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Transcript of Isaac ASIMOV TALK **Save Earth for human civilization**

(Thanks to John Christen. If anyone wants to volunteer to translate this please email.)

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For: **First Humanist Institute** Annual Dinner
Where: New York Society for Ethical Culture

Date: **January 14, 1989**

"I get letters all the time, and some of it is amusing in a sort of way. I got a letter recently that said that he listened to me on the Bill Meyers show, I don't know how many of you heard my interview by Bill Meyers (applause) thank you. But I listened to it and I was amazed at how intelligent I sounded. (laughter) Always surprises me. He said he was amazed at how intelligent I sounded, and that he liked what I said on account of he too was highly intelligent, rational, etc. etc. but his heart broke when I began to knock mysticism, on account of he thought mysticism was great stuff. And I glanced over the letter and filed it appropriately. I also get letters which tell me I'm very crude in making fun of religion and that I ought to understand that it's only religion that can make fun of science, not vice versa, and I filed that. But then I get a letter that causes me to think, and here's how that happened.

I had written an article on the greenhouse effect. It was a year end article, they wanted me to pick out the most important scientific event of 1988, and I really thought the most important scientific event of 1988 would only be recognized some time in the future when you get a little perspective. But I thought the most interesting scientific event of 1988 was the way everyone started speaking about the greenhouse effect just because there was a hot summer and a drought, when I had been talking about the greenhouse effect for twenty years, at least. And there are other people who talked about it before I did, I didn't invent it. So, I explained what was meant by the greenhouse effect, and I explained that not only were we constantly pumping carbon dioxide into the atmosphere because we're burning fossil fuels, coal and oil and gas, so that the content of the atmosphere as far as carbon dioxide is concerned has been going up steadily, not very rapidly, but steadily ever since 1900, and is continuing to do so. The amount of carbon dioxide in the atmosphere now is 50% higher than it was in 1900. It's still only a little over three hundredth- 0.035%, which is not enough to bother us as far as breathing is concerned, but it's enough to trap the infrared waves that Earth reflects into space and to raise the temperature of the Earth slightly, and the temperature will keep on going up. And not only are we piling in more and more carbon dioxide in the atmosphere, but we're chopping down the forests of the Earth at a great rate, and the forests themselves are the most efficient consumers of carbon dioxide that there are on Earth. Anything that substitutes for the forests, like let us say grain fields, or grasslands, are not going to consume carbon dioxide as efficiently. And if we replace them with desert, which is most likely, it won't absorb the carbon dioxide at all. So that in a sense we are contributing to the greenhouse effect in two ways: by pushing the output of carbon dioxide and inhibiting the input so to speak.

I said therefore, when Brazil begins to cut down the rainforest of the Amazon, not only is it destroying a habitat for vast numbers of plant and animal life which could be of great use to us, there are perhaps pharmacological products we know nothing about that are produced by these forms of life that if we knew about could advance the art of pharmacology and the practice of medicine, enormously. And we'll never find out, we're going to drive them to extinction. We're going to destroy the ground, because the soil of a rainforest isn't very good, and when you chop it down it doesn't make for good farming, what it makes is for good deserts. And finally, we're going to cut down on absorbing the carbon dioxide and on producing oxygen, so that we are actually tampering with the climate of the Earth and with the very atmosphere that we breathe, so that under those circumstances it is useless for Brazil to say that she can do what she wants with her own, that the rainforest belongs to her and if she wants to cut them down, she can. The rainforest doesn't belong to her, it belongs to humanity, she is merely the custodian of the rainforests.

I said that in the course of my article and I got a letter in which a young man said, "Who gave the United States the right to tell Brazil what to do? What if Brazil says to us that we produce far more carbon dioxide than any other nation because we have more automobiles, we have more motors, we have more industry, and we are polluting the atmosphere far more on a per capita basis than anyone else on Earth, and therefore why shouldn't they have the right to tell us to cut down on our industry, to clean up our pollution instead of telling them not to cut down their forests? And I answered and said, "You make a very good point. But now, look through my article, and see where I said it was the United States who is supposed to make these decisions. I didn't say anywhere that it was the American right to police the world or to tell them what to do." And in fact, that gets to the nub of the whole point, that we are facing problems that transcend nations. That when we talk about the **greenhouse effect**, we're talking about something that affects not just the United States, not just Brazil. That affects the entire Earth, for the worse. When we talk about the disappearance of the ozone layer

and everyone says, "Well gee, if the ozone goes there'll be more skin cancers, more eye cataracts" - that's the least of it! We don't know what will happen when the ozone layer goes. We're going to have a lot more **ultraviolet rays** hitting the surface of the Earth, perhaps killing the plankton in the oceans, perhaps killing the soil bacteria, upsetting the ecological balance, very fundamentally making the Earth a lot less livable. **Skin cancer might be the last thing we have to worry about.** Or as someone else says, well, it just means you go out with a sunshade, you put on suntan oil - that's for human beings, of course, but go around doing the same to all the little bacteria in the soil and so on. But if that happens, if we do lose the ozone layer, it's for the whole world that it's lost. It doesn't matter which nation makes use of chlorofluorocarbons most, we all get it. If the population goes up to the point where we destroy the resources of the Earth, it doesn't matter which nation is most populous, we all get it in the neck. If we have a nuclear war that produces a nuclear winter or a fallout that kills people everywhere, it doesn't matter who started the war, it doesn't matter at whom the nuclear bombs were aimed, we'll all get it. **You can go through the entire list of dangers that face humanity, and the very point of the whole thing is that they face humanity, and not any one section of it.** And therefore, I might say in passing that this should be of peculiar interest to humanists. I have always thought that the reason we're called humanists, is that we're involved with human beings as opposed to the supernatural, the existence of which is dubious at best. But, if we are going to be interested in and involved with human beings, then I fail to see anything in the name that distinguishes between one set of human beings and another set. We are all human beings. If there is one thing that is biologically certain about the human species, is that it is a human species, one species. The similarities among us are enormous. The differences are trivial. The differences between the chimpanzee and the human being is less than you might think. It has been calculated that only 1% of the genes in humans and chimpanzees are different, but that 1% makes for two different species, quite different species, and that between varieties of human beings is not only less than 1% difference, but far less than 1% difference, so that it is trivial, and while we think of what human beings have done to each other on the grounds of such trivial reasons, **we have to shudder at history and I think that it is criminal** for all of Earth, now, **not to be humanists**, because now when **all human beings are facing the same ((global)) problems. And these problems are life and death problems.**

They go to the very root of the viability of the planet itself, and in order to solve these problems, in order to make sure not just that our progeny will be prosperous, that our progeny will be peaceful, but that our progeny will live. To go to the solution of these problems we cannot expect that this will be done by individual nations. We do not any longer live in the 19th century. In the 19th century, when nationalism was in its heyday, it was possible for a single nation to believe it can make itself prosperous without reference to the rest of the world. That if it had a war, and it was a quick war, it could recompense itself all damages by smiting and squeezing the defeated nation. That it could get indemnities, that it could take. This is not possible anymore. It is no longer possible to have a war in which the damage done is not far greater than any nation can afford, in which it is even possible or conceivable that one nation may win if the world as a whole loses. We have become so small, **the world has become so fragile, our weapons have become so powerful, that we cannot use those weapons any longer**, that we cannot subject the Earth to the tortures we can now inflict upon it. **The only way we can solve this problems is by a human solution, a totally human solution, an international solution, a cooperative solution. It is important that the world get together and be sufficiently a unit to face the problems which attack us as a unit.**

The problems with the ocean, with the atmosphere, with the soil, with the population, with pollution, with anything you want to aim - do not distinguish among us! How then can we distinguish among ourselves? There must be some way of getting together, and of deciding not that the United States will tell Brazil what to do, not what Brazil will tell the United States what to do, but what the people of the Earth will tell themselves they must do. We have no difficulty applying this principle to the United States itself. We don't say that New York hasn't got the right to tell California what to do, that California hasn't got the right to tell Florida what to do. When it comes to international trade, when it comes to any facet of national life that rises above the parochial needs of cities and states, the federal government tells all the states what to do, and the federal government can do it, because it consists of representatives from all the states.

Well, what we need is some sort of federal world government and the only problem is how we manage to do that.

(Is it absolutely necessary that the door be held open? He was probably afraid we wouldn't get the noise. (laughs) Listen, I was once giving a talk, and a fellow got up and closed the door that led to the kitchen and I said thank you, and he said no it's alright, it was at the request of the kitchen help. (laughter) Now you think I've forgotten where I was, right? I haven't.)

Now the question is how we can possibly arrange this, because of course we live in a world which never forgets, never forgets the wrongs done it. Every nation remembers a particular time in its past history when it was at its maximum extent, and that it considers its natural boundaries. So naturally, **the natural boundaries** of all the nations overlap, and **every nation has had some of it stolen by its neighbors**. They never forget, they never forget the wrongs done it, they never forget the injustices, you can go and find your own homeland again after you've been away from it for 2,000 years and others have been living there. You can keep up a fight for centuries over things that are centuries old, how are you going to get everyone to get together despite this? Well, there are two ways in which this can be done, the carrot and the stick. Now you'll know this, that this is not something new that you've never heard of before. This is well-known. **Now the stick is the fear of danger, the fear of destruction, and it works**, it works fine. For forty years now, for forty years we've been engaged in a cold war between the United States and the Soviet Union which sometimes lightens up and sometimes grows more severe. I have never quite understood incidentally the meaning of the word 'cold war.' That means as opposed to a 'hot war.' In a hot war you throw weapons around, in a cold war you make nasty speeches. Well in that case a cold war is much better than a hot war. But then every once in a while when things lighten up a little bit they say the cold war is 'thawing.' But that means it's getting warmer, and that sounds like it's bad. (It should be) said a cold war is cooling down even further, so this is what you call metaphorical mishigas (Yiddish - "craziness").

But in any case, we've had a cold war of sorts for forty years between the United States, Soviet Union, and there have been times when they've disagreed on everything under the sun. I always dreaded having one of them say the sky is blue because then the other one would say no it's not, it's orange. But it's gone on now for... you know, like over forty years, and in all that time it has never come to a war. I don't think, as I look back in history, that there has ever been a period of forty consecutive years, in which two nations have yelled at each other without their going to war in that interval of time, at least once, sometimes twice. They haven't. Not only have we not gone to war **with the Soviet Union, we haven't even broken off relations**. In other words, we not only don't dare fight, we don't even dare stop talking. The only people we can break relations with are nations of which we're not afraid, really, like Iran or Libya.

Well, this is a good thing, but why is it so? Why is it that when we do have meetings, summit meetings, they get to be friendly. Reagan has put his arm around Gorbachev's shoulders, I saw it myself on television, and he formally withdrew his remark about 'evil empire.' I imagine Gorbachev withdrew some remarks that the Soviet leadership has made also. And, why? Why is this? And the answer is there really is nothing else they can do. There's no way in which we can really fight a war with the Soviet Union. It doesn't matter if we hit them, or they hit us, or we hit each other. Whatever we do, it's going to destroy the Earth. If anyone doubts this, let them take a look at Chernobyl which happened about two years ago. One reactor suffered a meltdown, one reactor. That created enough radioactive fallout so that they killed sheep near Liverpool, in England. One. Now if we're going to really clobber the Soviet Union, we're going to hit it with a few thousand nuclear bombs. We've got the bombs, we're not going to save them for goodness sakes, they won't be any good after the radon is gone- I'm sorry, the tridium. After the tridium is gone they won't be any good anyway, so we'll have to use them fast, and we'll use thousands. If one meltdown creates that much fallout in England, then what will thousands of bombs do, in England, and in the United States? In other words, the thousands of bombs will destroy us all, wherever they land, and whoever shoots them. So there can't be any nuclear war unless there's agreed upon suicide for all of us.

Well, if that sort of thing goes on, obviously the nations are going to cooperate and as a matter of fact they're doing it in more ways than they're willing to admit. We cooperate on the weather for instance, we let each other have information for the weather, we let each other have information that we learn in space where we can convince ourselves it doesn't involve national security. National security you must understand is a very elastic thing. It covers anything that you're liable to get in trouble. If you don't want Dolly North to tell anyone exactly **how stupid Reagan is, it becomes a matter of national security**. Well, yes, in England they don't allow you to say how stupid the leaders are because that's the official secrets act. I think we should have the same name here, it fits. Well then, and we cooperate in Antarctica, we cooperate on the high seas, we cooperate in many respects that we don't talk about because it gets the conservatives in both nations upset, to think that we're cooperating for something as trivial as saving humanity. Therefore we do it secretly, but there's a lot of it being done, and more all the time so that the stick is driving us to cooperation, but I always say, why try the stick alone, why not the carrot as well? In United States history we had both the stick and the carrot. **After the end of the Revolutionary War, we had something we called 'The United States of America' but it wasn't. Each state was virtually independent**. There was a congress, but it had no powers, it couldn't even tax. It could only get voluntary contributions from the individual states who were always in her ears, does that remind you of anything right now called the United Nations? Well, that's what the Articles

of **Confederation Congress was**. It was a **small version of the United Nations**, and it was powerless. And the states were in constant trouble, they didn't know how to work out the handling of rivers that formed boundaries. They didn't know how to deal with the British, who weren't giving back some of the fortified places they were supposed to give back. They didn't know how to treat with the Indians. They didn't know how to arrange state trade so everyone would be happy.

They called a **Constitutional Convention** and because they were afraid of the consequences of this union, afraid we'd just be picked up by various European powers and go to war with one another, **they set up the Constitution by which the various states gave up some of their sovereign powers and embodied them in a federal government**, and then voluntarily voted for that federal government, and formed a true 'United States of America.' There are arguments about how much the states had given up, and 80 years later some of the states decided to take it back and we had to fight a four-year war to make them change their mind and decide they wouldn't take it back, but on the whole we stuck together. So that was the stick, the stick the fear of this union. But where is the carrot?

The carrot came after the Civil War. Now the Civil War was a perfect case that we've seen a million times in human history of a settlement which doesn't settle. The Union beat the Confederacy but the Confederacy put up one hell of a fight. It had no cause to be ashamed and in fact it felt it had lost only narrowly. And on top of that the Union was vengeful and we treated the Confederacy after its defeat as though it were an occupied foreign power, and the south wasn't likely to forget that. So you would expect that the south would always remember the Confederacy not as it does with a kind of sentimental attachment, but powerfully, and would rebel every once in awhile, whenever it seemed that the occasion was right for it, and would be forever indulging in terrorism, like the Basques in Spain, when were the Basques an independent power? Like the fighting between the two sides in Northern Ireland, like the fighting between the Shi'ites and everybody else in Lebanon. There'd be constant, constant terrorism from the United Confederacy Brothers or something, and there isn't. There isn't. There was a healing somehow, and we became one nation again. **And that was in the workings of a carrot, because immediately after the Civil War came the period of the opening of the west, the development of the west, when the nation went west, founded new states, and anyone from any state could go to any part of the west**, so that when a new state was developed, it consisted of people from all parts of the Union. So there wasn't any specific relationship between Wyoming and Ohio, or between Arizona and Delaware, so that you would have natural friendships and natural antipathies. No, it was all mixed up.

The United States found its unity in a gigantic project that included all the states. And that made the differences between the states look small by comparison. It wasn't done, I think, out of intelligent purpose, it just happened. We were lucky. We had a carrot. Now, we need a carrot now. **We need some other project so huge that it can only be done by all the nations of the world acting together to the best of their ability**, we need a project so all encompassing that we can manage to have all the various nations work at it and be glad to have it. Something that would create something that all of the nations could benefit from, and to me **the only candidate for it is the effort at space exploration**.

If we can establish space stations, if we can establish mining stations on the moon, if we can build power stations in space, if we can use **energy directly from the sun** converted into microwaves and beaming down to the Earth, we would finally have energy free of geography. We wouldn't have coal that existed in some nations and not in others. Oil, in which some nations were rich and others were poor. We wouldn't forever have to have the manufacturers exploit agriculturalists or the raw material owners, exploit those who need it, and so on. We would have something out in space that all contributed to, and that reached all equally. Space would be equally reachable by all parts of the Earth, the energy that came down would go as easily to one part of the Earth as to another. Furthermore, if we did have power stations in space, they would require, I'm sure, constant maintenance, constant attendance, very difficult labors to keep them going. We would probably have to have large settlements in space. Any disturbance on Earth, **anything that would keep the Earth from concentrating on space, would endanger the energy supply** for the entire Earth. In other words, it would be immediately and obviously apparent to everyone on Earth that it would pay them **to maintain a stable world order**, because only so could their energy supply be maintained undisturbed. We would have the carrot there. A huge project that would please us all, that would lift us all out of our narrow parochial concerns, that would give us something we couldn't have otherwise, a kind of prosperity and peace that we've never known before, and in going out we can forget those little divisive affects that have made us suffer for so long.

I don't know if this will actually come about. **I honestly don't think that the human species can survive for very long on present circumstances** unless we act in such a way that not only does war not take place, but it is recognized that it is inconceivable that it takes place. Because it doesn't matter if we don't have a war, if we spent all our energies, and all our time, and all our emotional effort and exacerbate our hatreds in

order to prepare for a war that may take place. I mean **think of all the money we could put into setting up weapons** in space, of all the money we throw down a rat hole, trying to build a shield in space that won't work. **For every dollar we spend for that, there's a dollar we don't spend for something constructive and something valuable.** So that **it's not just war that will destroy us, but preparations for war that will destroy us.**

I'm not any more idealistic than anyone else. I don't go around saying that human beings are going to love each other so much that they're going to set up a utopia. No, what I'm saying is if human beings have any sanity, enough sanity to fear the consequences of not doing it, and enough sanity to hope for the consequences of doing it, then they will do it. But **I can't guarantee that the human species will be sane. And if they are not, then we will probably destroy ourselves,** we will certainly destroy civilization, we may destroy ourselves **as a species.** And **who is going to fight that? Who is going to lead** in that direction?

Well I hope lots of people, but I'm sure that among them will be the Humanists, because by their very name they celebrate humanity. They want humanity to survive, and they recognize that if they do survive, it will be by its own efforts. Never can we sit back and wait for miracles to save us. Miracles don't happen; sweat happens; effort happens; thought happens, and it's up to us to help have all that happen. Thank you very much. (applause)

QUESTIONS:

What about the conflicting economic interests needed to be put aside in order to put your plan into effect?
Asimov: Well, you know when the states set up the Constitution, there were conflicting economic interests there too, the interests of commercial New England were not at all those of the plantations of the south, and we had to continually compromise in the midst of hard words. In **1832**, the time of the Tariff of Abominations, **South Carolina threatened to secede from the Union** then, and Andy Jackson threatened to invade it and give them what for. So, you know, it was not a quiet and peaceful union, and it wouldn't be here either, but we hope that it'll stick, despite the hard words and the yells, and by judicious compromising, it's the only way you can do it short of war.

Will nuclear disarmament in the absence of a carrot remove the stick that's kept us at peace for 40 years?
IA: Well, I'm hoping that we'll have enough brains to reduce the nuclear weapon load, if only to avoid giving anyone the temptation of it, and I feel very good about this business about tridium. We have spent years and years and years worrying about the nuclear stations that are attempting to produce energy for peaceful uses and we haven't even thought that there were also nuclear plants which were manufacturing nuclear weapons. We didn't dare think about that because that was national security. Now we know that they're even more dangerous than the others, we're not going to replace them in a hurry, we're not going to replace them cheaply. It's going to take us years, and billions of dollars and we're always going to be worried about their safety, and I'm hoping that people are going to get tired of having to worry about nuclear weapons that are dangerous to everybody and the salvation of nobody and they'll give it up simply because it's too dangerous to have them around, not for the enemy, but for ourselves. But there you're fighting something difficult because there's always people who would have their revenge even though the heavens fall, there are people ((**christian** right wingers and Armageddonists)) who are willing to see all of humanity destroyed if only they can see the enemy go down the drain five minutes sooner. That's called **insanity** by the way.

How would you say that science fiction's ties with public policy has gotten very, very complicated, and it seems to me that science fiction has gotten more study than science and science policy has gotten fictionalized, and it seems to me that you're a major player in this and I'd like to hear what you think about it.
Asimov: Well, I tell you in the first place, we happen to have a president, for a few more days, who has never really been noted, if you don't mind my violating national security, who's never really been noted for his intelligence. He believes what he is told, if what he is told fits in with his rather primitive notions, and apparently there were some science fiction writers in California who wrote him letters about what we now call the 'Star Wars' defense, and they may have influenced him. Now I'm not saying entirely because (**Edward**) Teller also had a great deal of influence. Teller, boy, **he's the nearest thing to Dr. Strangelove** anyone ever invented. But in any case, the science fiction people may have contributed a little, it would not surprise me in the least. So that we have this 'Star Wars' thing, which has always been a flop, will always be a flop, will cost us God knows how many billions before anyone has the courage to stop it, and in that respect we can see that science fiction does damage. On the other hand, it was science fiction that inspired the early rocketeers, **all the early rocketeers first got interested** in rocketry as **a result of their reading of H.G. Wells.** Willy Ley said so, Wernher von Braun said so, Robert Hutchings Goddard said so, so that we might say one of the reasons we managed to land on the moon as soon as we did was because of science fiction. So, like everything else, there's good and evil.