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This volume includes.. Buckminister Fuller's speech.

LEGISLATIVE COUNCIL, STATE OF ALASKA

Conference on Alaska's Future Frontiers

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Reported by: Panela Kozycki, CSR

BANQUET PROCEEDINGS

(December 6, 1979, 8:30 a.m.)

SEN. HOHMAN: May I have your attention, please? One more time, okay. May I have your attention, please?

I'd like to welcome you. We have had, I think, a very good day to this point. And I anticipate that it's going to get more exciting from this point on. I think we saw some people suffer a bit of inconvenience when this turned out to be a more popular vicinity than we had anticipated, and I would like to apologize for that. But as I say, I think the quality of the evening from this point on will more than compensate you for that inconvenience.

This is a conference on the Future Frontiers of Alaska. And we have as the keynote speaker tonight the foremost futurist in the world today. I would like to acknowledge the presence of a friend of mine, an Alaskan futurist, and a man that has been a friend of mine, Senator Mike Gravel, sitting at the table to my right.

The two of us co-chaired this project, Representative Russ Meekins, Chairman of the House Finance Committee, and I. Russ would like to make a few comments at this time. Russ.

(Applause.)

REP. MEEKINS: The key is if you wait long enough, even if you don't deserve an applause, people will give it to you.

I want to thank Senator Hohman for introducing me. I am not sure if he introduced himself. He has a way of doing that a couple of times.

This conference has a way of working, itself. It is -- excuse me, very reasonable that Alaska, which has the most exciting future of any State in the Union and probably of any country in the world, has to speak to us today, the most exciting futurist in the world. And from what we have heard today and from the information we have gained over the last couple of months about our potential and things, one of the statements that seems to express that most clearly is that Alaska is confronted with insurmountable opportunities. And I think that that is a pretty good statement.

We know we can do really great things, and I think we are going to do those things and be an example for the rest of the world as to how to do things right. But I think we have to be careful, very careful, not to make some of the mistakes that are looming out there waiting for us.

So I am sure happy that you all showed up today and I think the response to this dinner was unanticipated

to be this great and also to the conference, itself, shows that the people in Alaska are very interested in their future, and I think with that kind of interest and an input to the legislature, we will probably be able to avoid those pitfalls. Thank you very much.

SEN. HOHMAN: Mr. Fuller's presence here tonight came as a result of a suggestion by one of my staff people, a person that came from the Kuskokwim River area, has spent a lot of time out there, Mr. Dick Maddox. And I thought it appropriate that, well, let me back up.

When we were figuring out how we were going to stage this tonight, who is going to introduce Mr. Fuller, I asked Dick Maddox if he would do that. And he has been admiring Mr. Fuller a long time and he has been preparing for just an assignment since he was 12 years old.

This is Mr. Dick Maddox now.

MR. MADDOX: Being asked to introduce Mr. Fuller is the ultimate in superfluousity -- is that the word for it? What do you say about Buckminister Fuller, poet, philosopher, buccaneer, futurist, and I am inordinantly honored.

When I was a graduate student at the University of Chicago, there was a standing joke that there was only one question on the comprehensive general exams for a doctorate, and that was, define the universe, give two

examples.

We have the man here who can do that. So I advise you all to adjust your seat belts and get ready for a flight, Bucky Fuller.

(applause, standing ovation)

MR. FULLER: It's quite an extraordinary experience to have humanity greet you in that way. I wish everyone of you could be up here for me, to feel it.

I am now 84 and I have been spending the last 52 years making an experiment with myself, which was to discover what, if anything, a little unknown pennyless human being might be able to do effectively on behalf of all humanity that would be impossible for great nation states to do or for great private enterprise to do, whether it's some kind of function different from the great orginizations.

And I discovered that three quarters of the earth is covered with water and of the one quarter that is dry land, more than one half of it is covered with snow, rock. So, only about one eighth of the surface of the earth is sufficient for support of life. And that one eighth is not in one piece, but a lot of little pieces divided up over a hundred nations. So one nation has a pretty small amount of territory over the total earth and having to look out for itself within that territory.

So it really precluded any one of the nation's from looking at the total planet earth. And I have been a United States Naval Officer and I have had commands, and I felt very committed, then, finally, what the little individual could do.

I said, there is nothing to stop me from thinking about the total planet earth. And I gave it the name Spaceship Earth, which began to stick. I said, look at the total known resources of our vast ship. The total accumulative knowhow and how we would use the total resources and total knowhow, if possible, to make this ship work for everybody.

So I have been really concerned for this more than half a century with total earth. So my view point has been developed along those lines, and I would like to be able to think that way. And I also had to think a great deal about how and why humans are here in the universe and how they happen to be on this particular little planet and try and understand how and why we have the capabilities we do have.

All other creatures, other than human beings have some built-in special organic equipment that fits it for some special environment, maybe a little vine that will just grow up in the Amazon. Maybe a special little dog with very short legs to keep his nose close to the ground

to follow his trail. The human beings didn't have that special equipment. We didn't have special wings built-in.

We had -- many creatures have brains, and brains are always and only coordinating the information of our senses. It's only by virtue of our brains coordinating that information that we know that we are alive and that we know what is about our environment. So the brain is always coordinating that information. It's always special. Brains deal in what I call systems. You are a system and I am a system and the earth is a system.

Systems are -- you really describe them geometrically. They divide all the universe outside the system, a little bit of the universe is inside the system and a little bit of the universe, which is a system that is divided. So you and I have a microcosm but you and I are not the microcosm, I want you to understand. Brains are always packaging things in a system. Looking at you, my brains begin to immediately say what is the color of your face, what it feels like. All the different things my senses can tell me about you that are different from you as another system.

So brains are always dealing in these special cases. And humans have in addition to that a phenomenonal mind and we often hear the word mind and brains used interchangably, but I differentiate very distinctly between

them. And incidentally, I was asked to speak about 15 years ago to the American College of Neurosurgeons in Chicago, 2,000 of them, and I differentiated between brains and man, made my whole talk that way. And they gave me an ation, and I said,"you don't have a chance to confront a special scientific body with a special definition like this, and this is your domain, when I am talking about brain and man and I have done this differentiating and you give me an ovation. Can I read that as an approval of my differentiation? " So, they stood up again. So I really feel quite confident when I differentiate between brain and man.

The human minds have this capability, from time to time, to discover relationships existing between special cases that are not a special case by themselves. The brains are always dealing with those special cases, but I find some relationship existing between you. That's what the mind goes out for, relationships between.

I'll give you an important example of it. human beings here for millions of years with the starry skies at night and recognizing various constellations which they call fixed stars for so long.

At which from time to time there would appear a little bit brighter light in the sky, sometimes one, sometimes two, sometimes three in a night. And they are a

little brighter, more coloring to them. And tonight they are in this constellation and the next night in another.

So you realize they are moving around, what today we call planets. But we realize there is something moving around behaving differently from the rest of all the phenomena in the sky.

We gave them names of God's and so forth. But not until man had the capability to calculate mathematically, which is very recently, did we ever try to do any multiplication and division with Roman Numerals, you find you won't get anywhere.

It was not until the Arabic Numerals came in, this most extraordinary of the Arabic Numerals we had a symbol for anything. The Roman numerals were just scratching and you had a servant standing by a gate and every time a lamb went through you would make a scratch.

So the scratches were what we call one to one correspondence. And they had supervisors and he would watch and count on his fingers and put a V there at the end of the 5th scratch. But you couldn't see no sheep, and you couldn't eat no sheep, so nobody thought of a need -- a symbol for nothing.

It is only because the Arabic Numerals came from an abacus, if you ever used an abacus, you know, you get an empty column. An abacus made it possible to move your

column leftward. Every time you got a decimal and it went hundreds of tens and hundreds of thousands and it moved leftward.

When you suddenly tried to make symbols for the content of a column and came to an empty column, you had to have a symbol for it. So that's where the Arabic Numerals came from, to decipher.

When I was young, and the little place I was born in, when I first went downtown, after I started school, the druggist and a few others said have you learned to do your ciphers yet?

Ciphering was a key to calculation. With it came the capability then to predicate with the calculating capability, as an example, you discovered when you calculated out that the sun was not going around us, but we were going around the sun.

That is just a very few years ago in the history of our being here millions of years, that's only less than half, less than half a million years ago.

Then with this calculating capability, we went on with, Kepler working with -- who discovered all these planets were different sizes, they were all different distances from the sun, they were all going around the sun at different rates and it seemed to be very disorderly.

Kepler was a great mathematician, so he said, I

know one thing they have in common, they all go around the sun, at least that. As a mathematician, if I can give them something else in common, I have two known in commons. I am going to amplify them much more. So he said, I am going to deliberately give them a very small increment in time. Each one has exactly the same amount of time.

He gave them -- as to my memory -- 21 days. He knew the distance each one was from the sun, the beginning of the 21 days, so he made a diagram of that.

Then they found the moving of the eliptical orbit, so the end of the 21 days, he made another line and he said, this is where the sun is now and he had a little eliptical chart between the two. So, I had a diagram for each one of these planets and he said, I done all this as a mathematician and I might as well calculate the areas because I have the distances, have all the dimensions here.

Supposing you were Kepler and calculating these areas and you discovered they were not similar, but they were exactly the same, exactly the same mathematical area? How would you really be in this superficial disorder to discover this elegant mathematical agreement? So he said they obviously are coordinating. If they were touching each other like gears, I could understand how they could coordinate. But, these were millions of miles apart. How could you coordinate these incredibly massive planets?

How could they coordinate it millions of miles apart? Human beings, like never before had had to think about that.

So this is an extraordinary relationship going on, but he said, I know if I have a weight that's on a string, swinging around my head, it's in orbit. And I know if I wanted to make an elipse, I'd have to have two strings, at least two tensions going on between these bodies operating millions of miles apart on the sun.

We have Galileo discovering free-falling bodies, accelerating the rate of falling. We found the regular rate of acceleration was in the second power of the mathematical distance traveled. Then we have Isaac Newton, terribly eager to discover what Kepler's incredible -- invisible tension going on. This, you realize, humans have never had to give up any kind of explanation for something pulling and operating over millions of miles and holding enormous bodies together invisibly, this is absolutely a new moment of human intellect. Isaac Newton finally discovered the interattractiveness between these bodies, celestial bodies was varying as a second power of the mathematical distance apart.

He called this the universe ratio. If you have the distance between the two, you increase the interattractiveness fourfold. If you double this as apart, decrease it one quarter what it was.

Astronomers began trying this out and sure enough explained all the celestial behavior and this became what you'd call a generalized principle of science.

But if you asked Mr. Newton what is that gravity you're talking about there, he said there is nothing you can point to, it's a relationship just in between, it's not in anything. I want you to understand that is very, very different from what the brains are always catching on in each special case. So humans, I have found, have this extraordinary capability with minds of discovering principles which can only be mathematically expressed, which quite clearly and as an intellectual capability discovering laws, which were called in science, a generalized law could have no exception. If they ever had, then there is no longer a generalized law. So the generalized laws all turned out to be eternal.

If there is no exception, it means there is inherently eternal, which is exactly opposite what the brains dealing with special cases, all of which was contrary. Brains have been asking man, humanity, how things begin and end is respective of what kind of asking is going on today. Whether we are talking about, the big bang or trying to get some explanation in the beginning, but minds is discovering these eternal relationships, something is very, very different.

We find then, these generalized principles can only be mathematically expressed for the entirely intellectual. We find -- we now know of a -- we have a little inventory of these generalized principles and we begin to realize then that this kind of relationship that I am speaking to you about, interrelationship, is what we call synergy, behaviors of whole systems unpredicted by the behavior and any of the passive system considered only separately. Okay, that's synergy.

So, I saw that the paths of the universe was operating synergetically and so it would be worth looking at -- thus far, and I discovered inventory of all the generalized principles. When humans discovered generalized principles, they didn't know they were going to. It comes as an incredible surprise to discover one, and you don't know whether it's going to be the last one or not.

But we do have this known inventory of generalized principles, which only the human mind apprehends and which can only be, let's say, this is completely intellectual. No other phenomenon we know has access to them.

So in looking at all the generalized principles, I found that none of them have ever been found to contradict any of the others. They are all concurrently operative eternally and are all intercooperative. They are

all interaugmentative. So this seems to be a very extraordinary synergetic behavior.

I want you to at any rate, understand human beings are born to our planet and human beings in the universe, how do we happen to be here? You realize, that human beings are the only phenomena and have been admitted to some of the great design laws of the universe itself and we must have some very important function to fulfill.

But also observe that we were always born naked, helpless, no equipment, no experience, except for absolute ignorance, though we have beautiful equipment. We were designed quite clearly in a very extraordinarily designed universe to have to learn -- we were also hungry, thirsty, curious. We were designed to be driven to learn only by trial and error. We have been here for a few millions of years and we had to make an awful lot of mistakes. And as of the present time where humanity seemed to be enormous problems, I am not worried about the problems, because I am always -- I really exalt when problems come out, they have been problems that have been hidden for a very long time, when we get them out in front, we may be able to solve them.

I am really glorified today we have never had so many problems to face as we have right now.

But that's what we are here to talk about. And I find in the first place, I have been here to Alaska three

times over the years, first in 1958. And there is something really going. I travel around the world a great deal. I don't have an agent. I don't have anybody promoting anything. I just only go where I am invited to go. And I only go if I can afford to go or they can afford to have me. But any way, I have now been around the world 45 times, so much so that I really do feel it, I am beginning to really feel it as this sphere. (indicating)

(Laughter)

This is an awful big sphere in relation to you and I, but I really feel it that way. And I really feel at home, very much at home, anywhere on it. Something is going on here because of my sensitivity to the total world. I feel that something incredible is going on here in Alaska right now. What makes me very happy here is that I find there seems to be a wisdom, there seems to be a sensitivity; there seems to be a courage. There seems to be a disdain for anything untrue or false. There is something very important going on here. There is an atmosphere in the relation that's a very serious human being. I say most promising, we are going to be joining, very rapidly, in the whole world.

We have an incredible crisis in the world due to the fact that evolution, itself, is doing some very, very big things. Evolution, which had humanity deployed very

remotely from one another, unaware of one another, is integrating all of humanity, integrating all the different credos, all the different skin colors, everything is being integrated.

At the same time, evolution is intent on making all humans a success. A really powerful physical success. Humanity in its ignorance and its fear, conditioned reflexes, is very much of a problem to evolution, I am sure. I want you to think about the following.

As far as I can see, humans were designed to have a very important function with that in mind, that you and I, through understanding principles, have been able to develop all kinds of instruments. In my lifetime, we've gone from a -- when I was born, reality was everything you could see, smell, touch and hear. The year I was born, x-rays were discovered. Marconi discovered theoretical wireless, electron was discovered when I was three years of age. You couldn't see those things, so they didn't make any newspaper. Nobody would have thought the electron would be anything.

Then we began to get into alloys, where you can't see what's going on in an alloy. Here is a piece of metal, let's say steel. Mild steel is only 50,000 pounds to it's tinsel strength. Building the Brooklyn Bridge, Robling used what he called piano steel wire, higher carbon, had 70

thousand tinsels, weighing the same, but it had to do 20,000 more, almost half as much again.

World War 1, we developed chromalindum steel where it went to 110,000 tinsel, double the amount of steel.

World War 2, we got into chrome nickel steel, 350,000, that's seven times the strength of that amount of steel as 1851. Weighed exactly the same, nobody could look and tell any difference.

So this great difference going on, there's an enormous change going on in our lives with a capability to do much more, but humanity is not able to see it. Now, you can't tune in with your senses. Therefore, there is what I call an invisible revolution beginning to come along in my lifetime, with electronics, chemistry and metallurgies. Out of that I began to realize some very important things are coming in the way of promise to humanity, because humanity has had a working assumption of the fundamental inadequacy of life support on our planet.

That was just an opinion up to 1800. 1800, when the British -- the battle of Trephalga, 1805, the British Empire was established and lasted for 113 years. The British Empire was first who said, "where the sun never set," because it was the first Empire that was on a sphere against all the Empires before Genghis Khan, Roman Emperor were flattening Empires going to infinity around the edge.

It went to infinity.

A man named Thomas Malthus, who was the professor of economics in the East India Company College, where all of the grand strategy was developed for the exploitation of the British Empire. Thomas Malthus was the first individual in history that received complete inventory of the vital statistics from around the whole world.

All the servants of the East India Company College were all around the world and they had the data. Here is a human being with the data about everything that counts. But the birth rates and death rates and all the different data. Thomas Malthus then said in 1810, he wrote his second book, that quite clearly the data showed that humanity was multiplying it's numbers at a geometrical rate and increasing it's life support as a mathematical rate, quite clearly that the majority of humans were designed to be a failure; that after a struggle and great pain through all the years, he said, "in infinity, you have infinite chances to pray". But he said, "Pray all you want now, this is all the rest. This is a closed system." This is a sphere.

This is the first scientific statement you could ever really make about our planet. There were very few people who were literate at that time. Very knew people knew about it. Very few people who knew about what he was

saying. There were people controlling the great a lines of the supply of the oceans.

Fifty years later, Darwin promoted his theory of evolution, explaining it as consequences of survival, only the fittest of the species and the individuals within the species. He said it did not mean any economic inference with the economy so that it couldn't be more obviously economic also.

We had Karl Marx saying then, quite clearly, I accept Malthus scientific statements that it is a closed system. I accept Marx and I accept Darwin as a scientist. He said quite early to him the worker was the fittest to survive, because he knew how to handle the tools and the seas. He said these other people were parasites. Other people, he said, according to Darwin, we are on top of the heap because we are the fittest to survive and the workers are very dull and they are not interested in great big enterprises and fighting and so forth.

So this brought about two camps, we call them, capitalism and socialism him. And since that time, we have two basic camps, which out of those two, we are talking about just over a century ago, and since that time, Eastern great ideologists says, in view of Malthus, there is not enough to go around. You personally might not like our system. We are convinced we have the fairest and most

logical and ingenius way with coping with lethal inadequacy of life support on our planet. But because there are those who disagree diametrically on how to cope, it can only be resolved by trial of arms, which system is fittest to survive.

This is why Russia and the United States, for the last 30 years, have been expending $200 billion jointly for a total of 6 trillion, 400 billion to buy the highest scientific capabilities on how to destroy the most people greatest distance in the shortest time. All on the basis that there is not enough to go around.

There is no use in spending our capital on you because most human beings are going to fail anyway. Humanity is a failure, and so, we don't spend it that way. We say look out for our total State, which is the most we can do.

Well, I became fascinated in time of my youth, and I was let -- going in the regular United States Navy, when I became an officer, to realize that this invisible revolution is going on of doing more with less. Up until this time, you will see many, many pictures of the sailing ships, fighting ships, and they say, 150 tons, everything was in terms of tonnage. I realize that in World War I, there was invisible things going on. We knew the enemy ships that is the same size as ours, same number of guns.

same caliber. But what he doesn't know is we have a new alloy in our which makes it -- we can fire our guns one thousand yards further than he can. So if you fire when he gets within your critical thousand yards greater, he goes to the bottom and he can't reach you, so that's the end.

I saw at the end of World War I, what we called the most highly classified information, the ability to do more with the same and more with less, that other man couldn't see. It is still the most highly classified information and it's easy to keep it classified because people can't see.

Going on today, everything is going to effect all of your futures, 99.9999 percent of everything is going to effect all your futures, is being conducted in the realms of reality, non-directly contactable by the human senses, only contacted through instruments and it's all being done so dividedly and you can't see it anyway, that you don't have a tendency to integrate this information and rely on the significance of it.

Anyway, back in 1917, in the Navy, I began to realize that there was a possibility that doing more with the same and more with less, we might some day do so much with so little, we might be able to take care of everybody. In other words, it could be that Malthus was not absolute scientific fact. I became fascinated with that and in 1927

I came out of the Navy -- rather, in 1922, I went to the development of experimental and environment control.

I saw that the military always had the high priority on everything that is high performance. There is only so much helium; there is only so much mercury and obviously, and with the credit of good nations, it turned over the defense. The head of the government--number 1, the oath you take, that should take precedence to protect our osvereignty and against invaders. So, he turns this responsibility over to his defense. And the defense wants to know, what are the scientific facts, what are the scientists on the other side going to be doing. So he gets up a theoretical defense to know what the other man is going to do. And they realize that these are very scarce chemical elements, has special ability. So obviously, military has high priority to those capabilities, have high priority to the best brains, to the best tools.

If you have high priorities, then you have antipriorities, and the antipriorities has always been the home front, because they said the poor devils can't all survive, so let them make out the best they can with the left overs of low performance.

To make that very clear to you, in designing -- you all know about Boeing 747's, you all know about the steamship not being used any more. The Queen Elizabeth was

the first, with 85 thousand tons, the Queen Mary with 85 thousand tons, and we had a steamship, United States, with 45,000 tons that had so much aluminum that she out-performed the Queen Mary.

They suddenly became absolutely completely obsolete. We know with a Boeing 747, fully loaded 300 tons, know what it's rate of climb is, how many passengers, what it's crew, complete performance, all the ratios to how many pounds of material, how many ergs of energy and how many seconds of time go into all the investment in producing that.

Does anybody know in this room what this building weighs? Do you know what any building weighs anywhere? How do you know what your building weighs if you don't have any ratio of performance. The building weld is completely thousands of years behind the art of building environmentally controll for the sea or the sky.

In 1927 -- they have what we call the American Institute of Architects has a journal they published, a single family dwelling in 1927, which is considered very up to the minute, up to the minute before World War 1, we had to have ice boxes. We had to have, your shovel, you shovel your coal in your furnace. This single family dwelling in 1927 had an oil burning furnace and had an electric ice box. I took the total cubage of this ideal house, the total

floor area, number of windows, how much light, everything I listed in the way of equipment to do things.

And then I took the most advanced aircraft designing, using vast aluminum coming in and designed them the same control, same floor area, same cubage, and same amount of light.

I had a match in every way, the single family dwelling of the American Institute of Architects, including it's pipes out to the mains, which were part of the house, weighed 150 tons. When I used the most advanced aircraft design, it came out three tons. This was 1927.

So this convinced me that if we were to immediately apply the most advanced science and technology production to the home front, instead of letting this all go to the military, on the working assumption it had to be you or me, maybe we might produce so much that we might be able to some day take care of everybody.

So in 1927, 52 years ago, I started this experimental work on developing an environmental control for humanity. I would like to really get it quite rapidly in matters of just a structure.

Nature always has push and pull, things are trying to come apart and holding it together. And we come out of it the stone age, and we saw-- deeply impressing that you put a stone on top of a stone and gravity holds it

there. You don't know the word gravity, but it stays there. So you use a stone on stone, and all of our engineering today is what you call compressional continuity with tension coming, recently in the way of steel, so you have tension help compressional continuity.

I saw--the universe ought do things that way. The moon doesn't touch the earth. The atoms don't touch one another. We have the islands of compression with the moon and the earth and the sun, all cohered by that extraordinary thing that Kepler discovered, gravity.

So I saw that nature had what is called continuous tension, discontinuous compression. And human beings are built in exactly the opposite way, compression. Compression has very great limits. When I say compression column, compression column, that's what we call slenderness ratio, the diameter through the length. In Greek columns you only go 18 diameters high before it bananas. But the tension is always straightening out. This exactly is no limit of cross section to length in tension, because in nature it's using tensional integrity and the islands of compression she has no limits to size. That's how she could be holding these planets together millions and millions of miles apart. The sun could be holding you and I, our little planet, 92 million miles away.

So I said could human beings design that kind of

structure? That kind of structure might do very much more than we have been doing before.

And we find that man developed the wire wheel. The wire wheel, it had an astronomical compression in the rim and you had an island of compression in the hub, and the whole thing took the shape in tension, tension of the spoke. Then, he found he could do it spherecally. I have here what we call a tensional integrity. This tensional integrity is--there are little struts. Those struts don't touch each other, the whole thing is held together with dacron thread. This dacron thread, each one represents a brick. All the bricks are trying to get out of the system and they are all being held in by the tension.

In other words, this is what we call tensional integrity. Exactly the same design the universe is designed. This is really a model of what Einstein was looking for in what he called his generalized field. He wanted to explain the integrity of the gravity, both the tension and the compression, the radiation, and the gravity in the tension. This is a model of the generalized field theory. It does a very great deal of very little. I am going to just drop it. It just bounces like a pneumatic ball. and distributes all it's loads absolutely evenly, just the way an automobile tire does.

I broke one of the dacron threads just then. I

broke one of those threads, but then the system didn't go to pieces at all. You have to understand that.

Now, with this kind of structuring, we can do an incredible amounts more. We have systems of geometry called the tetrahedron only trying to hold its shape. This is a cube. And this is the kind of the way man has been building. At least the Indians knew how to do it. He made a tepee and used triangles. It is the only kind that holds its shape. This is the minimum structural system of the tetrahedron.

We have three triangles around each corner, octahedron four icosahedron has five. This has 30 structural members. This has 12, and this has six. This is only below six. If the volume of the tetrahedron is one, the same length edge, the octahedron is four, and the icosahedron is approximately 20. We get--using the tetrahedron-- we get one unit of volume for one--what we call one unit of structure, six members. You get four units here for two, and I get 20 units here for five, so I am getting four times as much volume for the structural investment.

This gives me the most you can get. You can't have six sides around each corner. It would add up to 360 degrees, it would be a plane going to infinity. This would not be the system I gave you earlier. So this is the limit

case and that, then, is what I use as a base for the tensegrity, so I have tensegrity icosahedron and I was sure I was getting the most volume for the least surface in the most effective structural manner.

So this is what I built the geodesic structures out of. There are now over 300,000 of them around the world. There are a great many of them up here in Alaska, as you know, the raydomes, but there is one over our exact South Pole and without mention of that terrible crash the other day. They didn't mention it as literally over the exact South Pole where the Poles inside are domed. We have a very large dome that goes over the lake a mile deep frozen at the South Pole. And the scientists around the world realize that there are borings there which will tell a great deal about biological life on that continent long ago.

But, you couldn't bore out where the wind is blowing 180 miles an hour and have a great big environment control and you move and built secondary little buildings around under it and move them around as you change your boring.

Anyway that has been with stainless steel and lumber. In my knowledge of structural logistics is really very, very great today. During the 52 years that I speak about, I have kept track of all the increased tinsel capability in the metals, all the increased tinsel

capabilities in the chemistry, transfers or transparency or whatever, all behavioral characteristics of all the new materials metallurgically, electronically and chemically. And those curves gave me the ability to make predictions. I've got to be what is called a futurist, because I was really able to say at such and such a year, that curve is increasing that rate. We will be able to do such and such.

Anyway, ten years ago, keeping track of all the invisable ways of doing them all with less, continually reducing them into practice and putting them into structures, I was able to to say engineering-wise, it was highly feasible within the ten-year design revolution to have all humanity living in the highest standard anybody had ever known on a completely enduring basis because during that period, we could face out for ever all further use of fossil fuels and atomic /TPH*C /*EPLT /* /TPH*RLG. We could live even /TAO*EURL on your energy income. /-FRBG knows you should live on your income, not on your savings account. You should not live on your capital account as you should not burn up your house when it's a cold night. To him rope is going to be a cold night /TAORBCS, there won't being any house there. So a to him being manufacturing is /* energy is burning up the house and the fossil fuel, we are using up nape tours savings account. I was able to make a statement ten years ago, that between

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You should not live on your capital account as you should not burn up your house when it's a cold night. Because tomorrow is going to be a cold night too and there won't being any house there. So atomic energy is burning up the house, and the fossil fuel, we are using up nature's savings account.

I was able to make a statement ten years ago,

that we now know engineering rise, incontravertably, that we now can have all humanity a physical success and then therefore, I knew Malthus was wrong. Malthus was not correct, there was now, fossil fuel for everybody. And that was all hidden in this invisible capability, very hard for me to get society to see it, because it was invisible.

There were a great many capable people began to check up on me and found I was correct. So for the last -- that was ten years ago -- and each year we increase our capability to do it, so today it's much, much easier to take care of everybody. But it does mean a design revolution. What it means, sir, is not really a political decision, except as a politician who really understands that we do have the means to make it, but it's a technological revolution we're talking about.

Not the revolutions of yesterday, military, political revolution, where you pull the top down. This way you pull everybody from the bottom as high as anybody has ever been. Any way, I now suppose there maybe about a million people who know what I said and they know it's probably correct. But there are four billion human beings on the planet. So we do now have the option to make it. And that's not to be optimistic. To be optimistic, I really have to be sure the man has really gone -- the condition reflexes -- all this invisibility is against it.

At least now we know it is possible for all humans to be successful. And I know therefore that war is obsolete. I know you don't have to rationalize sufferages ever again. Why is -- your family should deserve what that family can't have. Then you wouldn't have to deprive the other family, sir, your family can have. You don't have to rationalize it again. So it would be quite wonderful if humanity were operating on that basis.

And this -- incidentally, my feeling about here, Alaska and all the human beings I meet here, is that this is a world that is looking for what I was talking about, would like to find this fuel.

Having found what I said to be true, I then discovered that all great nations, which are all political systems, which carry on, all great religions, and most of big business, would find it absolutely devastating to the activity to have humanity all a success. They are all predicated on man being primarily failures.

And I found that very tax hungry governments, and very profit hungry corporations, couldn't find any way of putting a meter between you and the sun and the wind, so they weren't really very interested in that. In other words, they were not interested just really by basic drive in their survival in helping you live on the energy income. I saw all this and determined it would take a whole lot of

knowledge on the part of humanity. This is why I have the kind of responsibility I have, when I do meet with human beings to be sure that I communicate to you, that you really do have, and I hope you really understand, that it's absolutely realistic that we do have a chance for a new chapter of humans on our planet, a new chapter of humans in the universe.

Having assumed then, that humans have this beautiful mind to understand principles, I want to go a little bit more about that principle business. We find that the humans learning like Bernelli, learning the pressure differential in gases, mathematical laws of it, who is able to do the mathematical explanations of the Wright Brothers wing foil. And by virtue of understanding the principles of lift, humans beings have been able to build wings, where we way out fly the birds.

We have been able to dive keeper and faster. We have been able to out perform all other creatures and building equipment just by understanding principles. But I can -- you can have my wings now. And we can melt them up and make better wings for both of us.

Any way, we deal in principles and not in the built-in special equipment, you understand.

What we have then, is this very extraordinary capability to be in on the design of the universe, and said,

what do we know about universe in a very big way? The biggest thing I can say about it is that we have learned that the universe is really eternally regenerative.

I'd like, very quickly, to give this to you, because I think there is no way to me to communicate this, unless I get you to feel personally some of the things that we really have discovered in science.

Einstein's excitation by the facts that humans have measured the speed of radiation of all types, in vacuum on our planet. We know what we are talking about. We said that radiation completely unfettered in a vacuum, this is limited speed, so that became a norm to him. Iaasic Newton had been dealing in what he called a norm of at rest. It was normal at rest and that motion was abnormal. And Einstein said, no, motion is normal and any lesser speed is simply interference of the radiation with itself, tying itself into knots.

So the amount of energy in any matter is simply how tightly you mounted up that energy. Now, to Einstein, then the speed of light made a very, great deal of difference. He didn't use the example I am going to give you, but if you look at the pole side, as you do a great deal -- my memory here, it may be faulty, but as I remember it, is a light show taking place 460 years ago. The light just got to us. It takes 460 years for a light to get that

distance. You go to the bright star and the end of the handle of the dipper, is 100 years ago.

You look at Orion's Belt, and there are two very bright stars, one is 1500 years ago the other is 1100 years ago. You look at Andromeda and you see a light show taking place a million years ago.

So Einstein said the universe is an aggregate of nonsimultaneous events. It is very, very important that we know, Iaasac Newton had instant universe. Everything was going on exactly the same time, time was something created on for the the universe.

Einstein said this we know now, The universe is aggregated in nonsimultaneous events. Each one of them is a great energy event. And each one ofthose energy events lasts a certain amounts of duration. So these different enduring episodes overlap one another. I said to myself, what Einstein has established -- what you and I would call scenario.

Where you have, a man comes into a scenario and then he overlaps somebody else and his children, so we have these overlapping episodes. There is nothing in scenario in the one single picture of a Caterpillar to tell you it's going to become a butterfly. And if you have just one picture of a butterfly -- then you have to have a whole lot of pictures of it before you realize it's flying. If you

ever find out how it flys, it may take you millions of frames. To get any real information out of scenario, you must have to have quite a lot of overlapping episodes.

This is a very different kind of a universe, where you must understand, from Iaasac Newton's instant universe. You and I tend to think of the instant universe. You tend to say, I wonder what is outside outside. Rather you want a single frame as a picture, what's outside of that single frame. It makes no sense whatsoever in what we know about the universe. So would I like to talk and always think in terms of Einstein's scenario universe, which he said consisted of finite packages of photons of light and therefore is a aggregate of finites. But you and I would never see the whole, the fact we couldn't see the whole, doesn't mean that it wasn't finite.

Now, we go then to, what we call quantomechanics, where we discover there is just so much energy and we have multiplication only by -- you have division only by multiplication. So we have no more energy in the universe, but yet they're doing more different kinds of things in this scenario universe, more episodes come in. We have transformation going on every where. We have a man named -- scientist named Boltsman and he said, all the stars that you and I see are visible because they are giving off radiation, what we call antrobically, giving off of the

increaseingly disorderly way. Boltsman said they could not be giving off all that energy, if energy had not been imported sometime to that locale.

Boltsman pointed out that where energy was being imported, it wouldn't give off anything, we couldn't see it. It turns out that our own little planet earth is one of those places where we now know energy is being imported in an orderly way, just the opposite of entropy. All the vegetation by photosynthesis, taking random radiation received and converting it into the most beautiful orderly structures. Many of the orderly species then consume that and produce more of these molecular structures.

The only thing we can call it -- the hydrocarbons, or fossil fuels, is consequence of this impoundment of this sun radiation and what we call syntropically and counterdestinction entropically on our planet. We're one of the entropic centers of the universe. The only one we happen to be close enough to, to be able to get any reading, you wouldn't get any reading by radar of any other object until you actually import the energy.

So we now know that all the energies do get conserved that way. We find the universe is totally, sum totally, what we call eternally regenerative. No energy gets created, no energy gets loss. And when you get to a regenerative system on our own planet, the regenerative

system is then the ecology. All of these things supported in some radiation impoundment. And all of it -- everything goes on board of our planet is in support of the integrity of an eternally regenerative universe itself.

When I was 28, Hubble discovered another galaxy, we didn't know there was going to be another galaxy -- 28 is fairly advanced. Now we have discovered over 2 billion galaxies, averaging over a hundred billion stars each. There are expansion of our universe knowledging on this incredible, all by virtue of instruments which we were able to design by virtue of discovering principle with our beautiful minds.

You understand that objects, or whatever they may be, are all principles. So our information gathering gained very greatly. I would like to confront myself with this information. Our planet earth, 8,000 miles in diameter. Our highest mountain, approximately five miles above sea level. Deepest ocean 5 miles deep, so there's about a ten mile differential between innermost and outermost points on the surface of our earth. Ten miles in relation to 8,000, one eight hundredths.

So, for instance, I have it, six inch -- rather six foot diameter sphere, steel sphere, here as representing my earth. If it were highly polished, it would still be rougher, probably, than our earth really is.

If you breathe on this six foot steel ball, there is a condensation in our breathe that is deeper than our oceans. Get a little census scale and you and I and all biologicals are more than 50 percent water. This is the only water we know about in the universe. So we have been so tiny, we made a great mistake by thinking there's a whole lot of water. We are very, very little.

Now, I get to the size of our earth in relation to the sun is one, one hundredths in diameter. There is days when the white sun, you look at it with a cloud in front of it, you take coins out of your pocket in a hurry and put them out at arms length to try to cover the sun. You will find that a five cent piece will cover the sun at arms length. You will find that your human eye, looking on an engineering scale, we get gown to about a hundredth of an inch, we can make just a little difference, beyond that, we can't see it.

The size of our earth, as seen against the size of the sun, is less than one hundredth. So that you and I would not be able to -- when you and I can see the sun, the size of our earth shadowed against it, we wouldn't see it, too small. So to get a little idea, you and I are really invisible on our ball, earth. Five feet average height, so on, 5 thousand feet to a mile, so about, there would be a thousand of us to a mile -- between the outer mountain and

the deepest ocean, it would take 10,000 standing on one another's heads.

And we find that that's invisible on our planet. So you and I are 10,000 invisible and our earth against the sun is invisible. And that sun is a very small star, it is in Orion's belt, it's diameter is greater than the orbit of the earth around the sun. That's a good-sized star. So we are on a very in inferior star. We are invisible on our own planet, our planet is invisible against the sun. And the sun is one of a 100 billion stars in our galaxy. And we now know two billion such galaxies. Quite clearly, that kind of universe is not interested in the Republicans or the Democrats at an election.

I think most of the things we see in our planet, don't make much sense of what is going on, really, in the universe. So, now, I would like to, if you get to thinking on that kind of scale and realize that humans have the capability, then, to make instruments, to photograph, we discovered each of the chemical elements, incandesant and art flame, gives off frequencies which can be seen by the camera, the photographic emulsion, but you and I can't see it. We can only see the red, orange, yellow, green, blue and violet.

Humans have been able, then with our telescopes and photograhy, to take photographs in relation of those

two billion galaxies. We have been able to photograph eleven and a half billion light years away, around us in all directions, have been able to take all the light coming from all those galaxies, running through the spectroscope. And on both of our planets, as tiny as we are, we have the inventory of the relative abundance of all the chemical elements present within the eleven and a half billion light years around us.

Our human mind can do some very big things, and our muscle is nothing. Quite clearly, we are here for our minds, which is an extraordinary phenomenon, and at the present time, the muscle and cunning in the control of human affairs. So if we are here for this mind, we are not making good with what we are designed to be here for.

I pointed out then -- one of the great designs, say the Boeing 747 -- I'll give you three designs. Designing a single family dwelling, I saw the conventional way that you read any architectural magazine, you will need more than 500 drawings to take care of every type of screw, nail and doorknob in the house. And your dimensions don't need to be any smaller than a thirty second of an inch.

Designing an automobile, you have to have 5,000 types of drawings instead of 500 because there is so many moving parts, you have to hold it down to ten thousandths of an inch. Designing a Boeing 747 you have to have 47

thousand types of drawings and many of the dimensions are held down to a millionths of an inch. In order to be able to have that extraordinary thing going through the sky, it has to be able to go 650 miles an hour, it has to qualify on it's testing. 650 miles an hour is 10 times 65. 65 is the speed of a huricane. Resistance in the air increases as the second power of the velocity.

The resistance of the Boeing 747 in the air at 650 miles an hour, is a hundred times the velocity of a huricane. Can you imagine -- and it's designed to operate and hold together so beautifully. The amount of engineering that goes into one rivit in the Boeing 747 is greater than the amount of engineering that goes into one whole automobile.

So, I want to then, get at designing an eternally regenerative universe, with all the 92 camera, everything continually transforming at all times, makes designing Boeing 747 look as easy as designing spaghetti. And I say, then, on the Boeing 747 have brought forward a great many instruments. Those instruments tell you about all the critical conditions in your power plant and in your air frame. Everything critical is on there and they're matching things you can do, move the next dial here, and you are matching the air approaching a red line, you match it and take care of that.

I say human beings are here then, as local information gatherers in the universe. With our beautiful minds having the capability to make the instruments to acquire the information, and what is common to all lives and all history is problems, problems, problems. We are here for problem solving, if you are any good at problem solving, you don't come to utopia, you've got less problems to solve. We are here for local information gathering and local problem solving, in relation to maintaining the integrity of an eternally regenerative universe. And all of the ecology here to keep you and I alive. We are going to need a lot of energy to do those things coming through the ecology.

But nature has designed it so that we do have a minds record. We can prime the pump, we can prime the pump with our savings account, which we have been doing. I can tolerate a little more in my thinking. A little more use with the fossil fuel, but as quickly as possible we are supposed to be getting where we get on with our energy income.

We lack complete integrity, if we don't exercise integrity, I am quite certain the nature is going to wash us out. Nature has incredible number of essential functions just in order to have human beings have the function I am giving you, and you and I need an awful

amount of energy, all this coming to us from the sun. You and I can't take a sun bath and live on it.

So the vegetation has a function of impounding the sun radiation for us. And it has to be routed in order to do it so it can have an enormous amount of leafing and not be knocked down, be able to get water out of the ground to give it it's structural strength. Get water in the sky again to rain back to us. Because the vegetation has to do that routing, it can't reach the other vegetation to appropriate.

So the whole, again would break down, and it -- butterflies and everything is moving the traffic back and forth between the vegetation and inadvertantly in the pollination. Nature doesn't say to the honey bee, I want you to be good and go out and cross-pollinate our vegetation. Nature says to the honey bee, gives it chromosomal instructions to go out for honey and inadvertantly knock off all the pollen. I find humanity then, inadvertantly doing the right thing for the wrong reason.

I see no reason at all why we haven't got to a point in history where we can do the right thing for the right reason. I think that's exactly what is going on. It's very much the temper of this meeting. I know quite a lot of you here, and everyone that I do know, a lot have

come up and introduced themselves to me. It gives me a feeling there is really a seeking here in Alaska right now -- how do you really make this thing work, what is going on.

I would like to show quickly, some slides. Can you raise that, Jonathon? Can we have the lights off around me for a minute? We have to cut off these lights for a second. It's terribly, terribly important for people to be able to see these pictures. Can you just keep carrying on the sound, right?

Here is something, I am sure everybody says they recognize this picture. And I am sorry if you do, because you call it the world map. And I want you to notice, then, for instance, Alaska is bigger than Australia. And Greenland is bigger than South America. And North America is much bigger than Africa, all of which is completely untrue. And there is no Antarctic on there at all, and this part of Russia seems to be 25,000 miles from that part of Russia which is also not correct.

I said if I'm going to be able to think in any way usefully about my total planet, I need to have a very good map. I must have no visible distortion of the relative shape and size of any of the parts. May I have the next picture.

This is what we call the water ocean world, and on it the continents that you see are all exactly the right

shape and size with respect to one another. This is what we call the water ocean world. 90 percent of humanity lives north of the equator. The ten percent that live south of the equator, live fairly close to the equator. There are white dots on this map. Each one is one percent of humanity. You won't see any white dots in this great southeren hemisphere going around the Antarctic.

This is the British Empire, where they controlled the sea lanes. They found -- went down into the Pacific towards the Antarctic. It took you right in the Atlantic. Into the southern Atlantic and it came right into the Indian Ocean. And from the southeren Indian Ocean right into the Pacific again. So what the British did, was control the tips of the -- here -- they control South Africa, the southern tip of South America, and so forth. All the people out here didn't know how they control the world. This is how they control it.

In 1961, three airplanes out performed the Queen Mary, Queen Elizabeth and the Steamship United States, in taking passengers across the Atlantic. Just overnight, airplanes became -- the ships of the sea became obsolete, where human beings get from here to there around our world. The next picture please.

We went into the air ocean world, and here it is, sharpen it up as best you can. Here now, and for the first

time in your life, you are seeing the whole world at once, without any visible distortion of the relative shape or size of any of the parts, without any break in the continental contours, you see one world island in one world ocean. And this is the north/south world. And right in the heart of that north/south world, is Alaska. We learned how to generate electricity not so very long ago, as you remember. We have been celebrating Edison. And there was a limit to how far you could deliver electrical energy. 350 miles was a practical limit, you could deliver it much further, but the further you delivered, the higher the voltage you had to have. We got to limits of insulating capability.

So since World War 1, up to 20 years ago, 350 miles was the limit of deliverability. But outer space program, very much advanced technology. We got to what we call ultra high voltage delivery, and their super conductivity and so forth. It became practical to deliver 1500 miles. 1500 miles took you across the time zone so the peaks and valleys of different generators could be matched very beautifully.

At any rate, I had my world map, and I was fascinated to realize that we could take energy then from the United States grid and reach Alaska all right. I found the Russians were putting in hydroelectric, electrical

generating, in all the northerly flowing rivers up here. I found that 1500 mile reach -- you could reach from Alaska to the Russian network. You would be able to integrate night and day.

All of our generators -- we have 50 percent standby, we are not using peaks and valleys if you integrate night and day, you'd be able to get, really, double your generating capacity overnight.

When Mr. Trudeau was about to go to Russia on his very first trip, I gave him my -- I gave him then a world electrical energy grid. He took it to Breshnev and Breshnev turned it over to his experts and they came back feasible, desireable. If we began -- here, I can see Alaska. And right in the center here, we -- beginning to get an energy grid. We have enormous kinds of nonsense going on in our coinage around the world, where human beings have different ways of carrying on.

We have all kinds of banking tricks of the balance of trade and so forth. If we got down to the same energy network, everybody would -- the universe itself is operating on an energy time basis. It's entirely an energy time basis, that's all that chemistry and physics are about. We got on a unit electrical energy grid, we would overnight have everybody on the same currency. I don't mean it as a joke, but there is the same electric currency. And we

would be able to calculate things in terms of energy.

So I want you to really feel there is something going on here in Alaska, at a point where a great connection is going to be made, of bringing all of humanity together. We find, just in our talking about energy, just for a minute, I will give you the fact that we could live on our energy income. But also, I want you to realize that you can have the lights on -- I have one more chart and I will, I will finish talking about this energy, just for a minute.

The way we use our energy is extraordinarily inefficient. And out of all the energy we have been consuming in America and around the world today, out of every hundred units of energy we consumed, 95 percent of them are completely wasted. We are only operating on what we call an over all five percent engineering efficiency. We have an idea in the United States itself, 24 hours a day, we have over 2 million cars standing in front of red lights with engines going. So we have 2 million horses jumping up and down, going nowhere.

I just want to give you some of the ways to understand that we are only operating at an over all five percent efficiency. All our automobiles are using reciprocating engines. Not because the people design it, because the people don't design it. It is done by

corporations wanting making some money.

The reciprocating engine is only 15 percent efficient. That's all they can ever give you out of all the energy they consume. Turbins are 30 percent efficient. And jet engines are 60 percent efficient. But the space program -- we are using fuel cells, which are 80 percent efficient. We could have been having our turbins, but the automobile companies found that retailing would cost them so much money, that they decided, we are going to distribute that money as dividends instead of buying some knew tooling.

We had the turbins really well worked out, but the energy wasted on automobiles today is 50 percent greater than it would be if the automobile company made that decision. But people don't make those decisions. Then they realize these kinds of binds that we are in. So it's not at all just a matter of finding more energy sources, it's a matter of using the energy we are using much more efficiently. I want to you understand that particular factor. I want to go over to the next picture quickly.

You won't be able to read this picture, but I -- if I'm going to deal in thinking about total humanity and total planet and functions of humans in the universe and so forth, I want to have some way of plotting, if I could, the

rate of increase of science against time. Within science, we have pure science, within pure science, we have isolating of the 90 of the chemical elements. Isolating the chemical elements is a very regular matter. You could keep score of it. Because you have one electron, one proton, two electron, two protrons. Exact membership numbers got into the club.

When history opens, which we don't know -- way, way back when history opens, you and I don't have any knowledge, humanity had already discovered and separated carbon, lead, tin, mercury, silver, copper, sulphur, gold and iron. On this chart, every time humanity isolates a chemical element, we go up one step. Because we had nine -- opening history, we are nine steps high.

This chart begins in 1200 A D and goes to 2,000 A D, 800 years long. In 1200 A D, we isolated arsenic. There was a 200 year lag and we isolated antimony. Another 200 year lag and phosphorus. Then a 75 year lag and it starts climbing very rapidly. There are acceleratings and there are slow downs. The accelerations are always peace time, the slow downs are always war time. We get finally on this chart to where, at this point here, is a remenints of a flattening off. That was year, 1932, the depth of the depression, within that year, that was the first time we had isolated on the shelf all the chemical

elements -- all the 92 regenerative chemical elements. We already now have taken the physical universe apart and it's fundementals, and we are now ready to reassociate in preferred ways.

So this is really a great picture of the invisible revolution going on. From there on we get into the what we call the post uraniums. Against this background it says, what does humanity do with our scientific discovery. Always born naked, helpless, ignorant. Obviously couldn't be -- if it was naked. As it began to learn something, the animal found things it could put on, that it could go where it couldn't go before. As we made discoveries, we were able then to seek out larger environments. We had more of the universe to deal with.

So I said, with this basic scientific capability, I want to give human beings a challenge to develop an environmental control that they can get into, and from inside that environmental control, control energies operating outside the environmental control, to take them in one complete circuit of our earth. You find that this point here, Magellan going around the world in a wooden sailing ship. Able to go around the horn, able to withstand all the extraordinary conditions, but from within that environment control where humanity is living, he was able to control the winds outside to take him in a complete

circuit of the earth.

350 years later, he goes around in a steel steamship. Nobody could, at this time, with a wooden sail ship, could dream of a steel steamship. There was no one who knew how to make steel. They didn't know-- have steam engines or any thing like that.

75 years later, we go around in an aluminum aircraft. 35 years later, we go around in an exotic metal rocket. At the time of the steel steamship, nobody could dream of an aluminum airplane, we hadn't, as yet, learned how to refine aluminum. At the time of the aluminum airplane going around, nobody could dream of going around in an exotic metals rocket. It was inconceivable at the earliest state. This one took two years to go around, this one took two months to go around, this one took two weeks to go around. This one took a little over one hour to go around.

What you are looking at here -- I want you to feel it very deeply, is a basic acceleration of science against time. You are seeing a second power acceleration of the lag, contractions of the lag between states of art. You are seeing another acceleration in the rate at which you go around. What you are witnessing here is a fourth dimensional acceleration of human occupations on our planet. I want you to feel the acceleration. It gets here, what's

going on at this point in 1985, just entering the 80's, in 1985, you had to do something that was inconceivable at the time of the rocket -- circumventing certain navigation of the earth, as was the rocket from the view point of the a aluminum time. The aluminum airplane.

As by 1985, I'm going to have to take you around -- in something that's surprising, for instance, I'm going to send you around by radio. I want to get all of you to really feel is this acceleration. All of you know we are in change and so forth. My visits here, just to Alaska, and just since 1958, there's incredible things going on here. There is a great big piece of scenery here that doesn't change. But there is an enormus change in human affairs and all of you are feeling this. I want you to feel this closing of the gap between the world, of the old world and the new world over the pole which, there is -- we are not going over the pole, we are going through Alaska.

And I want you to feel this very, very greatly, and that has a great deal to do with what I said, that I discovered here, the integrity of the individual, insisting on being simple, insisting on being understanding. Insisting on really being able to meet with nature, trying to understand nature, how to get on with nature. All the things we are talking about are here are completely natural. I am talking about, we make mistakes and learn then how to

correct their mistake and get on with nature. Instead of hurting nature in careless ways.

I say, may I have all the lights on again, now. I am taking a lot of time, but I am talking about a very big subject. It takes time. I don't think you have any right to enter this kind of talk, unless you are really sincere and really want to explore. I feel the longing to understand, very powerful here in Alaska today. So, I am going to go on with just a little more about what I see here.

I am going to give you something, just from a scientific view point. As I spoke about, nature is trying to integrate all humanity, which have been completely remote from one another before. I am sure the people in this room come from all around the world and nature is trying to do this integrating. I would like to have a little understanding of something, what we talk about -- we talk about races, color, skin color and race.

Obviously, human beings who are, we are more than 60 percent water, water freezes and boils in very small limits. We couldn't have been born -- we freeze to death. The South Sea, is the most favorable place you could possibly be born, because there are no big animals there. There are very recent formations. And the water temperature is such that you could be in there all day long

without hurting you. The water, the great Coral -- Barrier Reef, to break away seas so the nice clear water we go running around in is full of fish. We walk in and out of sandy beaches, coconuts falling full of water and full of milk and all kinds of fruit so life could carry on very beautifully.

I am sure this is really where life starts before man then begins to learn how to control the environment in various ways to get out where it's much colder and so forth.

Now, in thinking of the picture that way, human skins had been enormously exposed to the sun. One of the things we have learned about, the human -- vitamin D is essential to the development of our bone structures to be combined with the milk and so forth. And vitamin D can only be acquired by the human beings directly from the sun.

Just as the vegetation can impound sun radiation by photosynthesis, human being skin with can photosynthesize and convert the sun radiation into vitamin D, but vitamin D is something you can get too much of. So if you are exposed to enormous amount of sun, nature had then, to make some filters, so so she developed skin filters to cut down the amounts of sun so you will not get too much vitamin D.

There are two kinds of filters to use, built into the skin, kerotine and meloney. Meloney is a dark brown,

almost black, and the kerotine, a yellow. Those are the filters she used. As man went further and further north and got his skin covered more and more, less of that sun could get at him to give him the vitamin D he was going to need. Therefore nature began to cut out the filters.

Finally it got to where you were so covered and such shortness of sun, nature cut out all the filters and that is what we call a white skin. And some tests that are clearly known, as can be today, we've only known this about ten years scientifically, but there it is. There actually is no difference in skin color. As we go from the northern -- we get into -- we have the white woods and the hardwoods and so forth. And we get a little further south, and we get into the more colored woods. You get into the mahogony and finally you get to the equator, you get to the ebony, the black.

This is all filtering in regulation, so all our light coming from the sun, we do not want to get too much of it when we are in the presence of it. I do like to have that kind of thing understood. We have had throughout the long ages, human beings are born big, and a lot of little people. And the big ones were able to push the little ones around. We have power structures. But we have something through a long history, where the nobles, through this power structure, did all the hunting. And they reserved

the hunting to themselves and all the poor people had to make due with the local roots, whatever they might be, nuts or roots.

We have only known now for ten years absolutely scientifically, that undernourishment in the womb in the first year of life, and you get a damaged brain. Damage can be very mild, but that's not too dull. What we have been calling then, the worker of yesterday who seemed to be dull, simply because he had, he was undernourished -- he didn't get the right chemistry. And the ritual of the going, of the eating of the animals, are -- the animals got all the different herbs and different vegetation. So there is simply, the dull brain then, has something to do with the undernourishment of the --

Today we realize there is no such thing as a two classes of human being, of a worker and the noble at all. I just wanted to get that out. There is no such thing as color or race or race or class. We have just known that for a couple years. So some of the great obstacles of yesterday, we thought these were absolutes, are washing out. It's not going to be quite as difficult as we've been thinking it's going to be. We begin to integrate all of humanity. Now, enough of that.

I would like to come back to when I first began to operate the way I did, 52 years ago at the age of 32. I

did what I did on the basis of, I had become a failure in the world that I had been brought up in, and a failure in the world of living and so forth, enterprise, and I said I never will get on with it. So I said I am really a throw away and I've got to get rid of myself. And the I said, if you are going to do that, you better think about -- each one of us is in a great inventory of experiences which really belong to one another. And if I were to not throw myself away and commit the rest of my life to turning my inventory of experience to the advantage of the many, I could be possibly worried, warranted in keeping alive. That is the compact that I made at that time.

Now, I saw things that really needed to be done for instance, to pursue the development of this lighted environment controlling, to really find out if we did take the slice and divide it into what we call livingry instead of weaponry, that we might be able to make humanity a success, we might be able to come to a new chapter. So, that when I started 52 years ago. I said I am not going to be able to do anything for humanity just by talking to it. I wanted to reform humanity. I like to give humanity the opportunity of using this invisible revolution to do so much with so little, we would make it possible for all humanity a success.

I would be working entirely on artifacts, on

physical equipment. This is going to require all our -- the wealth to be able to acquire the materials, the machinery to operate on. I was absolutely pennyless. I was not being accredited by anybody. Nobody was going to tell me to do this job. So I said, if you commit yourself to doing this -- it seemed to me that I was very impressed with ecology. And ecology then having the honey bee doing this and the human beings doing, inadvertently doing the right thing, if nature is really trying to make man a success in the universe, then I will commit myself really to the physical side of that. And I was doing what nature wanted done, and I could get on and other things could get on in ecology.

Nature does have human beings using money, but she doesn't have honey bees using money and all the hydrogen atoms using money. So we seem to be the only ones using money. I just forgot about the money side and commit myself to doing the things that need to be done. Doing first things first and nobody to mark your papers, nobody tell you what to do. But you are interested in how you develop the most environmental controls with the least materials. Maybe if I do that, I might finally get on and if I am not getting on, maybe it's because I am not doing it right. So I change my course.

I committed myself to -- making myself an

experiment doing that 52 years ago. And I can only tell you really only at the very last second, do I always get what I need, but there is nothing I can budget, I can't count on it. If I don't get what I need to carry on, I realize I must go doing it wrong. So I say, what are the other things I ought to be doing? Like to have me writing books and making this map, or whether it might be making this structure, or whatever it may be.

So I have been now, for 52 years, and during that time only the impossible has happened. And I have really gotten used to the incredible mystery of the universe itself. Humans tend to feel -- we are much too vain. We tend to think we really know what it's all about. And we really don't know what it's about at all. By counting on this -- at least I can tell you, I have been able to get along that way. I am not saying to anybody you can just drop out of the system. I had to see something needed to be done that nobody was attending to.

I decided if I attended to it competently, it might bring advantage to all humanity. If not attended to, it might bring humanity a great disadvantage. So luckily I really got going 52 years ago on the energy problems that we deal in today. I have been dealing that way all that time. That's the reason I am called into conferences, as I have been called in here.

I said, at that time, 52 years ago, if I am going to -- I have been brought up, when I was young, in a way that -- some of the people in the room here may be old enough to remember what I am saying, but my mother -- my father died when I as very young. My mother said, darling, never mind what you think this one is trying to teach you. I went to school and they said never mind what you think this one is trying to teach you.

We work on the assumption that the older people -- the celebration of the young is absolutely unreliable. That is so uncommon today, really, that it doesn't ring too many bells with people. But any way, that's the way I was brought up. When I made up my mind to make myself such an experiment, I said, I am going to have to now do my own thinking. Because many times I discovered what I was thinking turned out to be correct, and what society was saying was wrong.

I said from now on I've got to do my own thinking. This means I must give up everything I have ever been taught to believe. By the word belief, I mean accepting an explanation of physical phenomena, without an experimental evidence. My grandmother said, darling, you know, you are very young, and you know how much I love you, and such and such occurred 2,000 years ago, and I am convinced that you believe it, and you know how much I love you. That's what

I call believing.

So in 1927, 52 years ago, I gave up everything I had ever learned to believe. It has been part of my experience, however, that I -- very large numbers of humanity are deeply moved by some kind of religious urge.

There is some sense of something going on. There is something greater than humans going on in our universe. I said, all right, you have an experimental evidence, personally, of a greater intellect operating in the universe than that of humans, luckily I had had a very good scientific training. And I was able then, to talk to myself, as I have talked to you tonight.

To discover that we have this human mind which could discover these principles, which would only be intellectually expressed, which could be employed, and you I could fly with it, whatever it was, as special case usage. I said I am overwhelmed by the evidence of the greater intellect operating in the universe than that of humans. Whether God is right, I don't know. Frankly, it's something too small. But what I am talking about is the integrity of an eternally regenerative universe. All operating with this extraordinary intellectual order.

I said, I am overwhelmed by this phenomena of God. So in 1927 when I made up my mind to do what did I, I said I am going to commit myself to absolute faith of this

integrity of that universe. What I am doing is what I wanted, I will get on. I really would like to know that I have been able to get to a point where I have been able to get a lot done. I have been able to make enough discoveries to be able to let you know you have an option. And all of it -- I base it completely on my absolute faith in God.

Now, I would like to talk about one or two very great obstacles to human success at the present time. We go back to the earliest of human beings, look at wild horses and see a great king stallion. And every once in a while, a young stallion is born bigger than the other stallions and whwen he gets fully grown, the king stallion challenged to have a battle. And whichever one wins is the one that is going to disseminate the earth. And Darwin felt that that is the way nature has to conserve the strongest brains.

I am sure that early human beings -- every once in a while a big man is born, he didn't ask to be bigger, but he is very much bigger than the others. So little man says, mister, will you reach me one of those bananas, I can't reach the bananas. So the big man reaches the bananas and he keeps doing things for the little people because he was bigger. And the little people say to the big man, the people over there have lost all their bananas, they are dying. They are going to come over here and kill

us for our bananas. You are big, get out and save us.

So he finally decided, this was big business, because he was being continually exploited -- so, he said, well, between these battle, I would like to get ready for the next battle. They said, all right, we'll make you king. So that's how the big man got to be king. So now he is running things, and another big man comes along and says, Mr. King, you have too much around here, so I am going to take it away from you.

So the big battle between the king and the other big man -- and the king wins and they got this man down, and they say, mister, you were going to kill me to take away my kingdom, weren't you? You are a very good fighter, and you understand I could kill you right now, don't you? But I am going to let you, because you are a very good fighter, if you will promise to always fight for me. How about it?

So the man says I will get up, I will fight for you. So he does. But the big man realizes right away, don't let two big men come at me at once, I can handle them one by one. So now you have -- another big man comes along and he licks him, makes him a deal, and -- the spys, so they watch and make sure they don't gang up on him. So now his fighting men are getting very strong. There's a whole lot of little people that don't obey the king, making a lot

of trouble for him.

So, they say bring in that little character, we will have to cut your head off. And he says, Mr. King, you make a great mistake by cutting my head off. Why shouldn't I cut off your head? Well, I will tell you Mr. King, I understand the language of your enemy over the hill and you don't. I heard what he said he was going to do to you and when he's going to do it. He said, you've got a pretty good idea, young man. You tell me every day what my enemy over the hill says he's going to do to me, and your head is going to stay on. Then you are going to do something you've never did ever before. You are going to eat regularly right up here in the castle with me. I am going to put purple on you so as to keep track of you.

So now somebody else is making trouble for him and he is going to cut off his head, and it turns out that he knows how to make better swords than anybody else. Somebody else is going to get his head cut off, he says Mr. King, you don't understand arithmatic, I'll do arithmatic for you here in the castle.

All right, you mind your business, you mind your business. You understand, everybody mind everybody business, is that clear? So now he has all this good information, he has great fighters and his kingdom is getting bigger and bigger. He wants to leave this to his

grandson. He says, I'm getting pretty old, I want you do something about that language. I want you to do something about that metallurgy, I want you to do something about that arithmatic. This was the founding of Oxford University.

All human beings, every child is born prone to be a -- They ask these questions about microcosms and microcosms, continually embarrasing their parents with all these specialist. So the parents go down to school and they tell them about that. The regular school says never mind about the universe, I will learn you your A B C's. We called it elementary school. So I find the next thing, there was a, kind of a magnet in the association of science, having it's annual congress in Philadelphia, of all the scientific bodies in America, in Philadelphia about 20 years ago, 25 years ago. And in that congress, there were two papers presented in different parts of the congress. One was in anthropology, where there was a team had been studying all the known cases, those cases of human tribes that have become extinct.

There was another team in biology that had been exploring for years, all the known case histories of biological species that had become extinct. Both presented papers of their certain areas saying, extinction is the consequences of over specialization.

Well, you can understand very quickly, you can interbreed two fast running horses with very high mathematical probability, concentrating the fast running genius. But as you interbreed special capability, you out-breed general capability. So we find that, by the form of a bird that lives on sea life, marine life, finds that life, marine life that it lives on is in abundance in marshes by the sea.

We find, as there comes an ice age and the waters in the marsh begin to recede. Only birds with very long beaks can reach through the increment of ice. The short beaked ones just die off. They can only poke through with great long beaks. So they only concentrate on breeding for long beaks. Finally the water got so low that the marshes went dry and the forest fire that used to stop at the marsh -- but the marsh is dry so the marsh gets on fire. And for the first time these birds have learned that their beaks have grown so large, they can't fly any more. You've got to understand that over specialization can lead to extinction.

And I see humanity then, completely specialize all around our world and all the challenges that we are having and all this invisibility, we have the option to make it and society not seeing it. And society is so specialized it doesn't know how to operate. It doesn't know how to speak.

I'll go back, rather quickly, to the early days of the United States. At the time of the revolution -- when we had the first forming of the government, for representation, you see the Senator or the Representative, it was all predicated on the fact of that time, on what you get from here to there, on your legs, or on horses, or on a boat.

So supposing you were going back to Philadelphia where the headquarters of the government was at the time. You were from Massachusetts. There were no road ways, there was just some Indians trails. You then had to go by foot or on horse, and it took you many days to get to Philadelphia. You talked to a lot of people on the way and you got to Philadelphia, and it was -- for instance, Jefferson said to his Cabinet, we don't get a letter from our Ambassador Franklin in France, so you better write him a letter. It gives you an idea of the frequency of communication that was going on at that time.

So the challenges from abroad and in Philadelphia were very, very few. And everybody knew what everybody else in Philadelphia felt about that letter from abroad. They went back home by foot talking to people on the way, found out how they feeling. They got home, they told the people about the letter and what everybody in Philadelphia thought and what everybody along the way -- and said what

do you want me to do? And they said, we tell you, we would like to do this. And they were sent back to Philadelphia to vote. We had that one to one correspondence between stimulation and response.

In 1810, only 35 years later, after the revolution, suddenly we have the telegraph. And the representative got home, and the people knew all about it, it was an old hat. He didn't bring the news any more. So we are not getting one to one correspondence. Today we are getting thousands and thousands of stimulations, without really knowing our Representative, probably -- I would say the people here in Alaska would probably know more about the representation personally than most places, but most places don't even know. And they go to vote only on the basis of who has the least stained record. Things like that. It got to a point where it's no longer really one to one correspondence. So the thing is not working the way it's meant to work.

I would like to introduce -- I was asked -- I was often asked to go to Washington, and I was asked a few years ago to speak to the Foreign Relation Committee of the Senate. And they were in full session. Humphrey was still alive. And they asked me to go on with the kind of things -- many of the things I've been saying to you today. They said, what kind of a government do you see coming for the

world? And I had to say to him, that we are going to be, very quickly, 150 sovereign nation's, and we are all going to have to fade out because each one is a blood clot, stopping the circulation of things we have to recirculate.

We don't have to do any more mining today. For instance, 70 percent of all our steel is coming out of scrap. 80 percent of our copper is coming out of scrap. And really we don't have any more -- we don't have to do any more mining. The metals that are recirculating come around every 22 years. And every time they come around, that is the average, we have so much more knowhow, we can build up that metal and take care of many more people with much higher standard of living.

Then all the different nations have protections. The protection from a blood clot so we don't have the -- the nation will be going back to old in a very short time, within the next ten years. So a person says, what kind of government do you see coming? The Russians and the United States are spying on one another and they have these great -- what they call sensors. They are so sensitive that from 100 miles out, they can distinguish between a goat and a sheep.

We are going to -- and we have also been discovering now that every human being has an electromagnetic field, very delicate but extraordinary, an

electromagnetic field. And we find that when a human is feeling positive about something, we have a positive field. When you feel negative about something, you have a negative field. We are going to be able to have sensors on satellites around the world. With propositions we are going to have -- like city manager, we will have appointments of human beings, professional, to confront the world with propositions about what we are going to do about this and that.

This is unitary of all the problems and what we are going to do about this one. We report on them and this will be coming over the television on scheduled 5 minutes after 9, proposition 3, what the world is thinking about that. So we have, then, a complete readout at all times of the way people reflect this. You have continued voting going on electronically. Whether the majority of man may feel about this, even though the majority may be very wrong.

Once you really know that you're really having some kind of democracy going on, that it's incorruptable. The man -- what man is feeling, it's not what he said, I am going to tell my boss the way I am going to do it. He can't put a pretense to something in an absolute way that he feels about this proposition. So if society made a mistake, suddenly discovers it made a

mistake, immediately that gets a readout and immediately you have to change your course.

We find this is all that Norbert Wiener is talking about the cybernetics called feedback and you find there are no straight lines in the industry. You have all of our steering, electromagnetic steering is simply waved like that. You get making a little less error.

Anyway, we will probably being coming to electronic readout democracy for the first true democracy in history. I want to introduce some little insights for you where we may be going along with this electrogrid of where we wash out the differences in currency. All on the same energy accounting basis, where you really know the metabolics on any product or whatever it may be, how much energy goes to produce that. So, I have given you enough of those kind of insights, and I would say where human beings then, I have said, seemingly have this function in the universe to be local information gatherers, local problem solvers, and needing enormous amounts of energy and then we have all that vegetation which I spoke about, which impounds the sun radiation for us, that vegetation, itself, has to have it's posterity.

So the vegetation can't have it's young in its own shadow, because it couldn't get its sun radiation to work. We have all the trees, for instance, giving off

little trees, little gliders going out hopefully from under the tree to land in a place where they prosper. But when the chances are poor, nature makes many signs so far. Every tree giving off an enormous number of these little flying machine seeds. I say the chance of human beings being on this particular planet may make good coming-- being born naked, helpless, ignorant. Getting us to really discover ourselves, to discover our mind.

Our mind is really everything. Our mind really comes into control, we will immediately xercise our option to make it. We will really be graduating as a new phase of humans. Seeing things in the biggest way I can, I see all humans born, we have been operating up to now in a wound of familiar ignorance, with enormous amounts of resources, which by trial and error, we get to the point where we really discovered that we have a function in the universe. It is our mind and not our muscle.

The muscle has been running things up to now. Can we, can we get to the point where we really can, with integrity, have our minds operating? When I ask that kind of question, I see nothing to do with the political system; nothing to do the with the financial systems and so forth. It has something to do with the integrity of each individual. Whether we are going to -- is humanity going to have to pass the examination, not some political system.

Humanity is passing. I'm going to give you rather quickly, a test for yourself. Could this chair be pulled over out of my way? I want everybody to see the blackboard. I am going to take the number 1, 1 to the second power equals one. The module here is 1, 1 times 1 is 1. This is module 2. 2 to the second power equals 4. 1, 2, 3, 4. And here reads three, three to the module, three to the second power equals 9, 1, 2, 3, 4, 5, 6, 7, 8, 9. Four is the module. Four, the frequency is four, four to the second power equals 16, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16. You say triangle instead of squaring. Do you remember when the teacher went to the blackboard and said that was a square. The only reason it held it's shape was because the blackboard held it there. It has no integrity whatever. There is no such thing as a square. Every square is two triangles. Nature always does things most economically. Nature is continually multiplying itself times itself. When nature multiplies itself times itself is she squaring or triangling?

If you ever go out of this room saying square, humanity is all through. You all have to have the guts to really go along with your experimental evidence, not what you have been taught. Because in fact, everything we have been taught is wrong. Is there anybody in this room that doesn't use the words up and down. No hands. I have asked

a number of audiences of great scientists, do any of the audience, the scientists here, who do not see the sun going down in the evening, please show your hands. No hands. So incredible, you have known for 500 years the sun is not going down and you are still seeing it going down. Do you do anything in your school to feel the earth revolving to obscure the sun? You keep on saying to your own children Sunset.

You have even been deceiving your own child, incredible. The words up and down were invented when we thought the earth was flat. We're so tiny, the -- it looked for the obvious, it seemed to be flat. If all the trees are perpendicular to it. If all the perpendiculars are the same plane, they are parallel to the one another, aren't they? Therefore, there are only two directions, up and down. But once you know you are living in a sphere, there is no such thing as up and down, there is no up and down in the universe. I heard the President of the United States, congratulating the astronauts in getting up to the moon. They spoke about being up here on the moon, they were in the direction of my feet when they said it. You keep saying it's blowing from the Northwest. You can't blow air any distance at all. All the great bombs show you all it does is turns right around in itself. Push lines always bend, pull lines straighten out. When you say it's blowing

from the northwest, there is a low pressure to the Southeast that is drafting the air by you so you're looking in exactly the wrong direction when you say I am going into the wind.

We are talking nonsense all the time now, and keep teaching nonsense. If we're going to making it it's because the individual begins to understand, they will go along the experimental evidence. Humanity has to qualify itself, not the system, understand, because the system is teaching everything wrong. Really, I am really astonished by this, as I begin to get deeply into what I am talking about, to what an extent we really do deceive ourselves and go on doing so very carelessly because part of the system is part of the game.

Quite clearly all of our educational system goes on the way it does because primarily the beautiful human beings involved there are earning a living. They are learning how to teach. And they have all the professors with tenure and so forth, by far the best education, radio, cassettes. The only place you really learn is by yourself, you know, in a room. Not in a school room. Where they say stand up and you decide you are immediately licked. We are going to have to come to a video cassette. It's coming very rapidly. We are in for incredible change if we stay on our planet. I just want you to understand that.

I think I have really gone quite as far enough tonight, but I do want to repeat what I have said already. I feel tremendously strongly about you people in Alaska. Nature is really trying, she is trying to make a connection in here. There is an integrity that is coming to the surface very powerfully and felt by all the individuals.

I am going to give you one more great change of big evolution in the world throughout all our known history amongst the mammals, the female carrying the young can't cover as much geography as the male, and the North American wolfe male covers much more territory than the female. I am sure this is true of human beings throughout all history.

The female human stayed around the house where she got the fire going to cook and she would learn to store things and the man was the hunter and he brought things home. She decided to skin it or milk it or what. Because man was a hunter, he also covered more geography, therefore he had some more news. He could tell you what you could see from the top of the hill that the other people couldn't see. He could also tell you what the chiefs in the next place said. But his language was atroscious.

Now, we have that in mind throughout history

being born naked, helpless, ignorant finding it's own way being hungry, telling the children what they can eat and what they cannot eat. They were an authority on what won't kill you and what will keep you going. They are an authority on what you can get away with in the system they're born in. Dad and Mom were protecting you as best they could. And dad however brought home authority. Dad also brought home the news, and dad, let's say his language as atrocious, but the kids understood his language, so he said it in his ascetic way. And this brought aBOUT more and more divergencies of speech. More and more languages.

We have then -- suddenly that electron came in when I was three years of age, and when I was 23, we had the first human voice on the radio, on this invisible medium. Here is this voice coming out of this machine. And when I was 27, I had the first licensed broadcasting station of the human voice.

In 1927, all the daddies is were coming home in the evening, and the kids said, "Daddy, come and listen to the radio, a, man is flying across the Atlantic. " Daddy said, "What?" Daddy never brought home the news again.

Nobody realizes the great astrological change. Dad had been the news man and he was no longer the news man. People got their jobs on the radio, got it by virtue of the commonality of the addiction rather than the

asceteric way daddy said it. They got it by the size of the vocabulary, the versatility of communicating in this common speech. Because Dad and Mom were quite clearly the authority to the kids and dad and mom were listening to the radio, and dad and mom ran across the street to tell what the radio man said.

Frankly, the man on the radio was more of an authority than dad and mom. It didn't mean that dad and mom weren't the authority hey were yesterday, but there was a greater authority coming in the house. Because of that the kids emulated the language of the greater authority. This completely changed the speech pattern of America, of the world.

When I was young, my first job before World War I, were with mechanics which were extraordinary union skilled men. Whose vocabulary were about 100 words, 50 percent vastly obscene. Mostly the way they spit let you know how they felt. All this completely changed and it came about the way I am telling you. Where the dad and mom didn't want to be belittled in the eyes of their kids, they they began to emulate that language too.

Speed of sound, 700 miles an hour, approximately. Speed of radiation of light, 700 million miles an hour. The sound only operates in an atmosphere, the radiation goes on right through the total universe.

The information we get from our eyes is a million times what we get through our ears. The 19 -- the mid-60's the students at the University of California at Berkeley made the first world news as world dissidents, as dissidents in the educational system. That particular group of students asked me to come and meet with them in Berkeley. I met their contemporaries in many other colleges and universities that year. I have been a guest speaker at 550 colleges and universities around the world. Some of them quite a few times. Any way, I met with that group, and we found they were born the year the American television came to the American home.

They said, I know dad and mom love me to pieces and I love them to pieces, but they don't know what's going on. They come home from the shoe store, and they say let's have a beer and start looking at television and sit in front of the television, and they don't have anything to do about going to Korea and they don't have anything to do about going to the moon. We have a completely turn around from when I was young and the older people were saying, never mind, listen we are trying to teach you. We suddenly have a young world saying the world is in trouble. The news is in television was around the world and their compassion was for anybody around the world who was in trouble. And they said because the older people

don't know what is going on. They are very preoccupied because of too small of a scale of thinking. We are going to have to do our own thinking.

We have a young world, very idealistic, setting out to do its own thing with no experience in doing it. There is no experience in trying to tackle the world problems. Highly exploitable, highly idealistic, because Russia and United States were spending $200 million dollars a year on how to destroy one another. They were spending $20 billion a year on psycho-gorilla warfare, how to break down the other man's economy before he gets to the war. And this was greatly exploited right away by -- the American side was being greatly exploited by the Russians, very clever psychology. Within six months, 100 university presidents went down like that. To make the education system look very desireable at that time, look very questionable, as I say, the representative of the people. Gets any more of that education, people don't like this right now.

And so we have then, the kids finding themselves being exploited. I am using my head for a battering ram, I am supposed to be using my head for thinking. so they developed an ammunity for that. I find there's enormous ammunity in that young world against being exploited by -- all over the system them they don't really

no confidence whatsoever in the political system. And so, I find then, as a young world they are coming through each child born successively, is born in the presence of less specific information.

I was eight when the Wright Brothers first broke through. I was brought up that it was as inherently impossible for man the fly. Had been told liars, how crazy can you get. All the things I had been brought up to believe were not going to happen, were happening. Every child has been born in the presence of less information. Each child born successively, will be in the presence of more reliable information.

I am getting letters now -- in a year, possibly about five -- from eight and ten year olds who have been born after man got to the moon. How they find my name to write to, I don't know, but they say I understand you might be interested in my concern. The letters are supurbly written. Even for an eight year old, and they say on our moon project, we have what we call a critical path.

There were a certain number of things that had to be done, about a million things that had to be done, but we are going to get man over to the moon and back safely, it all had to be properly done. Humanity can do anything it needs to do, why don't we make this thing work? So there's a young world coming along, very much intent on

this.

We have a child in the womb. The child has to have oxygen. The mother gives them the oxygen, she gives them their blood. The umbilical cord gets the oxygen to the child. When the child gets out of the womb, then you cut the umbilical cord and they get their own oxygen. I think nature then, had this protective system --human beings learning, get some words and trying to communicate information to their children. All the world is an authority. But misinterpreting the significance of things. Being so very tiny, and the earth being so big, we can understand that we make many, many mistakes. You can understand how they make mistakes up and down, appropriately you understand that.

But it gets to the point where they make so many mistakes, that nature made a cut off. And now the young world has enough information for them to do it's own thinking. To me then if we are going to make it, it's going to be absolutely a matter for that younger world. I found that the young world, starting to do its own thinking, appalled any kind of pretense, it appalled any hipocracy -- and really then, the nature of the human beings here in Alaska, is that you really do love the truth, you really want to know what nature is doing. And this is -- I think it's a beautiful extraction of humanity, really at

its best today, a large number of young people.

So if we are going to make it, it's because that young world doing its own thinking, has discovered an incredible mystery. They don't have to be brought up that there is a great mystery and -- that this church here or this particular religion will teach you about it. They are doing their own thinking about it. They know about it in all history. They give the different kinds of philosophies. But they recognize this is history, themselves. They recognize an incredible mystery of love. The stones don't love stones, and the most incredible thing you feel is love. So I find the young world in love with love and in love with the truth, so if we are going to make it, and I know we have the option to make it, it's going to be done by virtue of truth and it's love of the truth.

Thank you.

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