, and the scientists knew the power of the weapon, but you know, the demonstration of it, and the use of it, really, were...many scientists before it was used who advocated conducting a test somewhere that the Japanese can see, as a way of maybe avoiding evaporating cities. And our US leaders did not go that route. And so there were a significant set of scientists who were just extremely troubled by the use of the weapons at the end of World War Two but at the prospect of, well, what's going to come next?

[7:30]

(JM) Who was going to control these weapons? Uh, so that in the early years, of the Bulletin, you can see that there's a really strong drift of a lot of articles in support of international control, of nuclear weapons.

(SM) Hmm. So, ok, do you think, and this is more general, but do you think that scientists have a particular insight on the dangers of nuclear weaponry?

(JM) Um, I think particularly back then, but even today, yes, I think people who work in the field have a much more, you know, tactile, direct knowledge of just how powerful weapons are than your average congressman or member of parliament, there are people who don't pay close attention...who really don't have a clue what we're talking about. It is sometimes portrayed in, you know, popular culture, as just another kind of weapon, but um, this last year, we ran an article, I mean in essence it's a re-run article we've run before slightly recast, but it was an article about what the effect of one sort of standard Russian nuclear warhead (750 kg), would do if it were dropped over the middle of New York City. And the response to that article was illuminating. I mean, many, many, many people, it was one of our highest trafficked articles we've run in recent years, and so many of the responses were from people who had no idea of what would happen with just one nuclear weapon, which is essentially , you know, nothing would be alive, in a 7 mile radius circle, so even people in alleged shelters in Manhattan, would be cooked, in their basement sheltered, you know, two or three levels down, in major, reinforced buildings, they would just be cooked, because of the temperatures, um, there'd be a fire storm, you know, basically fifteen miles in diameter, that would destroy everything inside it, including...at least hundreds of thousands, you know, possibly millions of people, immediately.

[10:28]

And most...many of the people who read that story had no idea that that's how powerful nuclear weapons are. And that's just one, average, Russian weapon out of...well I think if you count them all, both deployed and in storage right now, there are 16,000 nuclear weapons in the world, and yes, I think that the scientists who deal with this understand how dangerous this is in a way that average citizens and even your average policy maker, they just don't get it.

(SM) Hmmm. Uh, I mean so when um, the bomb was dropped on Hiroshima and Nagasaki, what, I mean, wasn't that conveyed to the American public, the gravity of that, the size of it?

[11.29]

(JM) Well I mean it, you know, at the time, obviously it was a major news event, and it was presented to the public, and there were, um, really affecting, interesting accounts of it, if you haven't, or anybody who is listening to my voice or reading the transcript, has read John Hirsey's Hiroshima, I mean, both the original New Yorker article and the book that came out of it, I mean, that is what, you know, educated, interested members of the public ran into, very effective descriptions. But I also think that that was mixed in with a level of patriotism/ jingoism/ 'America had saved the world' kind of rhetoric, such that, no I don't think that, in general in the long terms, the public came to that level of a new way of thinking that I was talking about...that is what the scientists wanted. And they hoped that people would grasp, that this entirely new thing, that the world has to come to...an entirely new way of managing this technology, you know, because it is so dangerous, it surpasses anything that...because there's nothing you know, in preceding, you know, millennia of technology, there's nothing like this had ever happened, and they were trying to get across the notion that well, we need entirely new ways, new forms, of government, to manage this, or we will end the world.

[13.35]

And that's what they hoped for, and there have been some successes, but now, you know, the international, nuclear power... the control of nuclear power in a way that made nuclear war essentially impossible, that, that did not happen.

(SM) Hmmm. I read, I read uh, John Hirsey's book quite recently, I was um, I mean, I was struck by it, it almost...I don't know, there was less seriousness, it was very harrowing, that almost made it too real, it made it so real that it was something I could kind of comprehend whereas Hiroshima had been something quite...completely distant. But anyway.

(JM) And also, a narrative occurred in there that sort of works against the scientists, that's well, if you're going to write that story, yes, I mean, you have to write about survivors, because who are you going to talk to? So the main characters didn't die, that's like, luck of the draw, you know, the spin of the dice or whatever, their reflex to jump behind a wall, you know, instead of to look at the big flame, so they survived, but they're miniscule numbers, people who just...that it was complete luck, that they survived, and that, you know, conveying the industrial nature of the carnage is very hard, I mean, it's very hard to get across, well no, there's no reason for you to be here, if your city is hit by a nuclear weapon, odds are extraordinarily high that you will die immediately, and it is almost certainty that you will.

[15.44]

And there's nothing you can do about it. You know, and that is difficult to get across. And so... I was, uh, talking to Helen Caldicott who's a, you know, an Australian physician, who's become very prominent in the anti-nuclear... in the city where I live, Santa Barbara, I had a chance to talk to her and to talk about targeting plans, and people don't actually think about, well, what if there were a war, what would the United States and Russia be shooting? And, she was talking to me about, I don't know if it's the current Russian targeting plan but it was *a* targeting planning, a recent Russian targeting plan that she knew of, she said, well, you know, people think about, ok, I live in Santa Barbara, California, just, you know, 50 miles, an hour up the coast, is, you know, an air force base, that's going to be targeted. Between there and here, are Vandenberg. Just the other side of Vandenberg is a nuclear power plant. Those two will be targeted, with at least one warhead, probably two. There's a university in Santa Barbara, a major university, that is just in the targeting plans, that will be targeted, so little Santa Barbara, of 80,000 people, will get its own nuclear warhead. Um, an hour and a half down the way or 45 minutes down the way there's a naval base. Ok, that will get at least one, probably several, nuclear warheads. So that anybody who lived in this beautiful part of the California coast, which is called the American Riviera for very good reasons, everybody living here would be dead and there would be no inhabiting of this part of California ever again. People don't think about that every day, but that's reality of, well you know, and I'm just taking a little slice of where I live, is that everything here would be gone. And I really don't think most people in their day-to-day lives, most politicians, in their day-to-day pursuits, really think about how insane that is.

[18:29]

(SM) Yeah. I mean, obviously, national security is an issue in America, people do talk about, are talking about Russia at the moment, so what are they imagining, can they just not imagine the material reality of that?

(JM) Well, I think there is... actually, strangely, top levels of national security apparatus, there's a very high realisation that nuclear weapons are essentially useless, because use of them, you know all the gaming strategies, you know, more or less wind up with escalation to full thermo-nuclear war, and full thermo-nuclear war means the end of civilisation. There's a very high level of understanding of that at the top levels of the national security apparatus, in the military, in the defence department in the White House, you know, but the rhetoric, what it takes to get elected President, or get elected to Congress, doesn't acknowledge that. So there's a lot of dangerous and stupid rhetoric, on both sides, both in Russia and here. You can sort of save a wrap[inaudible], like kind of talk about

defence and needing more weapons and building more weapons, when everybody knows we can't...everybody who's sane knows, we can't ever use them.

[20:15]

(SM) Something we've been studying is um, the rise of CND in Britain, um, someone else I interviewed claimed basically that that sort of movement didn't really exist in America until the '70s. Would you go along with that? That kind of, grass roots anti-nuclear movement.

(JM) Well, there was a, a very strong anti-nuclear movement in the '80s. You know, during the Reagan era when there was a lot of sabre-rattling and, you know, there was a lot of controversy about medium range missiles being moved into Europe and confrontation with Russia, and there were millions of people in the streets here, but that receded as that seeming you know, confrontation, came to a head an receded, uh, you know, and since, particularly, what people call the end of the Cold War, the dissolution of the USSR, that concern, has largely evaporated in the United States. I honestly don't know where it is in the UK or in Europe. I mean, it still exists and is stronger than in the United States but I would presume it is less there than it was back when the USSR existed, also.

(SM) Yeah, I mean um, I mean Britain have got, I don't know if you know about Trident? There's an issue about the renewal of the um, Trident submarines which is going to be the thing next year, so it coming back, um, but to be anti...you know, the actual disarmament is still seen as incredibly extreme, as I suppose it is in America.

[22:19]

(JM) Well, you know it's, it's largely, as I was trying to explain, a political thing, in the general public, I don't think there's a really wide anti-nuclear movement, just because generally, it's not viewed as a current problem. But, you know, that doesn't mean that there's some huge pro-nuclear weapons political feeling or movement. What there is, is that at national elections in the United States, in presidential elections, there's a dynamic that goes along in which Republicans, sort of our Conservative party, try to portray Democrats as weak on defence and Democrats spend a lot of time and effort trying to show that they're not weak on defence, all of which, sort of, generally heads in the direction that we need more of all military things, including nuclear weapons. It doesn't get into a specific discussion actually, of particular nuclear systems, or do we need to modernise all three legs of our triad at the projected costs of a trillion dollars over thirty years?] In policy circles, among the people who know about this, experts, those kinds of things are discussed and debated quite heatedly but in the general culture, these are not, you know, these are not big current focuses of public attention, you know, to the extent that there is a focus on an existential kind of threat, I mean climate change will be more on the agenda right now than nuclear weapons, even though the nuclear threat is, in my opinion, I mean, much more direct and immediate. If it happens it's going to happen quick.

[24.46]

(SM) Yeah. It's...I mean related...it's an interesting... on your mission statement for the Bulletin it says 'engaging science leaders, policy makers and the interested public'; I wondered if you could explain what you mean by the 'interested public'? I've not heard that phrase before.

(JM) Um, the thing is, the Bulletin has a sort of unique mission in that, yes, I mean on one level the scientists want to give the information to policy makers, they will act appropriately on one level, but it's kind of a dual mission, the other mission is to influence the public, such that there will be public pressure on their own public officials to pay attention and to act according to scientific information in regard to nuclear weapons particularly with all of the threats that we report on. That term 'interested public' is I think just in recognition that well, if we don't get ever increasing numbers of the public interested in what we're writing about, you know, we won't be succeeding. So, you know, if they're not interested in the subject they aren't going to pay attention, you know, we put an awful lot of effort into all sorts of outreach to try and consistently expand the audience.

[26:30]

(SM) What do you think the prospects are for engaging a wider audience in this issue, over the next ten years or so?

(JM) Well actually I mean, what I have been finding is sort of, backward looking, within the last, couple of years, nuclear issues have really come to the fore, have come to the centre, in part because of banned Russian activities in Ukraine, and tensions over that that seem to have sort of, presaged, a new sort of Cold War attitude, and you know it really has, brought much more focus and coverage and public attention to nuclear issues, you know and Iranian negotiations in a positive light**,** most of them focused a lot on nuclear tension, so um, I can tell our figures on readership and the amount of times, I mean, what venues the Bulletin is cited and discussed in the major media, so that our readership are clearly, you know, even citing our information in whatever, the New York Times or the Washington Post or the Atlantic, you know, the Congressman, your uh, maverick, you know, had a whole issue on, I forget the title of it, something like 'the new nuclear age'. These issues are once again coming to the fore and I'm hoping, I mean, I'm at least slightly optimistic that the public is starting to get more focused on what I think is a really important threat to the world.

[28:51]

(SM) Could you say something about uh, the Doomsday Clock and the role that that's had in conveying the risk, the threat?

(JM) I think um...for people who don't know about the Doomsday Clock and they just look at it and it's just a clock that says ...you know, our... Science and Security Board every year says 'the hands of the Doomsday Clock are so many minutes before midnight, for metaphorical Doomsday.' And what could make more [inaudible] say it's not that big a deal or whatever, but since I've been working at the Bulletin it's been...an enormous, not so much surprise but just a revelation of what the influence of a symbol can be. This last year, when that announcement was made that moved the hands of the clock from five minutes to midnight to two minutes to midnight. You know, for a bunch of different reasons that are described in an article we published, but of course with Russian activity and inactivity on climate change by the major economies of the world. But that movement of those hands...it was cited in what, 25 news articles around the world. It was, you know, our website, reached hundreds of thousands of visits from people really wanting to find out, well, why?

[30:41]

What is it that has, you know, aggravated major scientists who study this to say the world is actually more dangerous? And that people should pay more attention? So it, for really, humble beginnings, in 1947 the clock was sort of, invented by an artist, and the people putting out the Bulletin, scientists, wanted something to put on the cover of an issue, and she came up with this image of the clock, then it was set upon every seven minutes, and it was several years before they decided, I mean it was just that standing issue image it wasn't used, it was several years before they decided what would be a good way to convey metaphorically the dangers that the world was to change? Where the hand was in relation to doomsday. So they decided to move it back and forth, it's been as close as two minutes to midnight and I think as far away as 17 minutes, um...

[32:00]

which I think I'd have to look it up now, you can too, I believe that's, you know, shortly after the dissolution of the Soviet Union, the board moves the hands, you know, significantly away from midnight. But since then the failure to take advantage of that, to reduce nuclear arsenals much further, to lesson tensions much more, to actually get the kind of integration of Russia and China, into, you know, world government structures that seemed possible in '89 and the early 90s, I think our board has viewed that as not happening, and that things that control nuclear weapons

not progressing in an adequate way, has led now to the clock is set once again at three minutes to midnight, and I know that our Science and Security board members are quite concerned with the world situation.

(SM) Has it been very controversial, um, the clock and the, kind of, how close you've put it to midnight?

(JM) [pauses] Well, it's some ways, yeah, yeah, I mean, it is at times, you know, some attempt to portray the Bulletin as, you know, jug-, you know, like, a 'bunch of peaceniks' or 'left-leaning people', you know, just a, you know, or really leftist kind of organisation, which is...I mean it's so not true that that criticism hasn't really stopped or gained much purchase, I mean, the scientists on our Board are scientists, you know, many of them are actually supporters of nuclear power as an energy source, you know, electrical generation of nuclear power, you know, we have supporters of that, many of our experts on nuclear weapons are by no means starry-eyed, um, 'get rid of all nuclear weapons' person, there's leading experts in the field who have very nuanced views on all these issues, so that the attempts to portray the clock as, as something that's an ideological image or metaphor, you know, have largely failed, so, I don't see that there being that much controversy so much as, just every year when it comes time, it is one of the few organising principles around which the news media and government can be reminded and really pay attention for at least a period of time about what a danger there is, and so I think it's less a controversial thing than, remarkably a shared image.

[35:40]

(JM) If there's anything that surprised me it's, it's how many people and entities consistently and constantly just want to borrow the Doomsday clock, you know, just appropriate it for their own uses, and when those uses seem good and reasonable, and in consonance with the Bulletin's aims, you know, we grant permission to use it, but other times where we do not permit it, it's become sort of this universal symbol, that is, I mean, not just in, you know, policy circles or whatever, I mean, there are, as you can see on our website, pop culture has, you know, made great use from rock music to movies to comic books, in all sorts of ways, the Doomsday book, has permeated the culture, which is a wonderful thing, because we can use that, you know, how recognisable it is in the general public, to help us convey the actual, factual, scientific information, so in that way it has been said by many people, the Doomsday clock, certainly in the 20th century, is one of, if not the most successful, you know, information graphic of the 20th century.

[37:17]

(JM) There's, I mean try to think of an image that has more power and that's lasted longer, that conveys its image more powerfully and directly and is understood by more people, it's really hard to think of anything that, uh, rivals it, particularly in this field.

(SM) Hmmm. What's, what's the process for deciding what, where the clock is every year, what minute it's on?

(JM) Well you know Sam I could, as they say in the spy movies, I could tell you that but then I'd have to kill you.

[Both laugh]

(SM) Ok. It's a trade secret.

(JM) No, there's the Science and Security Board and...discusses along with the Bulletin staff and members of other Bulletin boards, discusses the issue, issues, really in quite amazing depth, you know, at some length, in a couple of different meetings that last hours, but beyond that, you know, we've sort of kept it like, you know, picking the new Pope, we don't really explain the process any more than that, not because we're trying to be mysterious but because-

(SM) Yeah

(JM) - we don't want people to get wrong ideas. I mean, it's a very, very deep...and at times impassioned discussion and you know, it includes experts in all the areas that we cover, you know, and they come prepared to discuss their area, and you know, so it's just...I actually wish people outside the Bulletin, you know, sometimes could experience it, because it's just amazing, an amazingly deep and erudite discussion. But, you know, I'm not going to go much further.

[39:36]

(SM) Hmmm. Fair enough, yeah, thank you.

(JM) That's ok.

(SM) Um, I mean, what, why do you think we haven't had another nuclear attack since '45? Do you think it's down to design, you know, or...just luck?

(JM) Well that's...that's the question really, I mean, there's some theorists who really argue that it's not a trivial argument that nuclear weapons are what has kept there from being a major war for 70 years and that they are a positive, in that way. And that because of their horror, you know, deterrents can be reliable. We need other things, and we need, you know, attempt whatever kind of controls you can, but deterrents is, you know, really the overriding reason why we haven't had a nuclear war, uh, my opinion is different and probably less important, you know, I'm just the editor here at the Bulletin, but my opinion is that it's been a mixture of, well yes, deterrents, they're strong, because anybody who knows...you know the leaders of the United States and the Soviet Union were briefed at a fairly high level about what these weapons do, and anybody who actually knows what these weapons will do knows that using them and the escalation into worldwide thermo-nuclear war, you know, is just suicidal, it's just end of all civilisation, so that there is real deterrent, but there is more than a smidgeon of luck in there too and I don't think society can really rely on the luck holding...

[41:35]
(JM) I mean, there are many, many instances in which, I mean, it was sheer luck... the Cuban Missile Crisis, it was sheer luck that there wasn't war, you know, but it's not just that, there have been many others, there have been... something called uh, there's an exercise from I think the early '80s during the Reagan administration, called 'Able Archer', where the [inaudible] was doing an exercise on... you know, a full-scale exercise on what it would do in response to what looked like Russian preparations for war. Only it looked real enough, and there were some really bad radio transmissions that the Soviets were able to intercept and read, so that the Soviet Union went, as I remember, full alert, and came remarkably close to just, watching [inaudible] because 'Able Archer' looked so much like...just luck. As, you know... [inaudible]. I mean, it came really, amazingly close, as recently declassified documents show, to being a war.

[43:03]

(SM) Mmmmm.

(JM) There are other incidents where, I mean, once case, a Norwegian launch of a weather satellite during the Yeltsin years I believe, looked exactly like, to many Russian analysts, how the start of an American pre-emptive attack on Russia would look. Because it had fired at a depressed angle, and it, and it looked like what an electro-magnetic pulse weapon, fired to try to [inaudible, possibly blind?] the Soviet Union and fry all of the electrical circuits in its nuclear forces. It looked to them exactly what would happen, how it would start, and there was almost unanimous advice to Boris Yeltsin to immediately launch Russia's own pre-emptive attack because otherwise their weapons wouldn't get off the ground, and it was only Boris Yeltsin saying 'no' that saved the world from worldwide nuclear war. Now I don't really wanna rely in any future time on the actions of one drunk, in response to the, essentially unanimous advice of his military advisors. A drunk saved the world once. I don't really need to gamble the future of

the world on the reactions of a really drunken, not very sophisticated leader. And believe me, both countries have had their drunken, not-very-reliable leaders, both the United States and Russia, so you know, I just don't think that deterrents is enough.

[45:10]

(JM)I think there needs to be a lot of work on reducing numbers, uh, reducing alert status and working on all sorts of other ways to reduce the risk, so you know, that's my take on the situation. But it's not that I matter, I mean, who am I? I'm just the editor, [inaudible]. I'm hoping that increasing numbers of people who actually make the decisions in the United States, Russian, Chinese, Pakistani, Indian, Israeli, French, English leaderships start to believe that too.

(SM) You mentioned classified files there, and there's an interesting article on your website about, saying that there's been an atrophy of democracy during the nuclear age, um, because of the amount of secrecy around nuclear weaponry. Would you go along with that?

(JM) Well it's, it's a very interesting way of looking at it, I mean, uh, that article is more or less based on a book 'Thermo-nuclear monarchy' I think is the name of it, by a Harvard professor, uh, arguing essentially that when it comes to matters of nuclear war, yes that democracy is irrelevant because at the time such decisions are made, nobody's asking, or will ask, you know, for there to be a vote on it.

[47:33]

(JM) For Americans generally to weigh in on 'well, should we, you know, respond with nuclear weapons?' you know or not? It's all gonna happen incredibly quickly and most likely a President would not even consult, even leaders of Congress about it. This is a decision that, you know, conceivably and arguably almost certainly will be made in a matter of minutes, not in the kind of days and weeks that it takes democratic consultation, you know, to happen. And beyond that, I mean, the column you're referencing which I assume is one by Kennette Benedict –

(SM) That's right yeah.

(JM)- our former executive director, well, what she's arguing is that in beyond that, in the immediate prospect of 'do you do you not use nuclear weapons?' Well there is no democratic input really. Even beyond that, in matters of general nuclear policy, there really isn't any discussion of it, and as I was saying there's the start or the possibility of that kind of discussion because of recent Russian activities in Ukraine, heightened tensions, and particularly because of the Iranian accord, I mean, there's been more discussion, you know, actual discussion, actual having people in Congress having to weigh in, having to go to their districts and talk with their constituents about it.

[49:27]

(JM) Uh, the more actual discussion is something, you know, subsequent to do with nuclear policy around the Iranian agreement than about anything in recent memory. And probably well within a month here there will be a decision, you know, and it looks like, well the, Congress won't override the agreement and the US will join the agreement. The problem is, well, does it go back to them, well nuclear matters just received completely in the back room? They're left up to the extras. And I think Kennette's argument… and it's one that I generally agree with, is that, that is the wrong way to approach these matters. Because the decisions that are being taken regarding our nuclear forces are really significant, really major, if…they affect society in so many ways, and they're essentially invisible, they're made in Armed Forces committees, in Congress, in ways that most people don't even know they're being made, I mean despite many efforts including mine, my magazine's efforts to greatly publicise nuclear modernisation programmes on the way. I don't think most people understand that within the last few years and in [inaudible] years, decisions have been made and will be made involving the complete revamping of nuclear forces.

[51:17]

(JM) Completely new missile forces, completely new and new long-range bombers, completely new bomber forces, completely new set of submarines, that are enormously expensive, complete upgrades of what's called the nuclear weapons complex, the complex that builds and rebuilds nuclear weapons. And these changes are enormously expensive. They are on a scale that most people just don't get. It's like in the next decade nuclear modernisation costing $350 billion! And that's just a projection. That's not…well when the defence costs are projected you can generally count on them doubling or tripling or quadrupling or quintupling, so you're talking about enormous expenditures, that take money away from other things that that money could be used for. And this level of expenditure is not on the radar-screen of the general public. And it needs to be. It needs to be. You know if you look at, ok the Presidential election in the United States has just started, but look at what the focus on, is. Donald Trump talking about building a wall to keep out illegal aliens.

(SM) Mmmm.

(JM) And immigration may be an important issue, but is either party going to talk about these enormously expensive…you know additions to the nuclear arsenal and whether they're actually needed? And to what extent? How many of them are needed?

[53:24]

(JM) Uh, so far there's been relatively little focus on that and when the general public doesn't talk about it, when it's not talked about during elections, you know, in any substantive way, yes, you can then wind up describing it as, well it is, you know, an elite kind of decision, it does evolve into something approaching, you know, uh, nuclear monarchy …because when you come down to the decision as to whether the weapons are used, it's pretty much just going to be the President, he's going to make it.

(SM) Hmmm.

(JM) You know, so it's the decisions on major issues that can greatly lesson the likelihood that the weapons will be used…if those aren't made in a broad based way, then what you've got are small sets of people advising one person who will just make the decision, and the decision will be driven, you know, sad to say, but it will be driven far too often by money. 'Who makes money?' will drive the decisions.

[54:50]

(JM) Not, 'what does the United States or Russia actually need to defend itself or deter anyone else from using nuclear weapons?' But 'what, what in their nuclear weapons complexes, what companies, what firms are going to make money off this? And what influence do those companies have on the decision makers?' Uh… you know?

(SM) Hmmm.

(JM) Eisenhower was very against the military industrial complex**.** The United States has a military industrial complex that is vastly larger and more powerful than any he could have thought of. But so does Russia. So does China.

(SM) Yeah.

(JM) So does Pakistan and India. These…complexes of entities and people who profit off building and maintaining, you know, nuclear weapons and the military generally, is huge. And the failure to have this discussed broadly, openly, intentionally in the public just is, by default, it turns into the military industrial complex runs the show.

(SM) Hmmm.

[56:20]

(SM) Do you think that over the last 70 years there's been any shift in the public's engagement with this? Tangible shifts or it's been fairly similar the whole way through?

(JM) Oh no! It's…it's, you know, risen and ebbed, depending on perceived salience of the issue and their lives. **(?)** Alright, you know, now you can just go back and look at history and read history. In the '50s it was a major issue. I mean, the 1960 election was brought on, remember they called it 'Missile Gap?'

(SM) Yeah.

(JM) You know it didn't really exist but nuclear fears, you know those were, a big deal then and it waned to some degree as the détente kicked in, you know in '70s, when Nixon reached out to China, there was some level of détente with Russia, but then Ronald Reagan was elected President. Rhetoric became much harsher, you know, the Soviet Union became an 'evil empire', and public engagement with these issues did increase, greatly, and actually in some ways forced the Reagan administration to negotiate, and to stop being, you know, so war-mongering in its tone. Well then came the, uh, you know, the dissolution of the USSR, you know, some of the stands**(?)**, Ukraine, I mean, they helped significant parts of the Russian nuclear deterrent. They just gave them up!

[58:13]

(JM) And there was real thinking that, uh, there would be some sort of new age of peace with much lower levels of arsenals, much lower levels of risk. And so public engagement actually fell, because there was sort of a perception, well this is being taken care of. And that…and we've published articles to the effect that… the public opinion component, you know, sort of fell and diminished over time, as I said, until fairly recently, but now that concern is back on the upswing and I'm hoping that that upswing can be used in and be taken advantage of in some way to actually broaden concern with these issues and to get action by governments, to perceive in some way, in some tangible ways, toward reducing the threat of nuclear war.

(SM) Hmm. And what made, um, you first get interested in these issues? Do you…?

(JM) [pauses] Well…actually, I mean I've been a public interest journalist for essentially my whole career, which is, you know… you know, three decades and counting. Back in…I'm trying to think, the early '90s is when I probably first ran into the Bulletin. I was the editor of a different publication, one of my writers was writing a story which just happened to be about something that the Bulletin had covered. It was something about, again, even back then, the modernisation of tactical, a particular tactical weapon. And so in researching the story, the writer found a bunch of pieces by the Bulletin, and that was when the Bulletin was a print publication, and he started showing it to me… 'what? I mean this thing is really good!' [laughs] You know and I started reading it, and it was, and it is, an extraordinarily high quality publication, it's, it's, it's really unusual mix of experts writing on these subjects, but with very high level journalist editors, helping them write, write in a way that ordinary, you know, ordinary reasonably intelligent and interested people would, would not just understand but would want to read it, would find it interesting.

[01:01:25]

(JM) So in essence, you know that was sort of my introduction to [inaudible], this is really smart journalism, really high level journalism, that actually is, you know, interesting, I mean, it, when we get it right, if what the Bulletin does is interesting, is what the New Yorker or the Economist or the Atlantic, or anybody else, the New York Times, Sunday Magazine, what they do, it's that interesting, you now, but actually written by experts, people that know the subject matter on a level that really most journalists don't, and can't…

(SM)Yeah.

(JM) That's what… I became interested in them, you know, on and off read it through them, and you know, I came over to the Bulletin just…I mean I saw there was an opening, and you know, wow! Now that's something that… I could go to work every day and feel good about working here.

[Both laugh]

(JM) It's not that I haven't liked other jobs, you know, that I've had, in journalism, I've been extremely lucky I've actually worked in, you know, very high quality outlets that, you know, I didn't have to feel like I was doing tabloid pandering you know at any time or anywhere I worked. But this was all [inaudible]…you could really do…service. I mean you could really help the world, so…

(SM) Hmmmm.

(JM) It was kind of a noble, [inaudible]...

[01:03:14]

(SM) I have to, um… someone's asked me to ask you this, um, what, how do you perceive the risk of artificial intelligence? Along with the other risks you've been talking about?

(JM) Uh, you know, that actually is, I mean, it is one of the things we've been covering, I mean, sort of in the, under the umbrella of emerging threats, meaning, you know, we haven't formally decided, the Board hasn't formally decided, 'this is truly an existential threat'. And so, you know I'm not going to waffle on my answer to you because actually, our Board itself, the Science and Study board, is split on this issue; there are some members of the Board who truly think that the recent statements by many prominent people and the recent publications by prominent experts that artificial intelligence is, this, you know, enormous existential threat to humanity, there are people on our Board who don't believe that. And we've recently published a story that, an article that was along those lines, that…you know, sort of making the case that the…artificial intelligence is an existential threat, [inaudible]…you know, over-exaggerate or exaggerate the threat. So there is that element of the article. But there are people on our Board, and there are a lot of prominent experts that feel is it an existential threat. I guess if you're going to push me to take a side-

[SM laughs]

(JM) – I slightly lean towards the, it's not as significant and immediate a threat as the uh, let's say Nick Bostrum and his book 'Superintelligence'-

(SM) Yeah

(JM) -and the people who kind of cluster around that…I'm not a true believer in that crap, as yet. But that doesn't mean that I, I'm sitting here saying that they're wrong, I'm just not completely convinced yet, for, for reasons that are much too arcane to go into now. But uh, if you wanna have your head explode, have people explain to you the history of artificial intelligence-

[SM laughs]

(JM)- and why it will or won't become conscious –

(SM) Ok

(JM) –turn into conscious intelligence, you know and, you know the epistem…epistemology of artificial intelligence is its own field, and you start reading about that stuff and really, I mean it just, it's, it's, you know, the [inaudible]

complex and just difficult. I mean, it made, in some ways it makes, uh, you know, Einstein… relativity theory seem simple, so I slightly lean against, you know, the belief that artificial intelligence is suddenly, immediately the main threat to humanity, but I sure don't dismiss it, it's something that needs a lot of study.

(SM) Ok. Ok great, I'm just gonna stop the recording now.

(JM) Ok.