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PROSPECTS FOR INTERNATIONALIZATION IN THE AREA OF PRODUCTION

Let me start by apologizing because I can't do this in Italian. It would be much nicer if I could. Next time.

What I would like to do is talk about a series of changes that I think are going to occur in the way business firms compete with each other, and I would like to do this by making the following argument. If you were an economic historian looking over the last two hundred years, you would say that the 19th century was the century of Great Britain. It was the dominant economic power in the world, and it had the world's highest per capita income, so the 19th century would be named after Great Britain if you were naming centuries economically.

The 20th century, of course, was named after the United States, because the United States passed Great Britain as the country with the world's highest per capita income around 1900, plus or minus a few years, and in all of the 20th century until now, the United States had the world's highest per capita GNP. It is important to remember that for much of this period after World War II the United States had a unique position. Probably on the day World War II ended, 75% of the GNP of the entire world was inside the United States. As late as 1960, after the rest of the world had had a chance to recover from World War II, it was still true that 50% of the GNP of the entire world was in the United States. And, so, if you played in the American market, you were effectively playing in the world economy because between 50% and 75% of the entire world economy was inside the United States.

I think the historian is going to say that the 20th century, the second millenium, ends on January 1, 1993, not because anything magic happens on that date, but because technically on that date the United States will become the second largest economy in the world. The Common Market with 337 million people--I'm adding East Germany--will have a per capita GNP a little smaller than the United States, but Europe has many more people (the United States has about 250 million people) and will be the world's largest economy. I think a historian, let's say, in 2050 will say that, economically speaking, the 20th century ended in 1992, and the 21st century, a new world economy, began on January 1, 1993.

Now, at the end of what I'm going to say, we can think about who the 21st century is going to be named for. If the 19th century is the century of England, and the 20th century is the century of the United States, who gets the 21st century? There are basically three contenders: the United States again, Japan and the Pacific Rim, or Europe. But let's come back to that. What I would like to talk about are three or four characteristics that I think are going to be different in how business firms compete with each other in the 21st century as opposed to the 20th century.

First, there are going to be some firms that deliberately decide to become cosmopolitan firms, and by a "cosmopolitan firm" I mean one that has no real identification with any particular country. In some sense, they are not global firms, they're world firms. What else do I mean by a "cosmopolitan firm"? I have a definition. A "cosmopolitan firm" is one where, if you considered the 50 top executives, some very substantial number of those 50 top executives would not come from the historical home country. Different nationalities and cultures would be integrated at the top of the firm. Now if you think about that definition at this moment, there are very few cosmopolitan firms in the world, and the only ones that exist come from small countries like Sweden or Switzerland, as in the case of Volvo where they have so much of their sales outside of Sweden, they couldn't staff at the top only with Swedes. But if you take big countries like the United States, there may be only one or two what I would call cosmopolitan firms. If you consider Japan, there are zero because if you take the top 50 executives of any Japanese firm, they are 100% Japanese. I don't think there are any cosmopolitan German firms either. You can talk about whether you think there are any Italian cosmopolitan firms.

But, for example, what are we going to do about IBM because there's IBM Europe, which is 99% European, there's IBM Japan which is 99% Japanese, IBM North America which is 99% American. All do research, all do production, all do sales, all do marketing. If any two disappeared, the third one would hardly know the difference and could survive very nicely without the other two. Probably in the 21st century, it will not be at all obvious just what you should call "IBM". It will cease to be an American company and will become a cosmopolitan company.

There are one or two Japanese firms that are trying to do the same. For example, consider Honda. By the mid-1990's Honda will both make and sell more cars in the United States than it does in Japan, Honda will have more American employees than it does Japanese employees, Honda will make more cars in North America than Chrysler makes in North America, and Honda will have higher American content than Chrysler has in North America. And so, the question becomes what's the third largest maker of cars in North America--Honda or Chryler? Honda clearly has a strategy--I think there are only two Japanese firms that I know of that have a strategy--of basically becoming a cosmopolitan firm and in some sense losing its Japanese roots. One of the things you're going to have to decide in a company is whether you want to remain a national company even if you compete abroad, or whether you want to move toward being one of these cosmopolitan companies. What are the advantages and disadvantages?

The second characteristic which you will see in Europe, of course, is that some of the powers that have previously been in national governments are clearly going to move to regional governments. For example, Italy is going to lose the ability to control its interest rates because if you have, as you will have in 1993, the rule that any bank anywhere in Europe can put a branch anywhere else in Europe, then everybody is going to borrow in the country where the interest rates are lowest, and everybody is going to lend in the country where interest rates are highest, and it follows that the interest rates are going to have to be the same everywhere in Europe. Europeans have essentially only two choices, both of which lead to the same result. You could have a central bank of Europe, and then the Italians and the British will have some say as to what that central bank of Europe does; or you can not have a central bank of Europe, and the Bundesbank will become the central bank of Europe with the Germans having all of the votes. The result will be the same either way, but the local national governments and the Bank of Italy will no longer be the bank of Italy in some very fundamental sense after 1993.

We are also going to have a world capital market. We tend to forget, especially if we live in the United States, that in most of the post-World War II era, it wasn't permitted to move money across national borders without government permission. And I think, just last week, the Italian government got rid of the last of its controls. France still has some, Japan still has some, but those controls are going to go. Even if the governments don't get rid of them, the controls are going to go because if I can move money on a PC, there is no such thing as a government stopping me from moving money no matter what the rules and regulations are. It's important to understand that a world capital market makes a big difference because it means that it is no longer a bid advantage to be located in a rich country.

In the days without a world capital market, if you were an American firm and you were in the richest country in the world, you automatically would have a higher capital-labor ratio in your production facilities than somebody would from Thailand. With a world capital market, however, if I open up a facility in Thailand, even though it's a poor country, I can make that facility just as capital intensive as you can in the United States, Japan or Germany, despite the fact that those countries are 25 times as wealthy per capita as Thailand. If you want to see this, go to Korea and look at the Korean consumer electronics factories. Korea has a per capita GNP of about $4,000, and Japan has a per capita GNP of about $22,000, but the Korean facilities are absolutely just as capital intensive as anything in Japan. This means, then, that there can be a new set of players in the world economy, and you don't have an edge simply because you happen to be located in a wealthy country, the way it used to be. If you think of these changes, I would argue to you that there are four ways historically that individuals got rich, that companies were successful, and that countries were successful. Of these four ways, a couple of them are going to become less important and the others are going to change.

Traditionally, one of the ways to be rich was to have natural resources. The interesting thing is that maybe with the exception of oil, natural resources are becoming irrelevant. If you take the United States and all of our natural resource industries--farming, mining, timbering, fishing--by the year 2000, just 2% of the American population will work in all of these industries. So 98% of us are basically going to have to make our living without benefit of natural resources. If you look at the consumption of natural resources with the exception of oil, everywhere it is going down. For example, in 1960 in the United States, we used 120 million tons of steel. Last year, we used 85 million tons of steel despite the fact that the economy was two and one-half times as big. The use of natural resources per unit of GNP is very rapidly going down. And, the fact is, it is probably an advantage not to have natural resources. Who has the world's best steel industry? Well, the Japanese. They have no coal and no iron ore, and that's an advantage because it means that they are not locked into British coal, they don't have to buy poor quality local iron ore; they can buy the best coal and the best iron ore wherever it's cheapest, anywhere in the world. So you don't need natural resources to have the world's best steel industry.

The second thing I've already mentioned that partly drops out of the equation is capital. If you have a world capital market, being in a rich country isn't the competitive advantage that it used to be. Now there is a mystery in this area because if you have a world capital market, you should see the same interest rates everywhere in the world. The problem is that despite the fact that we sometimes talk about the fact of having a world capital market, interest rates are not the same. For example, if you look in 1989, and you take the corporate bond rate and subtract the rate of inflation--I should have looked up the Italian real interest rate and I didn't--in the United States the real interest rate was 5.6%; in Germany, it was 3.6%; and in Japan, it was 1.4%. And, if you think about that 1.4% number, if you think that is going to continue, the basic rule is that if you are in a capital intensive business anywhere else in the world, you should get out of it. You can't possibly compete with the Japanese if you're borrowing money at 5% and they're borrowing money at 1%.

In thinking about capital intensive businesses, you have to decide whether you think these huge interest rate differentials are going to continue into the 21st century, or whether they're going to disappear in the 21st century, because the way the capital markets have been working for the last 10 years, the Japanese have an overwhelming advantage in any capital intensive business because their interest rates are around 1%. If you look at their price earnings multiples on the stock market, they basically are borrowing money at half of 1%. I know nobody in the United States borrows money at that rate, and I don't think anybody in Italy borrows money at that rate, which means that if you're in a capital intensive business, you have to be noticably, technologically better than the Japanese or you can't possibly compete in that business.

Now, let me come to technology directly. About a year ago at MIT, a group of 16 of us wrote a book called MADE IN AMERICA which looked at some of these international competitive aspects. One of the things we looked at was R & D (research and development) expenditures. Looking at Japan, Germany and the United States, we saw an interesting differential. In private corporate spending in the United States, about 70% of R & D money goes into new products, and about 30% goes into new processes. If you look at Germany, that ratio is 50:50--50% of the money goes into new products, and 50% goes into new processes. If you look at Japan, 30% goes into new products, and 70% goes into new processes. So the Japanese and the Americans are exactly opposite. We put 70% into new products; they put 70% into new processes.

I know why we in the United States do what we do, and I think it's obsolete. When I was a graduate student 25 years ago, the common thing that my teachers taught me was that the rate of return on new product R & D is usually higher than the rate of return on new process R & D because, if you invent a new product, you've got a little monopoly for a while, you can charge a higher price, and you will, in general, make more money by inventing new products than you will by inventing ways to make old products cheaper or better. Old products are always a competitive business where the margins get competed away. I think 25 years ago, this was all true, but the problem is that the general level of technical sophistication has gotten very high and reverse engineering has become very good.

Today, inventing a new product if you are not the cheapest producer of that new product, does you almost no good. Let me give you three examples. In terms of dollar volume, there are three new products in the world economy that are much larger than any other new products introduced in the last 15 years: the video camera and the video recorder invented by Americans; the fax invented by Americans; and the CD (compact disc) invented by the Dutch at Phillips. The interesting thing about these three products, of course, is that the Japanese own all three. If you think of the number of units produced, employment, profits, the Japanese probably have 80-90% of the world market for all three of those products, despite the fact that they invented none of them. But by being the cheapest producer of these products, they could take the product away from the inventor. And so, what this says is that you've absolutely got to be first rate on process technologies, because if you can't produce the product the cheapest, you are wasting your money if you invent it.

At least in the United States, an enormous change is required not just in the way we spend money but also in how corporations allocate their people and pay their people. Traditionally in the United States, production engineers have been paid less than research and design engineers, and production engineers have been promoted more slowly than research and design engineers. This tends to mean that really first rate people go into research and design as opposed to production. Further, it's not just a matter of putting money into production, you've got to put your absolutely first class people into it because, of course, the Japanese are putting their absolutely first class people into it. If you don't have production people as good as they do, you're going to be in trouble.

We come now to the fourth item where you must be competitive with the rest of the world, and that is in having a work force with skills and education better than your competitor's work force. I would argue to you that in the 21st century this item is going to be the key competitive weapon. Natural resources are going to travel around the world, capital is going to travel around the world, technology is going to travel around the world, but the thing that is going to move slowest is skills. You really have to think of skill management as the key competitive weapon. Here again you can see an enormous difference between American and Japanese firms. If I go to an American firm, and I say, "Who's the second most important person after the CEO (Chief Executive Officer)?", it's almost always the Chief Financial Officer, the CFO. If I go to a Japanese firm, and I say "Who's the second most important person after the Chief Executive Officer?", it's the Vice President for Human Resource Management, the person in charge of making sure that the corporation has a skilled workforce that is better than its competitors. I think this becomes tremendously important because we know that there's a whole set of technologies coming that will require the average production worker and the average office worker to have skills which they have never had to have in the past. For example, if you want to make gigabit semi-conductor chips, you've got to do statistical quality control. To do statistical quality control, every single production worker needs to be taught operations research. To be taught operations research, every single production worker has got to be reasonably sophisticated mathematically. In the United States, we have some of our workforce that is <u>not</u> reasonably sophisticated mathematically which means we can't produce semi-conductors if we are going to work with that part of our workforce. Here again, I think that this is one of those places where the German system of education provides a very powerful competitive advantage, and the Japanese have a very powerful competitive advantage here too. For example, every single graduate of a Japanese high school, even if that graduate is not going to University, must take a year of calculus. And so, if I'm running a Japanese firm, I know that every single worker that I hire is familiar with calculus. I know that is not true in the United States, and I have a suspicion that it is not true in Italy either. But that's the standard that's going to be required. The same thing is true of just-in-time inventories. If you're going to use just-in-time inventories, the average production worker has got to have operations research skills; and if you think the office is going to be automated, and you're going to be using sophisticated computer information technology in the office, then here again, your office workers are going to have to have a much higher level of sophistication. And, so I think the whole question of skill management becomes absolutely central. Of course, this is a complicated problem because some of it is in the public sector--how do we run our education system?--and some of it is in the private sector--how do we educate these people after they finish high school so that they have the skills that we need?

The next thing I think my historian is going to point to and say is different is that the 20th century was not a competitive century. He's going to say it was a century of niche competition. Why is he going to say this? Well, because after World War II, we didn't have a situation where the principal areas of the world had equal per capita incomes. For example, in 1960, the United States had a per capita income twice that of the next best country of the world, and 8 times that of Japan. And so let's say when Germany and Japan were producing products, they would produce products which in Germany and Japan were high-wage products, but those products would be low-wage products in the United States. And the United States knew it had a technical edge over Germany. Germany knew it had a technical edge over Japan. Given that wages were very different in the three countries, Japan wasn't competing with Germany, and Germany wasn't competing with the United States. When the Japanese and German products came to the United States, we said, "Well, we're phasing out those industries anyway because they're low-wage industries." And, conversely, if you looked at American exports to the rest of the world, we exported agricultural products which the rest of the world couldn't grow; we exported raw materials which the rest of the world didn't have; and I remind you that in the 1950's we, not Saudi Arabia, were the world's largest exporter of oil; and we exported high technology products like the Boeing 707 which the rest of the world couldn't build. You remember the history was that the British tried to build a jet aircraft called the Comet which had the unfortunate habit of coming apart in mid-air and didn't really fly.

In that environment, it's niche competition because it's win-win. Everybody grew fast, everybody produced products, but the products really weren't directly head-to-head competitive. I think what's going to be the mark of the 21st century is this head-to-head competition, because for all practical purposes, I would argue that Germany, Japan and the United States have equal per capita incomes. If you look at external purchasing power--how much the average citizen can buy if he takes his money abroad--the answer is that the Germans and Japanese at current exchange rates have something like a 15% advantage over the United States. If you look at internal purchasing power--how much the average citizen can buy if he spends his money at home--

the American has a 15% advantage over the German or the Japanese. But if you add those two things together, I think we are approximately equal.

The way you see this is to go to Germany, Japan, and the United States and to say to those three countries, list for me the industries you think you must have in the 21st century to give your citizens a world class standard of living, and the three countries will give you exactly the same list. All want biotechnology, microelectronics, telecommunication, the new material science industries, computers, and, maybe, aviation. They can't all have all of them. There are going to be some winners and some losers, which means that we're going to be directly competitive with each other in a way in which we were not directly competitive with each other in the 20th century. If you want to back up this view, there's a book in Japan called A JAPAN THAT CAN SAY "NO", which is written by Mr. Murita who is the head of Sony, and a Japanese politician by the name of Ishihara. The Japanese are refusing to let this book be translated out of Japanese because the book says some things that the rest of the world wouldn't like, but let me mention just one thing that echoes this head-to-head competition. In one of the chapters written by Mr. Ishihara, he says the 20th century will be remembered as a century of military warfare between the superpowers because in the 20th century we had World War I, World War II, the Korean War, the Vietnam War, and the Cold War. So the 20th century has been the century of superpower warfare competition. But Ishihara says the 21st century won't be the same because of nuclear weapons. If the United States were to defeat the Soviet Union militarily, we would have to drop 20,000 A-bombs. If we dropped 20,000 A-bombs, the radiation would swirl around the world, and we would die 24 hours later. If the difference between winning and losing is dying 24 hours later, it's not much of an advantage to be the winner. What Ishihara goes on to say is that therefore, the 21st century will be remembered as the century of economic warfare--and this is his language, not mine--and we, the Japanese, will win. What he is saying is that the 21st century will be remembered as the century of Japan and the Pacific Rim. Nineteenth century, the century of England; the 20th century, the century of the United States; and the 21st century, the century of Japan plus the Pacific Rim. If you had been in Germany in February, you would have heard Chancellor Kohl on German television make the following remark on your behalf: "The 1990's will be the decade of the Europeans, and not that of the Japanese." He probably meant the Germans, East and West, but I think he also meant the Europeans. He's your champion in the ring, so to speak, and I think this language expresses a reality. I don't think we will really have economic warfare, but I do think it will be a more head-to-head competitive economic world, and you have to think about how to play this new ball game.

Let me talk for a minute about the three competitors, and their strengths and weaknesses because in the 21st century you in Europe are going to have to learn how to compete with the

Japanese, and you haven't done it. For example, there is one place where the European car makers and the Japanese car makers have played an equal competitive ball game: it's called North America, where both of you have been outsiders. If you look at the North American market, the Japanese have run Fiat completely out of the market; Fiat does not sell cars in North America anymore. They have run Renault completely out of the American market; Renault does not even attempt to sell cars in America any more. Volkswagen at one time had 10% of the American market; Volkswagen is now down to less than 1% of the American market and is about to leave the United States. And there is no way that European car makers as they are currently constituted can compete with the Japanese. If you look at expensive cars, BMW's and Mercedes, the Japanese now have a set of luxury cars that are very quickly eroding the market share of the BMW's and the Mercedes. And so, if you look at that particular contest, you have to say to yourself, how is the European automobile industry going to compete with the Japanese if you have an open playing field?

If you were to look at the last 20 years and ask how well different parts of the world have performed, you would have to say that probably Mr. Isihara is right, that the 21st century will be the century of Japan. Let me just give you a couple of statistics. In 1970, if you had listed the 20 largest banks in the world, 6 of them were American and none of them was Japanese. In 1990, if you list the 15 largest banks in the world, 13 of them are Japanese. None of them is American. Actually, two of them are European.

If you look at the growth rate in the 1980's after correcting for inflation, Japan grows at 4% a year, the United States grows at 2.6% a year, and Europe grows at 2.0% a year. And so, in the 1980's, Europe was the slowest performer among the three major competitors. Japan, of course, in this 20 year period of time has also gone from the country with the trade deficit who was a net debtor nation to a country with the world's largest trade surplus that is now the world's largest creditor nation.

If you look at investment in plant equipment, infrastructure and R & D, the Japanese now lead the world in all three categories. The Japanese on a per-employee basis invest about 50% more than the Germans do in plant equipment, and if you look at civilian research and development, the Germans are putting about 2.5% of the GNP into civilian research and development, and the Japanese are now putting 2.9% and have a national plan to increase to 3.5% by 1995.

Obviously, Japan is a formidable competitor. The Japanese weakness, though, is a culture that makes it very difficult to integrate outsiders. If you look at the Japanese plants in the United States, the Japanese are very good at managing American workers. They are lousy at managing American managers; they don't know how to bring people in at the top because of their closed culture. And it's not a question of speaking Japanese. I was in Japan not too long ago with a group of people, and one night they were having a discussion about the essence of the difference between an American and a Japanese. I think the group came to the right conclusion. The answer is that the United States is the easiest place in the world to become an American. Japan, on the other hand, is the hardest place in the world to become a Japanese. If I live in Japan for my whole life and speak perfect Japanese, that doesn't make me a Japanese. If I have cosmetic surgery and straighten and dye my hair, that does not make me Japanese. There is nothing I can do to make me Japanese. Some of the Japanese among the group said the strangest thing that ever happened to them was that when they came to the United States for the first time, they stepped off the airplane at Kennedy Airport, and somebody immediately asked them for directions how to get someplace else. They knew that the equivalent situation would never happen at Norita in Tokyo, but in the United States, the fact that you look Japanese doesn't mean that you haven't lived there for your entire life. And so, the Japanese have a very hard time playing the game and looking local, because at the top, there isn't any way that a Japanese company can look like an Italian company or look like an American company.

Now, what would an outsider say about Europe? Is there a possibility that the 21st century could be named for Europe? Well, I think the answer is yes, and, of course, the reason is the events in Eastern Europe. If the European Common Market can add at least part of Eastern Europe, and of course you've already added East Germany, but there's also Bahimi and Moravia and other industrial parts of Eastern Europe plus EFTA, then maybe Europe can put something together that can't be duplicated elsewhere in the world. In doing this, you have two enormous advantages. The first advantage is that none of the countries in Eastern Europe is really poor in the sense that Africa, Latin America or Asia is poor. We believe, unless somebody changes the statistics, that the per capita income of East Germany is 2 1/2 times that of Korea, and the poorest country in Eastern Europe has a per capita income about equal to Korea. But the more important characteristic is, of course, that Eastern Europe is full of basically, up to the high school level, well-educated people. We have to admit that even if the Communists couldn't run an economy, they could run a damn good school system. And, so, if you put Eastern Europe together with some Western European capital, some Western European technology--and then they've got to give themselves an incentive system--if you can do that, there's no reason why in the 1990's and the early 21st century you couldn't have a boom in Eastern Europe which is even faster than the boom that happened in Western Europe in the 1950's and 60's, and that should pull Western Europe along with it, especially because it changes what the Germans want to do.

If you ask why Europe was the slowest performer in the 1980's, the answer is in terms of macroeconomics. The Germans were a giant brake on Europe for the entire decade. Because of their falling demography, they did not want to grow. And that 1.5%

growth rate in Germany was perfectly satisfactory to the Germans for the decade. But because of East Germany, in the 1990's they will want to grow very rapidly because they have every incentive to get the East Germans up to West German income levels just as fast as is humanly possible. So, instead of being a brake on the rest of Europe, Germany should be an accelerator for the rest of Europe in the 1990's.

The problem, however, is that it's easy to say we're going to move from central planning to the market, but, in fact, it's fiendishly difficult to do. No country has ever done it, and it is not obvious that anybody other than East Germany will succeed. East Germany will succeed simply because the West Germans will pay for it. But nobody is going to pay for the rest of Eastern Europe, and it's very difficult to make these kinds of movements for a couple of reasons. Let me just give one illustration. If you're in the Soviet Union, people put only 1% of their income into housing. In any capitalist society in the world that I know about, people put 30% to 40% of their income into housing. So, if I'm Mr. Gorbachev, I have to make the following deal with my citizens, and you can ask, is it going to be made? The deal is, you give me 40% of your income for the next 15 years, and at the end of that period of time, I'll give you a bigger or a better apartment. It's going to take 15 years to expand the supply of housing, but I need to move to market prices now if I'm going to do that, which means that, all of a sudden, you've got to start paying me a substantial amount of rent. Now, do you think Gorbachev can make that deal with his citizens? It's a very tough deal because if you live in a free apartment--as I remember you have rent controlled apartments in Rome and probably in Naples too--then there aren't very many people who will voluntarily give them up. Why should the Russian suddenly agree to start paying rent? That problem exists throughout the economy because basic necessities are close to free, not just housing, and so it's an enormous, very difficult change.

And, of course, there are two tremendous management changes. Nobody in Eastern Europe has ever run a business. They may have run a steel mill, but they did not run a business because they ran steel mills like they were army divisions. Everybody in Eastern Europe has been in the Army. You take orders, you get materials, you follow orders, you make the shipments you're supposed to make, and no business decisions are ever made any more than a military commander makes a business decision. So, first of all, you've got a tremendous education problem in how to re-educate that whole group of people in terms of what they have to do.

The American newspapers often say something about Eastern Europe that has to be false, or, at least, irrelevant. They say the real opposition is the bureaucrats in Moscow. Well, the bureaucrats in Moscow may be opposed, but they're not important because you can just ignore them. The real opposition is the plant managers, the factory managers. No factory managers want to change. Why should they? They're the winners. They've got the big houses, they've got the dachas, they've got the cars, but in a real market economy, they may not have the skills that allow them to succeed. And, if Naples wins the World Cup, they don't want to change the rules. Any time I've won the game, I like the game, and I don't want to change the rules, and so there are going to be many people who don't want to change the rules.

Now what about the United States? The real problem in the United States is that if you have had a century when you weren't really competitive with the rest of the world economically, and then all of a sudden the rest of the world has caught up, there is a whole set of things that you have to do differently. I think the trick in the United States will be to learn to do these things differently. The U.S. has two great advantages. First of all, although the Common Market may be larger technically, it's much less homogeneous. I mean in Northern Europe you need butter, and in Southern Europe, it's olive oil. In the United States, everybody eats butter. And, so, in terms of being a homogeneous large market, the United States is still by far the world's largest market. The other advantage we have is our very open culture where it is, in fact, easy for outsiders to participate. This is a real advantage in some senses. The other problem we have is that we have a very large fraction of our human resources in military efforts, and Mr. Gorbachev may help us there to get them out.

If you look at the American military budget, it is not large in financial terms. It's only about 7% of the GNP, a couple years of growth. If you look at it in terms of engineering talent, it's huge because somewhere between 40% and 50% of all the engineers in the United States work on military problems. And, so, if you could liberate even half of that group, you would very substantially augment the amount of engineering talent that goes into the civilian economy. There's another place where the United States has an advantage. If you count engineers, you will come to the conclusion that Europe and Japan each produce proportionally more engineers than does the United States. If you count scientists, physicists, chemists, biologists, you'll come to the conclusion that the United States produces more scientists than Europe or Japan. And, of course, if you think about bio-technology, America has more microbiologists than all the rest of the world combined which is why a European company like Kluchst is doing its microbiology research in Boston. There aren't enough microbiologists in Germany to hire to do this research even if every microbiologist in Germany could be hired.

(TAPE CHANGES--LOST REMARKS)

I think the other thing that's going on between the 20th and the 21st centuries is that the last half of the 20th century operated under what we know as the GATT (General Agreement on Tariffs and Trade) regime, the Bretton Woods system named after the first conference that set up the post-World War II system. The problem with the Bretton Woods-GATT regime is that system was designed for the realities of 1947. Suppose I had asked you to design a world economy in 1947. Well, you would have designed a world economy that looked like the one we did design, because you would have said, "Look, we've got this one huge economy--the United States, we've got all the rest of the world much poorer, and so we will assign two roles to the United States. First, it plays a macroeconomic locomotive role, and second, it's the market of last resort. When in doubt, if you can't sell your stuff elsewhere, sell it in the United States."

And, of course, it's been this market that's been relatively open to underdeveloped countries and has permitted the Koreas, the Taiwans, the Hong Kongs, the Singapores to prosper. For example, if you take all the manufactured exports from all the third world countries combined, and if you remember that the United States is now about 23% of the world GNP, what fraction of those manufactured exports do you think come to the United States? The answer is 65%; we're taking 65% of all the manufactured exports from all the poor countries in the world combined, while we're only 23% of the GNP. Back in the days when we were 65% of the GNP, that was fine; today it's not fine, and the question is, will Europe and/or Japan open their markets to products from the underdeveloped countries? Of course, it isn't easy to do that. All you have to do is go to an American store and look at how many of the shirts are made in China, and then go to a European store and look at how many of the shirts are made in China. The correct observaton is that if we had absolutely free trade, every shirt would be made in China. No shirts would be made in Europe, and no shirts would be made in the United States. Well, we phased a lot of our textile industry out, Europe has phased a lot less of its textile industry out on those kinds of products. What an economist would say is we're at the point where we need a new Bretton Woods conference to write a new set of rules for the 21st century because the previous rules are obsolete.

We need some set of rules that gives us a locomotive. Suppose for example we had an '81-'82 worldwide recession today. How would we get out of it? Well, the way we got out of the '81-'82 recession was that the United States stimulated its economy. The Organization for Economic Cooperation and Development says that in '83 and '84, 85% of growth in Europe came from exports to the American market, and about 105% of the growth in Japan came from exports to the American market. If you had a recession today, the United States couldn't do what it did in '83 and '84, because we started out in '83 and '84 with a trade surplus. Today we would start out with an already large trade deficit.

One of the questions is how to develop a locomotive. The other question is where to provide some markets for the poor countries of the world to sell manufactured products if they can't focus their output extensively on the United States. In the boom periods in Korea and Taiwan, for example, they were selling 80% of their exports in the United States. It's slightly less now, but at the beginning they had a very high focus on the United States, and that kind of focus can't continue.

Logic would suggest a new conference. The problem is, logic isn't politics. You can't have a Bretton Woods conference without having in some sense an economic superpower that can force everybody to agree. As it is, we can't agree in the GATT-ERGA way on minor things; we could never agree on major things. And, so, what I would argue to you is that the new GATT conference is essentially under way, and in the new GATT conference, neither Japan nor the United States is officially present. Brussels is the new GATT conference because as Europe writes the rules for Europe, and as Europe writes the rules for outsiders to relate to Europe, and as Europe writes the rules as to how Eastern Europe is associated with Europe, Europe will be writing the new Bretton Woods conference, partly because what you're going to do in Brussels is going to completely blow up GATT. For example, GATT technically allows for common markets, but when GATT was set up, nobody envisioned a Common Market quite this big. GATT does not permit associate memberships; they are 100% illegal under GATT. So, you can't give an associate membership to Switzerland, you can't give an associate membership to Czechoslovakia; this is absolutely illegal under the GATT, but you clearly are going to give some associate memberships in some way to some of those countries.

In doing that, the key point will be what is required for an outsider to be considered a European firm, to, let's say, join the Eureka projects. Ford and General Motors have made cars for 70 years in Germany, but the Brussels people won't tell them whether they will or will not be considered European firms from this perspective. And, of course, the decisions that you make I think are basically going to be the trading rules that the world is going to operate under in the early 21st century. We can discuss what kind of rules you're going to write. I think effectively the rules you will write are going to move less towards an open world economy, and there will be what I would call quasi-trading blocks. It's not that we will have no trade between the blocks. In fact, we'll have growing trade, but there are going to be limits.

Why do I say that you're going to write quasi-trading block rules? Two or three reasons. The first reason is history. Look at any common market that has ever been set up, and look at their behavior in the first hundred years. They've always been very exclusionary toward outsiders. That's what the United States did in the 19th century, its first hundred years, because the glue that holds insiders together is keeping the outsiders out. If everybody can join the club, why would you want to join the club? There wouldn't be any reason to join the club if you didn't get some special privileges. Second, if you look at any of the rules the Common Market has written so far--the movie and television rules, the insurance rules--they've all been slightly restrictive on outsiders. The television rules, for instance, say that the American companies can't produce more than 40% of the shows. Well, the American companies now produce about 60% of the shows. We may compromise on 50%, but that will still reduce the American market share. The same thing on insurance: American companies will tell you that selling insurance in Europe is hard, but if you look at the new Common Market regulations, it's going to be a little harder. And, of course, you've integrated in one place--called agriculture--and you've basically made it impossible for the rest of the world to sell agricultural products in Europe. And why should we imagine that you will do in industry anything different from what you've done in agriculture? The rest of the world, I think, is right to take this view, partly because of one other thing. Every time I'm in Europe and talk to either government officials or private industry officials, I always hear a common phrase. We're not going to let the Japanese do in Europe what they've done in the United States. And, of course, the only way you can stop that is to have a quasi-trading block, because on open competition, they win, at least in the short run, until you change. And, so, I think all these things create the environment that all of you are basically going to be managing in the 21st century. The argument I'm making this morning is that managing the 21st century on the dimensions I've just mentioned is going to be fundamentally different from managing in the 20th century, and that's true in the United States, it's true in Japan, and it's true in Europe.

Thank you.