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Antonello: Shall we start with the relationship between war and technology?

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Well, looking at the relationship between war and technology, what we find essentially is that, after WW2 the US emerged clearly the world's economic and military power. At the time the US was a little competition for the war devastated Japanese and West German nation. The US industries essentially were clearly elite in most areas. In fact, perhaps even in all areas. Machine tools for instance, with the key on manufacturing industry. The US machine tool industry was clearly in the lead, up until approximately the late 1960's, early 1970's.

What we saw was essentially certain industries such as machine tools, the US automobile industry, and other basic manufacturing industries by the late 60's, early 70's. There were clear problems with these US industries, imports were beginning to flood the US market. More or less at that time, the notion appeared of post industrialism. The idea that the US basic manufacturing industries would probably move toward the wayside. And what we would find is that the US would move toward the brain intensive, high technology industries, and service types of industries. So the prediction at the time, approximately 1970, was the US would begin to excel in these advanced types of markets. What we've seen in recent years, essentially this is the essence of the present book that I'm preparing, is that the US has been essentially losing out in these high technology markets, and semi-conductors, and robotic, in biotechnology. Certainly in the area of consumer electronics.

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What is essentially happening, is that the US has maintained a permanent war economy, a permanent military economy since 1950, from the time the US entered the Korean War. As I pointed out during that period, the early postwar years, there was little competition from Japan, West Germany, and other nations. But increasingly we saw that work became more technologized, more and more government money, government resources had to be channeled into or put into the military system to keep the US military apparatus competitive with essentially the Soviet Union. What we find today is essentially that the US government, about 80 percent, close to it, of all government research and development money goes for defense. So there's a significant absorption of US government technological resources, into the military establishment.

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The situation is much much different in Japan and West Germany, in particular it's different in Japan. A very small amount of government resources including the technical resources go into the military apparatus. The Japanese spend a very insignificant part of their government research and development money on the military. And the result, essentially, the result have been clear. A nation that consistently puts its money, technical money, research and development money, into a military apparatus, will come out with essentially products that are military in nature. We have all types of fighter bombers, we have stealth technologies, we have submarine technologies. But the Japanese, who have essentially put their resources, their technical resources into civilian areas have been able to control key markets, consumer electronics markets, the semiconductor market, the robotic industry. These markets are increasingly becoming controlled by the Japanese. The US doesn't build VCR's, television sets, are almost one hundred percent are produced in Japan. So what we're talking about essentially, is that a nation that has spent so much time building up its civilian industry, the Japanese are similar to a lesser extent you can see this in West Germany, that these nations have been able to produce the products, the technical products that consumers want throughout the world.

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In the US, we want consumer technology types of products, what essentially do, we look to foreign producers. We want to buy a good camera, we're going to buy a Japanese camera. If we want to buy a good robot, if we're a manufacturer, we'll first turn probably to the Japanese. If we want to buy a good high technology machine tool, a computerized machine tool, we'll turn to the Japanese or the West Germans. This is not a very difficult, it's not very difficult to answer the question here. Why are we turning to these manufacturers in these nations? It's simply because they're able to build good products, they're able to build high quality types of products that consumers want. And it's clearly related to the massive drain of resources that the US has put into its military system.

Anthony DiFilippo

Antonello: What about the social implications of this course?

00:26:12:02

I just summarized essentially the industrial effects. There are clearly social problems related to the massive military expenditure that has existed in the US for decades now. The US for instance has never been able to solve its problem of poverty. Currently we see that there are 14% of the US population approximately lives in poverty, while we spend 300 billion dollars a year on the military. It was interesting in the 1960's, the US decided it was going to start a war on poverty, it was going to get rid of the poverty condition. At the same time it was fighting a war in Viet Nam, and the priority of the government were clear, it decided to try to win the war in Viet Nam, which essentially it didn't win. It gave up more or less, on the war on poverty, although poverty did come down in the 60's, it certainly was never eliminated. By the time we reached the 1980's, we saw the poverty

began to increase in this country. We were consistently spending billions of dollars the year long, that massive military apparatus.

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Other social implications, relate to the, back to the idea of the industrial drain, it's related to massive expenditure on the military. And it is since the Japanese and the West Germans are producing many of the goods consumers use. That means too that the jobs that Americans could have are now in Japan and West Germany. So essentially we are saying that there are clear social implications of ..to these mass drain of resources that have been utilized by the military. We could look also at some other social implications which would be, the US infra structure, it's essentially falling apart. Bridges are unsafe, sewer systems are falling apart, highways need to be repaired, so we could look at those types of problems that Americans must deal with every day, as simply being neglected because indeed we've decided that we need to spend an exorbitant amount of money on our military machine.

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A similar situation exist in the Soviet Union, Their experiencing many problems very similar to what we experienced in the West, and it's very evident also that Great Britain and other militarized nations have been adversely effected by fairly large amount of expenditures, national expenditures, being directed toward its military system. It's clearly a high technology market, the British had not been excelling, that is in consumer high technology markets. Also their resources, technical resources similar to the US are being devoted to building up of sophisticated, relatively sophisticated military machines. Relative that would be to Japan and West Germany.

Anthony Di Filippo

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Antonello: What about the social implications within the ...

00:00:41:14P Well, that brings up an interesting problem, particularly when you compare the situation in the US with a country like Japan. What you see in the US is that annually the US produces about as many engineers does a country like Japan. The problem is that the engineers that are graduating from the universities in the US, most of them, a good many of them I should say, end up doing work for the military. There's jobs there and the pay is generally is higher, because military contractors are, typically can pay, afford to pay more than civilian producers, given the fact that they have a guaranteed market.

In Japan on the other hand, the similar amount of engineering graduates each year, go into civilian industry. Producing, making the product, essentially, that are consumed by individuals in Japan, and throughout the rest of the world. That relates back to

essentially the issue that I was talking about, of a few moments ago where I mentioned that the US, high technology industries of the US, have essentially been falling behind. In order to produce high technology products, you need engineers, you need scientists. These individuals, these key technical personnel are being drawn to the military to build up technology, space warfare, to build stealth technologies and whatever, what you're going to find essentially is that there's going to be a gap between what types of competent

civilian things that can be made in the US compared to what could be made in Japan and West Germany.

00:02:37:20P In many colleges

and universities the types of courses that students take are essentially to do military work. They're being trained to prepare for a military career. And the key point here is that warfare is becoming increasingly *technologized. And will continue to be so as we move on toward the next century. As long as we devote, as I mentioned before, 80% of US government r and d resources, we devote these resources and the technical talent, for instance the engineers that I just mentioned a moment ago, to building up increasingly *technologized military system. We're going to find that the Japanese and the West Germans are essentially going to excel in civilian market. Too many of our people and too much of our technical resources are being devoted into military production, and the effects essentially are evident.

00:03:42:23P We see

that the US trade deficit, for instance, in high technology products with Japan in 1986, in 1985, excuse me, was 13 billion dollars. Not long ago, the Japanese were known to be a country that only produced items which many people considered to be junk. Today they produce the products that consumers and manufacturers want, and want badly.

00:04:13:00P Many times

we heard repeatedly, this sort of takes us not down a different path, but we've heard repeatedly while a lot of money is being spent on the military, there are going to be benefits, the spinoff type of argument. Because warfare is becoming increasingly technologized, and also because the defense department prefers to keep its work in private, secrecy. The shroud of secrecy that surrounds the pentagon research and development, the spinoffs are becoming fewer and fewer, although essentially those two reasons. What we're likely to find today are spinoffs going from the civilian sector to the military sector. The Japanese had essentially have Japanese technologies that were produced for specifically for civilian products, essentially have been used in many military systems. We see that there has been spinoff going the other way.

Recently I remember reading a Japanese official in the ministry for

international trade and industry who pointed out, that today spinoffs are coming from a civilian sector to the military. What's interesting is that the Japanese in most cases, we see that their intention of developing these technologies are spinning over to the military. Was pretty much to develop these technologies for civilian purposes, and they simply happen to be what's needed by military producers in some cases. For instance in carbon fiber composites, Japanese using that technology in leisure items, such as golf club handles, and tennis racket handles. The US, that particular technology is used in fighter bombers. You have the spinoff, going from civilian to the military sector.

Anthony DiFilippo

Antonello: How has this concentration of research monies on the military affected the relationship between science and technology?

00:06:43:06P In regard to the military?...well, sure, you know, after WW2, warfare wasn't as *technologized as it was today. And in addition to that as I mentioned earlier, there was little competition for the US. You had the troops, the tanks and little competition, the result was that the US could basically be a major military power, and given the fact that there wasn't any industrial competition, you could produce for civilian markets. But as war has become more technical, more and more scientific resources have to be devoted toward the military, that is if we want to maintain what we have now, that is superior military system,...if you want to build a military technology as we have in the US now, where a pilot of a fighter bomber can point his weapon in a direction that he is looking, you have to apply and utilize a good bit of your technical resources and talent to developing that type of technology. That's very costly, and there's many errors that are made along the way, that is until the final product is there.

00:08:06:06P So science becomes and technology has become increasingly important for advanced military systems today. It wasn't as important in the 1950's, there was certainly some research and development. But you know, you had to get the troops, the tanks, the basic warfare. Today warfare is technical warfare, we have star wars, wars in space. This is all technology. Stealth bombers, I've mentioned a few times. Submarine warfare, all of it's technology, even science, science is a big part of developing a military system today. And if you look at the US military establishment, the key in leading agencies within the military, are agencies that are focusing on technology.

For instance, Defense Advanced Research Progress Agency, Star wars, star wars organization, which

essentially,....the attempt to militarize space. One interesting thing I should point out to you, I think it was in 1986, I visited the, I was in Washington, and visited the strategic defense initiative organization, they had a civil applications office set up in Washington DC. At the time when it was first proposed, many people who were in favor of star wars, talk about, well we're going to spend a lot of money, but there is going to be a heck of a lot of spinoff. I visited that office in 1986, in the summer of 86, which was essentially three years after star wars had begun, and I remember talking with a junior officer and asked him where are.. ,what types of spinoffs are there? He didn't know. I sort of found it somewhat hilarious, he told me to come back in the Fall, as if there would be some spinoffs in the fall. And with that he hands me a copy of NASA's little publication called spinoff where they produce annually trying to show that there are spinoffs from the military to the civilian sector. But I know of none today, no major spinoff that has come from star wars research and development, now we're talking seven years later and billions of dollars have already been expended on this high technology project. So wherever the spinoffs are, they are few and far between.

Anthony DiFilippo

Antonello: There seem to be a lot of contradictions..as the Vietnam war showed, you can have the technology and not win the war..

00:11:10:13P That's right..one of the major issues there would be..is essentially while war is becoming more *technologized if you ever use these weapons, it's pretty much the end of a good bit of human existence or perhaps all of it. So hopefully policy makers and people in charge of these weapons will be cautious, when involved as they were in Viet Nam, cautious in not using them, but the major point is, that we still build them. We still spend significant parts of our annual budget, on it, building these weapons. You're right, using them would be devastating, simply create mass destruction. I don't think anyone knows the outcome of a nuclear exchange today, and the whole issue of militarizing space is patently absurd. Not only can it be done, but what would be the outcome of a war like that, what would happen essentially to human beings as a result of war in space. Noone really knows.....

Anthony DiFilippo

Antonello: We are looking at huge changes in the Soviet Union..do you think its possible to change the military industrial situation in the US?

00:12:57:15P Well, I've always held the view that, it would be very unlikely for the Soviet Union to attack the US. I've always thought that the whole idea of the military economy was manufactured at least to a large extent. And I won't go into the reasons why I think that, but to answer your question directly,

I think that certainly there has always been a chance, and probably now in recent years, the chance is even greater for the US and the Soviet economy to convert to use its resources for something more useful. Infra-structures that I mentioned a little while ago in the US is in need of repair, badly in need of repair. US industries in particular high technology industry could use a good bit of assistance in a number of ways, including techni....support in terms of technical moneys.

00:14:09:18P The possibility does exist for the US and the the Soviet Union to convert from military to civilian economies, there are obstacles though. Two of the major obstacles, at least in the US, would be politicians who really thrive on maintaining the position of military superiority, and also the many and big military contractors who have essentially a guaranteed market out there. You know that if you're working with DOD, the department of defense, your profits are coming in, you know essentially what they are every year, so they are two obstacles. Of course there are other obstacles, many people believe that war economies are ways to create jobs and that's not only the working person but also people in congress. These individuals are reluctant to address the conversion issue because they know that many of their constituents rely, at least in certain areas, rely on military jobs.

00:15:13:13P Despite these obstacles however, I do think that conversion is a possibility, I think that the way that we could sort of raise the issue, raise the consciousness, lets say many people..is to point out, in particular, that maintaining these big war systems that we have and the Soviet Union had, that the ultimate effect, they're on the people. Reduced standard of living and continuation of poverty and fewer good jobs. There are jobs out there, service types of jobs, which are generally lower paying jobs. As we mentioned before, better jobs, technology oriented types of jobs are being exported, essentially.

That's pretty much the only thing we export today of any worth. We export jobs, not intentionally but they're going. Not just because manufacturers want lower costs in some of the third world or developing nations, but they're going to countries like west Germany, Japan. It's not to France because these countries are aware of production is happening, and production isn't happening in the US.

00:16:27:18P Business schools today don't teach too much about production, they teach how to make profits, how to make quick profits. Profits could be made quickly, as many businessmen have found out in the US, by not producing a product. Moving finances around. To some extent the post industrial theorist were correct, we've moved away from the basic manufacturing industries. What major flaw in that argument in that theory was. As I mentioned earlier, they predicted success of high technology, brand intensive types of industries which is not.. that prediction has not come about in the US. And the only way it can if we begin to think seriously about using the resources, using our talent and using thosethat power memory sources for civilian purposes, so that we can begin to build television sets, VCR's, and good watches,... and essentially the products that Americans and others throughout the world want. So conversion is possible, just come back to that...

Anthony DiFilippo

Antonello: Can you say something about the big change in the machine tool industry?

00:17:57:14P Well..,1986 I published a book called,"Military Spending and Industrial Decline: A Study of the American Machine Tool Industry;" and in that study it was very clear to me that, from the evidence that for a good period of time, the US was without a doubt, the major machine tool producing nation in the world. Machine tools are basic manufacturing industry, virtually every manufacturing product relies directly or indirectly on machine tools, either for production or at least for the delivery of the product. So an advance nation without a strong machine tool industry is likely to have some serious problems.

Well, as I said the US machine tool industry was clearly in the lead. After WW2, up until the mid late 1960's, by that time things changed. The Japanese began to start producing fairly decent standard tools, the (??) and other standard types of tools. The West Germans also became increasingly competent. What we saw by the earlier late 1970's, early 1980's, was the West Germans were the leading machine tool producing nation in the world, many of their tools being shipped to neighboring European countries. Today we find the Japanese are the leading producer of machine tools in the world, not only producing the standard tools but interestingly also producing the high technology tools, the computerized tools. Numerically controlled machine tools, first developed in the US with money from the air force. Vast majority of the tools that American manu.....numerical machine tools, the American manufacturers use today come from Japan. We're importing these highly sophisticated tools that are used in

manufacturing, from Japanese and the West Germans. Why?

00:20:01:20P Well, because they cost a little bit less, in many cases that's not always true, but I think most importantly for better tools. There's made simply developed technology to the point where they are able to produce a good tool, a highly competent piece of equipment at a price that American manufacturers want. It's not just machine tools, that's again true in many different markets.

00:20:30:01P But going back to the original point, a nation without a strong machine tool industry is going to suffer, and as we've seen, going along with the fact that imports of machine tools has flooded the US market. We've seen too that American manufacturers had been reluctant to replace their aged machine tool equipment. And old machine tools are not as productive as new machine tools, and I would say that's probably at least part of the reason why US productivity and manufacturing has not grown as fast as it has in some of the other industrial nations.

If you look at Japanese machine tools for instance, you'll see that the age of their equipment is much younger than in the US. And their productivity, manufacturing productivity is the highest in a raw industrial nation. It's got to be related to the type of equipment that one uses in the manufacturing process.

00:21:33:08P The machine tool industry keep in mind, is an industry directly connected to military production. You can't make tanks and sophisticated air space equipment without machine tools. So what essentially I looked at in that earlier work was how the US machine tool industry was adversely effected by the fact that its builders, machine tool industry builders were associated to a degree with the US military machine. The Japanese were consumer oriented, civilian oriented I should say. West Germans similarly, they also were civilian oriented industries, and we've seen the outcome.

00:22:25:20P The US machine tool industry is certainly not the leader in the world today, as I mentioned, and the industry itself is in bad need of research and development money. And as I pointed out before a sizeable amount of US government r and d money goes to military work. Keep in mind that the Japanese machine tool industry was targeted years ago by the Japanese government and assisted by the Japanese government, which helped it to grow considerably from the late 60's until a current period of time. The US machine tool industry had an attachment with the military system, and established its headquarters, its trade association used to be in Washington, it moved to right outside of Washington. The reason being because that's its biggest customer, the pentagon. So it moved to where it could closest to, ..but is it the producers in that market

could be...have an association that would be close to where its major purchaser was located.

Anthony DiFilippo

Antonello: High Definition TV..Most likely the Japanese will develop it first?

00:24:04:08P That is an emerging technology, high technology along with super conductivity. Let's address high definition television, the vast majority of research done on high technology, high definition television are in the US, is being supported by DARPA, defence advance research projects agency. Offhand I don't recall the dollar figure, I think it is around thirty million, I could be wrong on that bill. In Japan the technology, high definition television is more advanced, and is being developed for civilian markets. The expectation of many analysts is that this will be, I don't think they're wrong here, a major market in the coming years, not only in this country but throughout the world. The chances of the US having a part of that market, a part that matters, are very very small. They probably have, the US manufacturers probably have little to no chance of being successful in the commercial high definition television market.

00:25:18:00P Another emerging technology is super conductivity, basic principle of super conductivity is associated with magnetically levitated trains, trains that will zoom along a few hundred miles an hour. This technology first appeared in the US, and US manufacturers sort of lost interest in it. Japanese and West German manufacturers began to develop it and they are using the principle of super conductivity to build magnetically levitated trains. And their market, their major market is going to be the US, super conductivity research in the US is almost totally being supported by DARPA, once again. So the technology has a military use, it's getting support from our government, from the US government to develop in a way that will be beneficial to military contractors.

00:26:21:04P The difference again in Japan and West Germany is that they're looking at civilian uses for that technology. The key technologies that are developing now is the magnetically levitated trains, which will probably replace the airplane for short distance travel, for people, people who want to go a few hundred miles an hour, many of them will opt to take these very quick trains. So technology has a very important civilian use. And again it probably will appear here in years to come, I don't know how long, I'm not going to try to predict that, but we are going to find those trains zooming along. And we'll probably find that the Japanese and West Germans are responsible for developing that technology.

The list is almost endless, if you look at robots, we all know about robots. The first industrial robot was developed in the US, I think around 1960, Japan now produces more robots than anybody and they also have more robots in use than anyone. They're exporting a sizeable number of those robots to the US. What happened?

00:27:34:09P Well, the US robotic technology is marketed not all of it but market is being developed for military purposes. For instance to have a sentry robot, the robot can patrol an area not affected by weather or any bad conditions. In Japan they're developing a robot, intelligent robots that can move and think and travel pretty much the way a human can. And they're developing that technology for civilian purpose, for manufacturing purposes, it's interesting. The television commercial which appeared in the US talked about the Seiko watch, the woman comes on and says she no longer has her husband but she has her Seiko. Seiko manufactures these watches almost exclusively if not exclusively by using robots. Robots make these watches.

And keep in mind the unemployment rate in Japan is amongst the lowest, if not the lowest in the industrial of the industrial nations. It's not like these technologies have pushed workers out of their jobs, because we find that the unemployment rate is much higher in the US than it is in a country like Japan. So Manufacturing process technology such as robots don't necessarily have to mean that a nation is going to experience increased unemployment, because there are, if that nation is producing products, other products that people need, technical talents will have to be trained and more jobs will open up as they had in Japan.

00:29:21:06P Interesting too, is that in the US a young kid coming out of school finds it very difficult to get a half decent job, particularly in the manufacturing sector. That's completely different in Japan, a kid coming out of school with only a high school education finds it pretty easy to get a job, because there are jobs there, they are manufacturing relatively decent jobs in Japan. They're producing the things that people around the world want. I think that this is all related to...I mean not only do I think, I've essentially traced them out in the current work that I've engaged in, too heavy spending for the military particularly...sure not only is it classified there is this part of the research and development budget of the defense department is unaccount for, essentially I shouldn't say unaccounted for, there's no specific identification of what the money is used for, it's called black budget. Use of the money for whatever the reason it uses it, and noone, I shouldn't say no one, somebody knows, the public certainly doesn't.

Anthony DiFilippo

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Antonello: Let's talk about the relationship between machine tools and war?

00:00:42:07P Well, when the US entered WW1, the US machine tool industry did certainly provide the basis for most of the equipment that was used by the US and its allies. After the war it changed over, that is the industry, to producing civilian oriented types of equipment. One of the major things which was producing by the way, during the war was..after the war was the fighter bombers during and after the war that were needed the war planes were needed during WW1. When the US entered WW2, the key transition was also made, another transition was made, the machine tool industry entered WW2 making the products that both the US wanted to consume for its military effort. And also its allies who were fighting, engaged in the war.

The point is that ..that once the war ended, the machine tool industry essentially latched on to the military system. It became a market for machine tool builders during the 50's and 60's, because a permanent economy was established. Not so much directly because most machine tool manufacturers don't receive sizeable contracts directly from the department of defence, but they receive them indirectly from the aerospace producers. Machine tools are necessary to produce the aerospace equipment. So they became an indirect, they had an indirect linkage to the department of defence, that is the machine tool builders because many of the aerospace manufacturers needed machine tools to bend and shape the metals that they need to produce war equipment.

00:02:43:06P So the machine tool industry again was ..became a major industry that was the foundation of the US military system. And the problem became that more technology support was needed, one problem anyway, was that more technology support was needed for that industry to remain competitive to maintain a lead, let's say, over other industries that were beginning to emerge during this postwar period. And that simply put, the assistance wasn't there. But it was there in Japan, and it was there in West Germany, all types of technical support was given to their industry. So the machine tool industry is a key industry in regard to mass production has been devastated by its relationship, long term relationship to the US military apparatus.

Anthony DiFilippo

Antonello: Do you believe there is a contradiction here? The machine tool industry needs investment to grow yet that military investment kills it?

00:04:48:00P Well, in the US when the military was assisting in the machine tool industry, there was little competition. Japan and West Germany were really not major producers at the time. And the technologies that were becoming important at that time, are certainly were not as sophisticated. What we see today is that machine tools are needed for military work are becoming very specialized types of tools that can't be used in civilian production. So the type of support that comes indirectly mostly from the military to the US machine tool industry, often times has to build tools specialized tools which are not applicable to civilian production. What I get from your question then is, why aren't there as many spinoffs..and it would be because the specialized nature of many of the tools that are needed for weapons systems today. They simply can't be used in most cases by consumers, I shouldn't say by consumers, by manufacturers involved in consumer production.

Anthony DiFilippo

Antonello: what about the progress of democracy in the face of this huge investment?

00:06:18:13P Well, if you look at the US science and technology policy, it is clearly not what I would call or I don't think anyone who looked at it carefully would call democratic. As I mentioned most of the resources, the technical resources are for military related purposes, which means that other policies, programs let's say, that could use support. Science and technology types of support are being avoided,

The way the government distributes the technical resources is certainly not democratic, it uses it to benefit primarily many leading military types of firms who want to develop technologies principally for profit. It's highly profitable to...as I mentioned before to work with the department of defense. So we're talking about the fact that Americans have very little of anything to do with our science and technology policy, in fact we really don't have a science and technology policy in this country, other than the military. Only identifiable science and technology policy that we have, there's no major civilian office that deals with the examination of issues relating to science and technology.

00:07:45:16P You look at the department of defense budget, its research and development budget, and what you'll see is that there are in recent years for instance, there was a twenty two billion dollars of research and development money that the department of defense had that was essentially

unlabeled, what is called a black budget. What does the department of defense do with that money, only a few people I'm sure know. That can't be democratic, if we have twenty two billion dollars that's being used by key military people the way they want.

Democracy suggest to me that people have a real input into the decision making process. I can't see how the many homeless, the large number of people who are poor, the ordinary who perhaps is having a difficult time finding a job, how they have any input into the development of a technology policy which utilizes about fifty billion a year for the military, and a sizeable amount of it, really unknown as to what is being done specifically. That seems to me to be not very democratic.

00:09:05:13P But as you know I'm sure that military people, one of the key things that's always rolling around in their head, is secrecy. You maintain superiority by not telling your enemy what you're doing, in order to do that you have to keep the American people and others in the dark too. If you tell the American people, you've essentially told your enemies. So going back to the point, there isn't any science and technology policy in the US other than the military, other than for the military, and that policy if you call it that, not very democratic, for the reasons I've just explained. Ordinary people have no input.

Anthony DiFilippo

Antonello: Is progress a machine that is always getting better?

00:10:24:03P In regard to progress, for me what we've had in the US has not been progress. Most Americans have not benefitted from the maintenance of a military apparatus the size that we've had in the US. If you look for instance at comparatively, on the US standard of living, per capita GNP, and compare it to countries such as West Germany, the West German standard of living is currently, has been for a while, higher than that of the US. The Japanese standard of living is quickly approaching that of the US. So the military system that we've maintained in the US for four decades, if you look at the standard of living which I identify as a key indicator of progress, how good are the people of a particular nation living compared to other people. Certainly that, even if what I've said, all of what I've said is totally untrue certainly all the money that we've spent like in the last, just in the 1980's during the early Reagan years, we've spent 1.5 trillion dollars, not counting the many many dollars that we've spent since 1950. Even if all of what I've said is not true, that high expenditure that we devoted to the military has not improved clearly our standard of

living relative to the Japanese and West Germans, it could be coincidental again I feel that it's not (??). The Japanese and West German are those nations , are two nations which have not devoted a substantial amount of money to their military systems. They've become highly sophisticated industrial power, people have progressed, certainly their technologies have progressed.

00:12:31:17P If we talk about the advancement of military technologies, then certainly if you want to call that progress in the Us, the fact that we're able to destroy the planet, you would call that progress, you know that to me is certainly true, we can do those things. I don't consider that progress, I consider what other nations particularly the non militaryzed nations are doing. Not only what they're building but how their people are living. I consider that to be progress. I see pretty much that the future, at least if you're looking in near term future, I'm not going to predict, I don't see much change in the US regarding progress the way I define it, in terms of improving standard of living but good jobs for people, because despite the talk we still have spent a significant amount of resources on a big military system, which can't be directly or even indirectly beneficial to Americans, at least not to any significant extent.

00:13:39:22P The best that we could say from, what we've got from this military system, is a form of deterrent. So what we've seen then is that we've selected technology to more or less maintain an unstable type of peace, deterrence. The Japanese and West Germans have selected to use technology for economic growth. So I guess it really comes down to how you define progress, I think I would define progress more in line with what the Japanese and West Germans have done in regard to improving their standard of living. As opposed to what the US, Soviet Union, and Great Britain have done, where they essentially spent their monies on developing war systems, being more competent to destroy the planet, more capable I should say of destroying the planet.