

JAPAN-U.S. BUSINESS-UNIVERSITY RELATIONS WORKSHOP

REINVENTING BUSINESS-UNIVERSITY RELATIONS
FOR THE 21ST CENTURY

Business-University Forum of Japan

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The Yomiuri Simbun

EXECUTIVE SUMMARY

The Japan-U.S. Business-University Relations Workshop, sponsored by BUF (Business University Forum of Japan), was held at Hotel Okura in Tokyo from October 31 through November 1, 1994. The workshop was attended by some 180 top leaders of business, the academic community and governments from Japan and abroad. Active discussions took place on the topic of restructuring business-university relations towards the 21st century.

The workshop began with an opening address by Jiro Kondo, Chairman of Business-University Forum of Japan on behalf of the organizers, which was followed by a keynote address by Gaishi Hiraiwa, honorary president of Keidanren (Japan Federation of Economic Organizations).

Mr. Hiraiwa pointed out that in the post-cold war world, collaboration will be an important concept along with competition in the business and academic community. He emphasized that cooperation between different organizations such as government, business and universities will be the key element in promoting collaboration.

At the luncheon, President Hirayama of Tokyo National University of Fine Arts and Music, also famous as a painter, spoke on Japanese culture, going back in history to the origin of Japanese culture. He described two types of culture; the "continuous culture" supported by the double structure of wisdom of the Japanese people, and the "mono-principle culture" found in the West.

President Hirayama pointed to the importance of understanding the differences in the quality of culture among different nations although this may take time.

The First Session

In the first session titled "The Current Situation and Issues of Business-University Cooperation in the United States and Japan," Japanese presenters outlined the conditions and problems of business-university cooperation, and active discussions took place on the subject. For example, participants shared the understanding that business-university relations in the U.S., where the private university plays a major role, differ substantially from those in Japan where the national university assumes a dominant role. Participants from the U.S. commented frankly on the subject. For instance, with the advance of reengineering, American university is concerned about the drop in corporate investment in universities, while business, on its part, expects greater returns than ever before. A discrepancy has resulted from differences in the focus of the different parties. The government has emphasized big science while the university has put priority on basic sciences, which has made it difficult to fully meet the needs of business.

One of the tasks in Japan, on the other hand, is to revise the linkage between national universities and business. Exchange of personnel and research has not gone well at private universities. It was pointed out that all universities in Japan are

seeking to style their schools after the University of Tokyo as a result of the introduction of the entrance examination system that puts emphasis on deviations, or scores that measure academic standing. As such, it is difficult to train personnel who have the originality sought by business.

While both the U.S. and Japan face numerous challenges concerning business-university collaboration, both business and universities should move in a healthier direction by securing their perspective, respecting each other, and working together, although it may be an extremely difficult task. Participants agreed on the approaches to collaboration which need to be considered from a global viewpoint for the coming century.

The Second Session

The focus of discussion in the second session on "Challenges Facing Business-University Relations in Research and Development in the United States and Japan, and their Response," was on research and development. Participants noted that in the U.S., excessive emphasis on big science has caused friction in other areas of science. As it is not easy for only the university to focus on the theme of research, it was pointed out that involvement by business could play an important role, and that the exchange of personnel between business and the university is essential in promoting smoother technological transfer. Participants from the U.S. commented that with the globalization of business, it has become increasingly important for universities to have a global vision. And given the accelerating change, global cooperation and communication are needed in the techno-community, which calls for interaction, not only between business and universities, but also with the government.

Japanese participants noted that the Japanese university has not been able to adequately fulfill the demands of business that seeks goal-specific, solid tie-ups. Participants blamed the inadequate research environment at universities and cited problems with the institutional system as well as differing opinions within the academic community. Going beyond the framework of the conventional university, they said, would call for priority distribution of research funds according to originality, promotion of personnel exchanges between business and universities and improvement of university management as well as the support of not only the government but also of business. Also, some people pointed to the disparities in the institutional system between private and national universities in Japan, and to ameliorate the deep-rooted problem, one would have to go back to the founding of the Constitution.

In conclusion, business-university collaboration has great merit. With proper monitoring, any risks and demerits inherent in collaboration are manageable. The participants reached the common understanding that Japan will need to learn from the U.S., which is more experienced in the area of business-university collaboration, but that both sides have a lot to learn from each other. Seen from a national

perspective a healthy university system is one with diversity and that does not rely solely on the research university. Some participants frankly criticized the U.S. decision to follow a research university model and Japan's decision to follow the University of Tokyo model.

The Third Session

Based on discussions in the first and second sessions, the third session on "International Exchange through Business-University Forum," was devoted to discussions on the challenges and benefits of integrating four different cultures: American and Japanese universities, and American and Japanese businesses. One presenter from the U.S. said the experience of BHEF (Business Higher Education Forum) helped in learning each other's culture by creating an environment where people could talk to each other and learn how to communicate, and that this has resulted in a platform for mutual cooperation. One participant said the very existence of this workshop in itself shows that business and universities have begun to think seriously about what both sides can do for the future.

Some participants from Japan warned of the global trend where learning is moving in certain directions. Suggestions were made on approaches to put learning back on the right track: for business to send some signal to universities as to what is required, as for instance, through priority distribution of corporate funds for necessary research. Others commented that Japanese business highly evaluates joint research with American universities because of the latter's understanding of corporate needs, composite research in border areas in an open form, and freedom in utilizing the results of research, and continuity of research. Many agreed Japanese universities have not been able to respond adequately in these areas.

Participants shared the common understanding that: business-university collaboration has great potential, which could be a motivating force to restructure society if business and academic leaders are able to grasp the direction of long-term changes in society through dialogue, and that Japan and U.S. have different university and business cultures. It was said that we need to have a dialogue on a higher level to bring together these four cultures and discuss culture and the needs of all parties in depth. It was noted that it is important to consider what is good for society, and that we must not let our narrow interests blind us.

Conclusion of the First Day Discussion

Based on the above discussions, Hiroyuki Yoshikawa, president of the University of Tokyo and moderator of the third session, concluded by saying this workshop laid certain foundations for discussion and communication.

Touching on the subject of future development, president Yoshikawa expressed his hope that the Japan-U.S. Business-University Relations Workshop will continue to be held in the future, suggesting that we should launch efforts to remove the barriers which our four cultures (business and universities in Japan and the

U.S.). He affirmed that we have a good prospect of continuing our multidimensional dialogue in the future.

It should also be added that many useful comments were made from the floor in addition to active exchange of opinions among members in each session under the chairmanship of Japan and the U.S.

Reception

Prime Minister Tomiichi Murayama spoke at the round-table after the discussions on the first day. The prime minister said the workshop served as a valuable opportunity for a frank exchange of views among top leaders of business and universities in Japan and the U.S., and he looks forward to further exchanges in the future. This was followed by a welcome address by Mr. Kaoru Yosano, Minister of Education Science and Culture. Informal talks were held among the prime minister, the minister, members, workshop participants and senior government officials.

Sub-Committee Meeting

The sub-committee meeting on the second day on the theme of "Reinventing the University," focused its discussions on the role of the academic community and whether today's universities are creating new academic disciplines. After topics were presented by Peter Likins, President of Lehigh University, and Yasunori Nishijima, Vice President of the Science Council of Japan, an active exchange of views took place. Concluding the discussions, Hiroyuki Yoshikawa, the moderator and President of the University of Tokyo, confirmed the starting point that Japan and the U.S. share the common target of leading the world towards the 21st century.

President Yoshikawa said that people in business and universities in Japan and the U.S. will need to talk frankly on what contribution knowledge can make in constructing a safe and reliable man-made environment and a more stable economic market. Japan and the U.S. do not necessarily have to iron out their differences, but must fully recognize their differences and exchange information to promote further cooperation and realize the common target. Many participants also pointed to the need to actively establish cooperative ties with other countries, including Asia.

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OPENING SPEECH

Jiro Kondo
Professor Emeritus of University of Tokyo
President of Central Environment Council

It is indeed my great privilege to welcome all participants for the Japan-U.S. Business-University Relations Workshop today on behalf of Business-University Forum of Japan. The Forum was organized in 1992 to build a close relationship between universities and industries. We noticed that BHEF of the U.S.A. have achieved good results and proved that the Forum is highly beneficial for both universities and industry.

The members of the Forum of Japan include presidents of national and private universities and the top leaders of big companies. Two Study Groups were organized by Professor Okabe and Professor Karube, Institute of Advanced Science and Technology, University of Tokyo. Professor Yoshikawa, president of the University of Tokyo, presided over these study groups.

The Forum used to take place three times a year to discuss relevant issues following the presentations by Professors Okabe and Karube. I expect that the results of these Study Groups will be included in the presentation of the Workshop from the Japanese side today and tomorrow. Dr. Yamamoto and Dr. Yamashita, our members, joined the meeting of the U.S. Forum in Tucson last year. I regret that Dr. Yamashita cannot participate himself today, because he passed away early this year.

Now, ladies and gentlemen, the Japanese economy greatly expanded since World War II. Japan has become an economic giant in the four decades since the Unconditional Surrender at the end of the War. One of the reasons behind this rapid economic growth has been the development of higher education. The number of universities before World War II was 46, but now it reaches 500. About 30 percent of people at the age of 18 now go on to a university education. If colleges are taken into account, half of the Japanese are receive higher vocational training before taking jobs.

At the present time, the Japanese economy is stagnant, and the growth rate has declined in recent years. The jobless rate reached 3 percent last July for the first time in recent years. This figure, 3 percent, is high for a society of the so-called "life-employment system". New graduates, expected graduates, and senior students at universities, especially female students, have found it difficult to find appropriate

jobs next year.

With the birth rate is decreasing, Japanese society is rapidly graying, and the number of university candidates in the future will be significantly reduced. We are also concerned about the latent tendency of young students disliking to join schools of engineering and science.

The economic and population growth in Eastern Asia has been remarkable in recent years. Their share of world exports and imports is increasing. If we quote figures in ten-year increments, exports from Eastern Asia were 5 percent in 1972, 9 percent in 1982, and 10 percent in 1992. Similarly, imports to Eastern Asia were 6 percent, 9 percent, and 15 percent respectively, while figures for Japan were 7 percent, 8 percent, and 9 percent for exports, and 5 percent, 7 percent, 6 percent for imports.

Towards the 21st century, we have to consider the way of prosperity and of enhancement of university education able to satisfy society's demands. I hope the exchange of views and the results of studies at the present Forum will be beneficial both for Japan and the U.S.A. in reinventing business-university relations for the 21st century.

KEYNOTE SPEECH

Gaishi Hiraiwa

Counselor of The Tokyo Electric Power Company, Incorporated

Honorary Chairman of Japan Federation of Economic Organizations

I am honoured to have this opportunity to make the keynote speech at the US-Japan Business-University Relations Workshop today.

With a new century fast approaching humankind is at a major turning point. The end of the cold war seems to have brought with it the seeds of new disorder around the world, and the situation is now often seen as one of increasing rather than decreasing instability. The end of the cold war has allowed new ethnic and regional conflicts to surface, and instability is not confined to the countries of the former Soviet Union, but is widely evident in the Middle East and even in the Asian region, which is regarded as the engine that drives the world economy. At the same time the advanced countries of the West are now distracted by their many internal economic and social problems. Meanwhile, more and more issues are appearing, such as global environmental problems, the depletion of energy resources and unemployment problems, which require consideration at the global level, and these issues are growing ever more complex.

However, what we can say with certainty is that the future is definitely not a closed book. However many obstacles there appear to be, we should never overlook the fact that humankind has recovered from the ashes of two world wars this century, and has survived undefeated by the worldwide Depression or by the oil shocks of the seventies. Indeed, the very history of humankind indicates that every crisis has been the starting point of some new leap forward. So however critical our situation may appear, it is certain to lead to a new prosperity. What is currently being asked of us is a determination to open up our own future, and confidence in the coming age. For this it is essential that each of us have a clear understanding of the situation in which we are placed.

The future will no longer be determined by military might and ideology as before, but by two new factors. One is the effect of technical innovation, and the other is an economic factor - the move towards a globally integrated economy. It is well known that the advance of technology, particularly in information communication, was one factor which hastened the end of the cold war, and in the years since, the speed of new development has further accelerated. Supported by concepts such as Vice President Gore's 'information super highway', networks are steadily being extended throughout the world. Needless to say, in the development

of this information age, knowledge is the real capital, which will produce wealth, and lead to a knowledge-based era.

There is also the view that the predominance of democratic political systems and market principles brought about the end of the cold war, although up to now the countries which have accepted this predominance have all been the so-called advanced nations of the West. This is one fifth of the world, and no more than one billion people, although it is currently expanding rapidly in scope. Other countries, notably China, Russia and India, are already being drawn in and we are on the threshold of a truly global economy. This trend can only be reinforced further by the success of the recent Uruguay Round, and the World Trade Organization, whose operations are expected to get underway next year.

These two factors, technical innovation and the globally integrated economy, will be mutually influential, and lead the way to a truly global community. For the first time in recorded history, humankind is approaching a global culture. In this new age the human race will come to share not only politics and economics, but education, science and technology, and even our history. Interdependence and mutual understanding will assume unprecedented importance, and only in this era will it become possible to start tackling seriously, at the global level, the many global issues, such as environmental degradation, that are confronting us.

Obviously, this does not mean that all humanity must share the same culture or come to a standardized way of thinking. On the contrary, on planet earth, sharing a common destiny, all cultures and ways of thinking will prosper, and people will understand and respect one another's diversity.

This is certainly no easy path. We can think of the future as a beautifully paved highway, but before we reach it we are deep in mud. Our present-day difficulties can be compared to the difficulty of trying to drive along a muddy track. The track is furthermore strewn with rocks - all manner of obstacles that make the bus we are in, planet earth, hard to steer. Some passengers may want to turn back. The concept of the nation states we are putting behind us cannot be so quickly wiped out of people's minds. In reality confusion is already widely evident. For example, if there is no prospect of an effective answer to the unemployment problems facing the advanced countries, or the ongoing loss of manufacturing to other countries where production costs are lower, then confrontations between nations may get more serious. We must not allow ourselves to get bogged down in the mud.

It is essential that we work to reach consensus on how to build the new

world order. The norms that prevail in the new era will differ considerably from those that went before, and to that extent people who are directly confronted by changes will suffer enormous dislocation. The very size of the gap between old and new may lead to a distrust of political leadership, and even social instability. In order to get clear of the muddy track a steering wheel, brakes and an engine will be needed. One driver alone will probably not be enough, and rough acceleration will only cause the tires to lose traction in the wet mud. The way ahead will open up only after consensus-building among many people, with the insight to understand the era and with adequate strategies and investment for the future in place.

Let me here briefly summarize the principles that will guide the new era. World affairs will no longer be directed by any specific great powers taking the lead. Instead, it will be fundamental for all countries to participate. To that extent, the importance of our interdependence must first be re-affirmed. The first principle is thus the importance of interdependent relations. In a situation where individual interests differ, the course to be taken will be decided not through force as in the past, but through discussion, and through consensus building between societies and countries to overcome differences in culture, in systems and in practices. The second principle for the global community is mutual understanding, understanding between people and between different societies. It will be an era in which building relations of trust is paramount.

It will also be an era in which we respect each other's viewpoints and circumstances and search for compromises based on the principles of interdependence and mutual understanding, instead of money and weapons. Put in a different way, rather than one party alone gaining all the benefit, we will need to always consider the other party's interests as well. In the animal kingdom, this sort of arrangement already holds sway. The situation in which different species benefit from each other's existence is known as symbiosis. In specialist terms, when both sides benefit, it is a relationship of full symbiosis, but when only one side benefits it is known as commensalism. The rules upheld by the global community must be of the full symbiosis type, and we must be ready to give recognition to these rules.

Since Adam Smith introduced modern economics, and right up to the present day, a certain number of underlying rules have received particular emphasis. One is competition. As you know, this rule is currently being applied not only to economies but to a variety of wide-ranging fields, from education and science and technology, to societies and nation states. It will of course continue to be important in the age of full symbiosis. In our global community only by maintaining a level of appropriate competition will it be possible to promote our own growth, and

encourage the growth of other parties. However, as our interdependence increases an additional rule will come into play. This rule relates to how we maintain mutual cooperation. The era will not give priority to competition alone, as cooperation will also be essential. We could describe this as transferring to rules of 'competition and cooperation'. It will be important to bear in mind that only with cooperation can we preserve appropriate competition.

I'm repeating myself, but cooperation in this sense supposes that even those organizations whose structures and interests are different will be able to cooperate. To that extent, rather than simply calling it cooperation, collaboration is perhaps a more appropriate term. The meanings of these words, as you are aware, each have some distinction and flexibility, but here they mean gaining cooperation in order to achieve a particular objective. Japanese people believe automatically that their society is built on a system of mutual cooperation, but whether we can call this real collaboration is a matter that requires further consideration.

As each of the parties has a different society and set of values, establishing a system of mutual cooperation will bring important developments in all fields. While the concept of competition alone was advanced, collaboration was at times only regarded as of value as a measure of last resort. But in America, where progress towards the information society is most advanced, we hear that this concept is already given importance equal to that of competition. In terms both of promoting technology transfer and of developing new industrial fields, collaboration would seem to be the keyword, and the recipe for achieving this is through collaboration between the differing worlds of government, business and the universities.

There are other cases, outside America, in which the recognition of the need to move towards collaboration is striking. For instance, when promoting technical development in industry, or pioneering development in a new field, the major issue is now what sort of collaboration will be possible. Instead of enterprises simply competing with each other, the most pertinent issues for survival in this rapidly changing environment are how to build alliances of enterprises, or how to form interactive groupings of enterprises representing different fields. These issues are not necessarily confined within a single country. Some moves of this sort are all the more remarkable for crossing international borders and overcoming cultural differences.

Many people believe that economic friction between the advanced countries, particularly in trade, is worsening, but this is a total misconception. The US-Japan comprehensive trade talks at the end of September reached partial agreement, though without leaving much room for optimism for the future. But setting aside such

government level contacts, we find that in areas of business such as semiconductors and car components, where negotiations are said to be getting more intense, or in telecommunications, for example, American and Japanese firms are working harder than ever at closer alliance building. We should not forget that in these fields, the principle of competition alone has already been ditched, and been replaced with moves towards wide-ranging collaboration.

It seems to me that the importance of a good balance between collaboration and competition is widely recognized in the academic circles. I hope this will increase further in the future, and I also hope to see more and more the establishment of collaborative relations with different types of organizations, not least our business circles. The importance of collaboration, I believe, will become a major trend, and will include government. Many governments set policy with the view that fair competition is the key to present-day international relations, and I believe we will see a trend toward policies that recognize the importance of collaboration to this end. Mr. Mansfield, former American ambassador to Japan, once said that the future lies with the Pacific Ocean. We hope that this trend towards collaboration will take firm root between the countries which share the Pacific Ocean.

This Business-University Forum of Japan was launched in December of 1992 under the chairmanship of Mr. Kondo. As you know, the problems now confronting both the business and academic worlds exceed the limits of what each can achieve through their own efforts. Through the frank discussions that members have had here, we already share an awareness of the importance of talks on interdependence and mutual understanding between the very different business and academic worlds. There is an awareness of the need to share the future, with a joint recognition of the roles of the business and academic worlds in the new era through cooperation. I hear that many countries, including the US, have created forums for discussions between business circles and academia, in some cases including government. In this sense the American participants here today may perhaps have a deeper understanding of this than we do ourselves.

I believe that we have today a perfect occasion for everyone assembled here, not just those of us seated around the table, to learn from each other more of the actual circumstances and the pertinent issues relating to cooperation between business and the academic world in Japan and America, and to think how we might improve that cooperation in the future. Tomorrow will also give us opportunities for talks, although from more specialist viewpoints. Through these opportunities for discussion I hope we can strengthen our assurance that we are living in an age of full symbiosis. Today's workshop is focused on US-Japan relations, but I would

like to conclude by adding that I hope in the future to link this to wider trends around the world including Asia.

PART I

Session One: Present Status and Future Issues in Business-University Collaboration in Japan and the United States

Session Chair:

Jiro Kondo

Professor Emeritus, University of Tokyo

Peter Likins

President of Lehigh University

Panelists:

Hiroshi Watanabe

Chairman of Tokyo Gas Company Limited

Peter Bridenbaugh

Executive Vice President of Alcoa

Yoichi Okabe

Professor of University of Tokyo

Masao Ito

President of Science Council of Japan

Yasuo Goto

Chairman of The Yasuda Fire and Marine Insurance Co., Ltd.

James W. Schmotter

Dean of College of Business and Economics, Lehigh University

George F. Clegg

Vice President of Monsanto Company

Round-table Members:

Joichi Aoi

Chairman of the Board of Toshiba Corporation

Isao Karube

Professor of University of Tokyo

Kenneth H. Keller

Senior Vice President of Council on Foreign Relations

Toshihito Kohara

Chairman of the Board of Directors of NGK Insulators, Limited

Shuzaburo Takeda

Professor of Tokai University

Junichi Nishizawa

President of Tohoku University

Yasunori Nishijima

Vice President of Science Council of Japan

Hiromu Fukada

Advisor of Itochu Corporation

Tsuneo Mitsui

Senior Executive Advisor, Tokyo Electric Power Company,
Incorporated

Barbara S. Uehling

Interim Director of Business Higher Education Forum

Peter Likins:

There is turbulence in the world today and the future is to be determined by technical innovation and a globally integrated economy. While everyone acknowledges the primacy of knowledge to the economy, in both our nations the academic institutions, the sources of so much research and education, are financially stressed. We are both trying in our two societies to build closer relationships; "collaboration" is the word, between industry and academia. As we try to understand the complexities of these relationships within our two countries, recognizing the similarities of the challenges we face, we can surely learn from each other.

Hiroshi Watanabe:

In order for Japan to continue to have sound economic growth in the 21st century, we need to create science and technology that are original and lead the world in intellectual activities, as well as efficiency in production technologies.

On the other hand, the dismal state of research and the education environment of Japanese universities are well-known. It is necessary to significantly increase the budget for research and education. Some of the important points regarding universities are: 1) deregulation; 2) selective support of researchers based on merit of their creativity; 3) education to nurture creativity; 4) increasing efforts in accepting more foreign students; and 5) further promotion of business-university exchange.

Peter R. Bridenbaugh:

As we evaluate and debate the nature of academic-industry relations, we must be aware that in the United States, at least, political and economic realities will inevitably impact the roles of academia and our government labs, in a world where the threat of nuclear annihilation has been substantially reduced, and where specific contribution to global economic leadership has become the new task for current R&D programs. My hope is that partnerships characterized by mutual understanding and economic parochialism will transcend ethno-centric thinking

around the world and will enable those of us in industry to seek those in academia most suited to help us achieve our vision of shareholder values, and those in academia to seek those industrial partners prepared to help them achieve their vision of learning, teaching, and the creation of knowledge for the benefit of all mankind

Yoichi Okabe:

Japanese society is characterized by an extremely homogeneous culture. It is a society where each individual tries to be and act the same as everyone else. One of the drawbacks of this characteristic is shown in a large measure in today's recession. The tendency of manufacturers to produce similar products has led to excessive competition, creating a condition where profit is structurally difficult to make. Another problem in Japan is that everyone is evaluated according to a relatively uniform standard.

Masao Ito:

What is important for "symbiosis and co-existence" is to secure free flow of information and human resources in the field of science. For the future, we need people with a broad perspective, highly adaptable to different situations, and who are cosmopolitan. The sharp boundary between the sciences and the humanities in our education system may be a major problem.

Yasuo Goto:

In an era of intensive competition, we need people who can "destroy creatively." Business is being called on to make social contributions with a global perspective on such issues as the global environment.

The perception of our times and our task suggests the importance of developing the natural sciences as well as enriching social sciences. Learning at university should be provided competitively by researchers who are deeply rooted in the tradition of humanity. We need enrichment in both philosophy (Confucian analects) and technology.

James M. Schmotter:

Two major trends are combining to transform university education worldwide. These are the development of modern telecommunications technology and the rise of market consumerism, the widening view that higher education is a product to be marketed and consumed. These two trends have come together to create a new set of challenges for universities everywhere. Some of us at the universities are developing strategies to borrow from the best practices of successful global corporations and also learn lessons from them. Throughout the United States there is a new set of partnerships between universities and corporations to advance the cause and increase the understanding of concepts of total quality. Everywhere

we see many examples of specific university-corporate partnerships to develop specific programs of mutual benefit.

George F. Clegg:

Not so long ago Japan was the paragon of the prosperous post-Cold War industrial society. The collapse of the bubble economy of the 1980's, and the prolonged recession of the first half of the 1990's, changed all that. The need for companies to improve productivity and stem losses caused abrupt changes in business and personnel practices. The competitive ground rules have changed, and a new breed of companies is defining alternate and highly successful business strategies. There are recent signs that universities are seeing the need for change. Some have begun offering faculty positions to people from the business world. Some faculty members are alternating academic and business experience. But it will take much more than this to bridge the gap between educational programs that supply Japan's white-collar workers and business need of an innovative workforce.

Peter Likins:

It is true that American professors can enjoy direct relationships with industry and the government too, because they are funded typically in response to proposals for research that emanate from the individual professor. A consequence is that the individual professor becomes a power independent of the institution, and frequently shows very little loyalty to the university with which he or she is associated. It is also true that American universities have become wonderfully receptive to foreign students. We give more Ph.D. degrees in engineering to foreign students than we give to Americans. That's a blessing and also a burden in that American culture is not sufficiently oriented towards advanced education in science and technology.

Kenneth H. Keller:

Given the relative size of our economies the actual amounts both countries spend on research and development are not far apart. But the way that support is used is vastly different between the two countries. Of the perhaps 20 billion spent on basic research in the United States, fully half is spent at the universities. From what I've heard the research budget of Japanese universities is about one tenth of that. So the two countries start at approximately equal in what they are spending in research and development but what is spent on universities differs enormously. That seems to me to be a great challenge to Japanese universities trying to make a change.

Barbara Uehling:

There is an imbalance between Japanese students studying in the United States and U.S. students studying in Japan, about 47,000 Japanese students versus fewer than 2,000 U.S. students studying in Japan. That's of concern to both countries and

there are many reasons for it. Some U.S. institutions of considerable respectability, as well as some probably not so respectable, have offered programs here in Japan which might in another way help to correct that imbalance. I would like to offer a plea for a positive consideration of good programs offered by U.S. institutions in Japan and for your participation in making these programs the kind to achieve desirable cultural mixing.

Junichi Nishizawa:

Genetic technologies used to emerge from Japan before Second World War. However, when the university system was changed after the war, genetic technologies stopped emerging. This is to say, there is a problem with the educational system in Japan.

The total amount of funds provided from business to universities in both the United States and Japan is about the same. However, there is a large difference in the amount of funding provided for individual research. In Japan, many business-university partnerships exist only in name, and few are substantial.

A major cause of today's economic recession is the absence of new industries. Unless there are increased efforts to create new industries, the world economy will not be in balance. Japan has an important responsibility in this area.

Jiro Kondo:

Until now the Japanese university has been made up entirely of Japanese people. We need to have a diversity of people from different countries. Especially, we should receive more people from Asian countries. Today, the global environmental issue is a major problem. This problem cannot be solved simply by utilizing knowledge coming from the fields of science and engineering. It requires broader cooperation among people in the social sciences and the sciences.

LUNCHEON SPEECH "JAPANESE CULTURE"

Ikuo Hirayama
President of Tokyo University of Fine Arts and Music

Let me say by way of introduction that I was a third year junior high school student in Hiroshima on that fateful 6th of August and was exposed to the fallout of the atom bomb. For ten years I suffered from after effects of radiation. There were at times very difficult periods but I overcame them and decided to live for peace.

In the early part of the seventh century a Chinese monk by the name of Genso Sanzo left his home for India in search of sacred laws. After seventeen years he returned to China with a huge collection of Buddhist scriptures which he translated into Chinese over the next twenty years. These were brought back by Japanese emissaries sent to Tang China and contributed greatly to the development of culture at Nara. I expressed my admiration for the life of this monk and my prayers for peace in a painting depicting the arrival of Buddhism to Japan. This piece was painted in 1959 and gave me a start as a painter. Since then I have been painting subjects such as paths of exchange between eastern and western cultures, roads travelled by Buddhism and the silk road.

Japan, a small island in the Far East, is thought to have developed its own unique culture due to its having lived a secluded and quiet life until the end of the nineteenth century. In fact, however, Japanese history can only be understood properly by seeing it from the perspective of world history.

Introduction of Buddhism

The Japanese archipelago was uninhabited in the beginning. You probably know from the archeological sites of Yoshinoga-sato in Kyushu and the excavation of the Noro ruins, that people from the Asiatic continent or from the Southern islands, riding on sea currents, settled here and lived by farming and rice cultivation. Through their prehistorical and primitive lives they nurtured a set of values of living with nature which evolved into our national character.

Japan's first appearance on the international scene was recorded in an early text when reference was made to a kingdom known as Yabataikoku ruled by queen Himiko. The land was composed of a patchwork of divided political units. It was unified under the court of Yamato and developed gradually into an organized state. This process was probably encouraged by external pressures from China during the period of three kingdoms and developments on the Korean peninsula.

As communication and transportation developed between Japan and the Asian continent there grew a sense of the need to be part of an international framework

and introduce appropriate institutions. As a result, in AD 538, during the reign of Emperor Kinmei, Buddhism was introduced from the Korean Kingdom of Paekche during the reign of King Seimei. The introduction of Buddhism, which was the international culture of the day, and numerous other institutions, marked the beginning of the substantial history of Japan.

In those days the Japanese lived in dugouts with roofs atop one or two meter pits they dug in the ground. They lived in groups and maintained their lives by farming and growing rice. With the introduction of Buddhism the high-tech culture of the time was introduced. They were the five-story pagodas, golden pavilion, and large corridors. Roofs were colourfully painted, often in bright green, while gold glittered in the sunlight. Pillars were painted red and windows green and blue. Inside were golden images of Buddha and ornately painted walls. Twenty meter high towers lined the sacred ground. These structures must have been such a novelty and source of great wonder for the local inhabitants.

"Respect Harmony Above All"

Arrival of Buddhist civilization was not without difficulty. Folk habits and values as well as pristine and naive religion had evolved over time and existed in Japan.

This was Shinto, a uniquely Japanese faith. As might be expected at first there was a power struggle between the two religions. Eventually this was overcome by a new thought that encouraged the mixture between Shintoism and Buddhism. This aspect of Japanese culture is fundamentally different from other nations.

We do not espouse one faith and one principle. Contemporary Japanese combine both long-cherished customs and rational and modern scientific knowledge. The coexistence between the old and the new dates back to the sixth century. The much respected leader of the day, Prince Shotoku, had taught the Japanese to respect harmony above all, and this teaching had become the underlying value of Japanese society.

By accepting Buddhism the Japanese also accepted the rational culture of China. Horyuji temple, built in the seventh century, displays Chinese architectural style. There is a characteristic inner gate, five-story pagoda to one's right as one enters the main gate, a golden pavilion on the left and assembly hall in the back, as well as many other buildings. From China Japan learned Buddhist culture and civic institutions. In the ninth century the capital was moved from Nara to Kyoto but until then, over approximately three hundred years, the Japanese avidly absorbed the advanced Chinese culture.

From about the ninth century the Japanese learned to build temples without destroying the natural geography that surrounded them. This Japanese architectural plan is evident in temples built in Koyasan and Hieizan. They are no longer

symmetric which was the characteristic feature of the temples of Asia and China. Instead they blend into the surrounding geography. Kozanji and Shingoji temples which were built from the ninth to tenth centuries are examples of this later development.

Chinese paintings are extremely rational and are lavish and ornate as well as huge. The Japanese at first tried to learn from Chinese paintings but eventually realized that they were just too ornate for our liking. The Japanese learned the art of omission and developed a symbolic style of painting. In literature, the Japanese at first ardently read Chinese writings. Chinese grammar, for example, is extremely rational in composition with the subject, verb, objective clause and adjectives clearly marked.

When the Japanese adopted Chinese characters, the emphasis had been placed on quick learning and comprehension. As a result our grammar is much less rational compared to that in China where our writing and culture originated from.

The Japanese, in due course invented kana characters, creating a set of our own writing. Japanese combined kana with the use of Chinese characters which resulted in much lighter sentences. The Japanese also departed from the Chinese sentence structure which found pleasure in rhythms and rhymes as in poetry. Instead the Japanese developed an art of abbreviation, packing much thought in just five letters. The extreme form is haiku a set of five-seven-five letters.

In fine arts, the Japanese developed the so-called Yamato-e paintings which expressed the estheticism, national character and mind of our people, marking a clear departure from the Kara-e and Kan-ga (Tang and Han paintings of China). Japanese produced our own literature such as the Genji-monogatari (Tales of Genji) which epitomises the ephemeral nature of all things, depicting the sense of loneliness and forlornness experienced by princes and ladies of the court in their glamorous lives. The story, which is expressed in verse, prose and paintings, I believe epitomises the passion and estheticism of the Japanese people.

Japanese Style of Modernization

It was in the sixteenth century that the Japanese encountered for the first time an entirely different culture from the West.

This was the time of the Renaissance in Europe. As you know, this new cultural movement in Europe was a result of the stimulus received from Islamic culture, which was more advanced than that of Europe at the time. The contact the crusaders had with the Middle East added to the surge of revival in learning. The clash of western and eastern cultures was briefly crystallized in the Azuchi-Momoyama period in its architectural and fine arts, for example. Magnificent castle structure ornately decorated inside with gold leaf and enormous wall paintings by Kano Eitoku, for example. The Nijo-jo castle in Kyoto also retains the exuberance of

the period.

Then Japan chose isolationism and closed its doors for two and half centuries from the seventeenth to the end of the nineteenth century. During this period Japan, to my mind, quietly achieved its own modernization. The Tokugawa shogun government of the time did not totally close the country's doors but kept it open at Dejima island off Nagasaki where trade was done selectively with the Dutch. Japan was still absorbing foreign culture. Information from outside Japan was gleaned from China and Korea to keep abreast of what was happening.

Internally, an astutely programmed scheme of sankin-kotai kept warlords impoverished and manageable by having them alternate their residences in the capital and their own fiefs.

Building of new institutions and roads, as well as communication systems, and trade exchange among local industries all added to the economic development of the country. An educational system, starting at first as temple schools, was well developed by this time. The Jesuit missionaries visiting Japan in the sixteenth century reported back to Europe that "the Japanese are poor but are well educated. There are written boards everywhere at street junctions and people are surprisingly literate."

Dual Structure -- Wisdom of the Japanese

Under the feudal system, a four-tier class structure was imposed on society with samurai in the lead followed by farmers, artisans and merchants. While political institutions recognized hereditary rights, monks, painters, writers, physicians and natural scientists whose qualifications required special talents, were exempted from the system. Anyone who could prove his talent was able to reach the top regardless of his origins. Merchants often disowned their talentless sons in favour of excellent young men whom they adopted as sons-in-law. Artists that succeed the Kano school were not necessarily hereditary, the best among peers was entitled to represent the school as the next generation of masters. It was then that the U.S. blackships sailed into Japan, triggering the restoration.

Until then the Japanese had learned from their Asian neighbours and had gradually developed a culture that bore our mark. This time the young men of Japan had studied in America and Europe and were instrumental in modernizing Japan, culminating in the Meiji restoration. It was these young men who devoted themselves to building modern Japan.

I personally believe that the foundation for modernization had been already laid during the Edo period and the Japanese value systems had been established by laying one on top of the other since the early Nara period. Restoration of imperial rule in Meiji was a brilliant response of the young leaders in the face of foreign challenge. After the crushing defeat in the Second World War the Japanese were able to

successfully demilitarize the nation and achieve a dynamic economy. This was possible because of the dual-structure survival technique the Japanese had developed over the years.

Our political system also evolved gradually. In the Yamato court, the emperor held both political power and cultural authority. After a time this state of affairs gave rise to a power struggle within the imperial family. People realized that constant fighting can destroy a small country so by the Heian period there was a division of labour between the imperial family and aristocracy: the former would hold authority as a symbol of culture; the latter would hold political power. The class of samurai warriors that rose during the Kamakura period which followed retained political power through the Muromachi and Edo periods. After the second world war the political power now resides with the people as well fitting a democratic society. The political power is held by the cabinet in the parliamentary system while the symbol of cultural continuity resides in the imperial family. There is separation of power and authority.

In Japan political power may change hands but continuity is ensured by established authority. In an extreme case cabinets may resign enmasse and change every month but authority is kept intact by the bureaucracy and the financial and business circles. This is an inherited wisdom of Japanese life.

Culture of Continuity Versus Culture of Single Principle

The Japanese can appear quite illogical when we say on one hand that we must protect our culture and then turn around and destroy it without a second thought. And then when we realize it has gone too far we quickly lock away our treasures. Yet ours is a culture of continuity. There may not be great leaps and starts but it is a culture that evolves continuously.

One does not destroy all in Japan. In fact a little bud or a seed is left to mix with new ingredients. This process explains the culture that we have today.

From the perspective of Europe or from a country with a single principle Japanese culture may seem extremely fuzzy. There is no fuzziness in the conflict between the Israelis and the Arabs or the battle fought between Moslems and Christians in the former Yugoslavia. Rational minds must fight out these battles as a matter of life and death. Here again we find our culture to be different and we must try to understand.

Internationalization of Japan Means Having an Identity

Culture is a collective noun for national tradition and mindset which have evolved over a long period of time. It is something that cannot be resolved after a talk of one hour or a day. It will require a thousand years, possibly two, to arrive at

understanding. Things go wrong when we expect to change someone else's culture with the speed of light. Cultural friction must simply mean getting to know each other better.

I believe that the internationalization of Japan requires our having our own identity. It means having a clear belief and clear policies. Then we can begin to talk to each other. Naturally we will find differences. What do we do about this? We must find ways of living together and sharing prosperity. Any attempt to force co-existence or co-prosperity with the force of military power or economic might cannot be a permanent solution.

One way we want to aid is to help in the process of nation building. Every nation, no matter how poor, has a proud tradition. When this pride is lost there is fighting and confusion. The first thing that must be done is to regain the sense of human respect. Once there is this self-respect people can help themselves and help rebuild their country. This is the ideal. Charity and giving out money tend to make people lazy. They must be encouraged to help themselves.

Today Japan is asked what sort of international contribution it wants to make. We have shed much blood during the Second World War and wronged our neighbours. Reflecting on our past, I believe we should defend culture just as the Red Cross defends the dying and the wounded on humanitarian grounds knowing neither friend nor foe. Japan should be a cultural Red Cross in the broad sense of the term, defending people who pass on a cultural heritage that enriches humankind.

Understanding Different Qualities of Culture

I believe wars have contributed to the development of science and technology. Countries of Europe, for example, have fought each other by learning to produce weapons of mass destruction. They are, therefore, also adept at diplomacy.

In contrast Japan has fought only a handful of foreign wars in its history. We fought back the Yuan Chinese or Mongols, we fought with China again in the late 19th century, we fought a war with Russia in the early 20th century, and we fought the First World War and the Second World War. Countries in Europe have fought dozens of wars. Japan is too often criticized as a militaristic country but our history tells that we are peace-loving people with "respect for harmony above all".

At Christmas time we play jingle bells in our department stores although we are not Christians and most of us buy Christmas cakes for the family. On New Year's eve we go to shrines by the millions, probably by tens of millions nationwide, although few of us are believers. In April young couples are wed in churches although they are not necessarily Christians. We accept these things as our culture. All things beautiful and fun and wonderful are accepted by the Japanese as culture. This is a broadminded aspect of us Japanese.

In contrast multi-ethnic countries sharing borders on the continent must have

clearly defined ideas and principles, or rules, for without them there can be much confusion. They have therefore developed identities and clear policies and a well defined nation-state.

If we want our foreign friends to understand us we must be able to explain ourselves, our culture and our country using similar criteria. In this context, natural sciences can be easily understood as they have universal laws. Economics is also universal. Excellence of industry is decided at the market place.

Languages, on the other hand, take time to learn. Art, too, is works that embodies the spiritual state of its creators. So one may say that one does not like it and that will be that. But different qualities of culture can only enrich us all. My hope is for the Japan-U.S. Business-University Relations Workshop to focus on this difference in cultural qualities for they may lead to differences in performance.

PART I

Session Two: Issues in Research Fields That Must Be Overcome Today;
How Do We Resolve them?

Session Chair:

Junichi Nishizawa

President of Tohoku University

Barbara S. Uehling

Interim Director of Business Higher Education Forum

Panelists:

Joichi Aoi

Chairman of the Board of Toshiba Corporation

Kenneth H. Keller

Senior Vice President of Council on Foreign Relations

Isao Karube

Professor of University of Tokyo

Peter Bridenbaugh

Executive Vice President of Alcoa

Toshihito Kohara

Chairman of the Board of Directors of NGK Insulators, Limited

Round-table Members:

Yumi Akimoto

President of Mitsubishi Material Corporation

Masao Ito

President of Science Council of Japan

Yoichi Okabe

Professor of University of Tokyo

Hirofumi Kataoka

Vice President of Tokyo Gas Co., Ltd.

George F. Clegg

Vice President of Monsanto Company

Yasuo Goto

Chairman of The Yasuda Fire and Marine Insurance Co., Ltd.

Jiro Kondo

Professor Emeritus of University of Tokyo

James W. Schmotter

Dean of College of Business and Economics, Lehigh University

Yasuhiko Torii

Chancellor and President, Keio University

Yasunori Nishijima

Vice President of Science Council of Japan

Hiromu Fukada

Advisor of Itochu Corporation

Tsuneo Mitsui

Senior Executive Advisor of Tokyo Electric Power Company, Incorporated

Peter Likins

President of Lehigh University

Kenneth H. Keller:

My list of things that are most important in the next several decades include biology and its applications, material science, obviously information on communication technologies and all that involves, and environmental and energy sciences. The problems that must be overcome include what I would call "big science", the tension between basic and applied research, new trends in multi-disciplinary in research and development, and, fourth, the synergy between teaching and research in a research university, where it comes up short. We are beginning to take steps in university-industry collaboration where I see signs of great promise. But I think we still have far to go and we need to solve these problems over these next years.

Joichi Aoi:

As a business enterprise, we would like to make substantial progress in our partnerships with universities on the basis of clearly defined goals. For this, we need to secure expenses as part of our regular budget, accumulate experiences while carrying out joint research and commissioned research, and establish an effective cooperation system. For conducting large-scale joint research with a university, it is important to have a kind some type of researcher network. Japanese universities still need to complete their infrastructure and enhance network building.

The university, for its part, is called upon to train human resources through education in a system of established as well as new knowledge which can meet society's demand, by being organized into academic disciplines. At the same time, the university is also called upon to lead society in solving real problems by creating new fields of learning, through basic research founded by free thinking.

Japan can contribute to the world by sharing the results of its basic research and by training talented people for the future. For this the government must substantially increase its research and development budget, based on a clearly

defined vision. In this case the research and development budget should not be distributed along the lines of government ministries and agencies, as in the past, but innovative efforts should be made, such as setting up a separate framework through which the budget can be managed and distributed.

Improvement in the institutional system is also indispensable. An institutional environment should be prepared to further enhance exchanges between various institutions, including mutual transfer of researchers between universities, and between business, government and universities. It is also important that graduate schools are upgraded both in terms of their human resources and facilities, so that they will be able to provide an environment for conducting research of international quality. In addition, the discretionary power of the university president should be enlarged and the number of staff expanded, so that university autonomy and research setup can be strengthened.

Business must actively support the university's efforts to successfully deal with these challenges. First, business should provide the university with human resources, transferring its vitality in management, research and education. Business can also make arrangements for accepting faculty members. Second, various measures should be undertaken, including tax privileges and other such strong stimulatory measures, as well as simplification of procedures. Third, consideration should be made to increase incentives for studying at graduate schools by improving, among others, the employment situation of those who have completed graduate study or seek mid-term employment, say, by, increasing scholarships.

Isao Karube:

The problem concerning research and development at the Japanese university is the lack of a research environment conducive to fully exercising individual creativity. At the root of this problem lies insufficient funds secured from the government's research and development budget, which makes it difficult for the university to carry out creative research.

At the same time, the academic community has not had the vision to select research themes that might contribute to improving our lives or could contribute to the world, nor to disseminate the results of such research nor to secure research funding on the strength of such research. By encouraging the Japanese university to develop its personality, budgets should be distributed accordingly. The government and business are asked to set priorities in their allocation of research funds. Looking at another issue, it has been said that the society as a whole does not fully appreciate the importance of the university. In this light, it is important to emphasize to society the role of the university, and the importance of science and technology.

Regarding the issue of foreign students, should we not look into the possibility of establishing an entity similar to the Fulbright scholarship, and invite people from Asian countries? Another point of discussion is the number of women scientists in

Japan, which is the smallest in the world. Women scientists argue that systems in Japan have not been created with women in mind.

Barbara S. Uehling:

We have found it quite valuable in the United States to allow university professors to consult with industry for outside income. For a research university the benefit that can come from the relationship between the faculty member and industry is so valuable that it is worth some risk, especially with careful monitoring. Also, not all universities have to be research universities. I believe in a differentiated model in which not all universities are expected to do the same thing. None has yet talked about a tripartite cooperation between or among government and industry and universities. The university can become a very important catalyst for government-industry cooperation for helping define some of the specific problems that our country faces at any given time. So we need to work on some models to do that.

Peter R. Bridenbaugh:

No country has an exclusive block on smart people and intellectual property. So we have to find a way to leverage all of the good work that is going on across the globe. Rapid advances in information technology are going to allow real time around-the-globe collaboration in a way that we have never been able to do before. The universities need to start thinking more globally when they think about collaborating. Multinational industries can help this a lot. We have the opportunity to pick and choose around the world the best work that is going on and try to integrate it. We live in a world of accelerating change which really underscores the need for worldwide collaboration and communication amongst the technical communities in all countries as well as among industry, academia and government labs.

Toshihito Kohara:

How do we train people who can lead development or establish new business? It requires at least ten years before research and development matures into a new business. Another important point is whether one can obtain people who can convince those around them of the validity of a project, and successfully establish a new business.

Currently, much of the funds are invested during the stages of research, and not so much during the development stage. The post-research stage is a process of producing marketable products. This stage of "takeoff," requires very large amounts of money. If the government would invest, not only in the initial stages of research, but also in the takeoff period, there is a real possibility for research itself to become a new industry.

Kenneth H. Keller:

What is important in determining the role that universities and industries should play is for the negotiation to take place with each side knowing its own identity. One of the areas in which there is most to be gained on both sides, is in multidisciplinary research. What industry can provide to the institution is a focus that departments on their own cannot provide, and therefore some stability that overcomes the structural inertia of the institution. The best kind of technology transfer occurs when people move back and forth and the reason it works well is because there is good industry research going on. If we have academics spending time in the industrial setting and good industrial scientists spending time in the academic setting, each learns from the other and carries back to his or her own environment those lessons. We avoid the problem of whether research has been organized too much around a product or whether or not there are serious problems of property protection that need to be dealt with.

Yasuhiko Torii:

Because of the limitation of the Constitution, the national budget does not provide for research and education in private schools. In addition, there are no tax advantages for businesses which give donations to, or commission research from, private universities although such privileges are provided in the case of national university. This means that business will not donate to private universities because there is little advantage in so doing. As a result, there are fewer opportunities for conducting research, meaning that knowledge and technology are being forfeited. From the point of view of the private university, Japan must urgently correct this distortion in the system, which has continued to exist throughout the post-war era.

Junichi Nishizawa:

I believe that the United States is the most advanced in the field of business-university cooperation. I believe therefore that Japan can study and learn from the United States. Beyond this, however, I think that it would be important for business to look further ahead and through long-term investment request help in its efforts to develop new business fields.

PART I

Session Three: Promoting International Exchange in Business and University Forums

Session Chair:

Hiroyuki Yoshikawa

President of The University of Tokyo

Kenneth H. Keller

Senior Vice President of Council on Foreign Relations

Panelists:

Yasuhiko Torii

Chancellor and President of Keio University

Barbara S. Uehling

Interim Director of Business Higher Education Forum

Yasunori Nishijima

Vice President of Science Council of Japan

Yutaka Kume

Chairman of Nissan Motor Company Limited

Thomas F. Jordan

President of American Chamber of Commerce in Japan

Hiromu Fukada

Advisor of Itochu Corporation

Peter Likins

President of Lehigh University

Round-table Members:

Yumi Akimoto

President of Mitsubishi Materials Corporation

Yoichi Okabe

Professor of University of Tokyo

Hirofumi Kataoka

Vice President of Tokyo Gas Co., Ltd.

Isao Karube

Professor of University of Tokyo

Yasuo Goto

Chairman of The Yasuda Fire and Marine Insurance Co., Ltd.

Toshihito Kohara

Chairman of the Board of Directors of NGK Insulators, Limited

Jiro Kondo

Professor Emeritus of University of Tokyo

James W. Schmotter

Dean of College of Business and Economics of Lehigh University

Shuzaburo Takeda

Professor of Tokai University

Peter R. Bridenbaugh

Executive Vice President of Alcoa

Tsuneo Mitsui

Senior Executive Advisor of Tokyo Electric Power Company, Incorporated

Peter Likins

President of Lehigh University

Yasuhiko Torii:

The university has three social responsibilities: to pass down cultural heritage; to carry out intellectual and creative activities; and to encourage personal growth. It may be said that both American and Japanese universities are beginning to lose sight of these responsibilities. With the general decline in the basic scholastic aptitude of children worldwide, there is a crisis in education. We see in many parts of the world that learning itself is beginning to be biased. What is asked from business-university cooperation today above all is for business to communicate to university about what is really needed for the true happiness of human society, what are the most urgent needs of society, and what problems must be solved most urgently. Business can do this by sending signals and putting pressure on universities through funding.

It is dangerous to think that business-university cooperation is limited to the field of advanced technologies. The university is an institution which is capable of basic work, such as preserving disappearing technologies, with less concern for short-term gains. These technologies can be brought back to life again for effective utilization in the future.

On research funding, a new financial mechanism is needed. One way may be to sell education and research bonds, and to ensure returns to investors as dividends or other forms. Unless we have a mechanism which will permit financing of this kind, we will not be able to secure financial resources for research budget which will require a large amount of funding in the future.

Barbara S. Uehling:

The Business Higher Education Forum in the United States came into being at the point the United States was really slipping in its place in the world. Business and education leaders recognized they needed one another and are interdependent. They

do not exist in a vacuum. Business and industry recognized that they needed to come together, that the universities train the human capital that is converted into the financial and physical capital in the United States. Business thinks it knows about universities and universities think they know about business, but they don't. We had to learn about one another's cultures. We had to learn to communicate and we had to be adaptive as we went along. These are some of the messages that extend beyond business and higher education in the U.S. Indeed the world is getting to be one in which we need to communicate. We need to know about one another's cultures and we need to be adaptive.

Yasunori Nishijima:

It may be time for the university and business to think about the impact of science and technology on society, or the possibilities of science and technology to contribute to people's happiness. This is the time when business must have a genuine discussion with the academic world to consider what must be done now for the future. It is important that mutual understanding be fostered between business and the university. And both the United States and Japan must participate in building a partnership. Through these efforts, U.S.-Japan cooperation will be able to achieve significant results. Business people and those involved in higher education from both countries should meet, exchange opinions, and discuss and work on a wide range of world issues from a long-term perspective.

Yutaka Kume:

The following four points are what is appreciated about American universities, in fact expected of them.

- (1) Research is not terminated at the convenience of the university administration.
- (2) Multi-disciplinary research is carried out in an open manner for research which overlaps a number of disciplines.
- (3) The needs of business are properly understood through many studies conducted via business-university cooperation in the United States.
- (4) Universities are not restricted in utilizing the results of joint research.

Thomas F. Jordan:

If you look at the employment picture all of the increase in employment in the U.S. right now is among small and medium sized companies, while the large companies are actually declining in employment. In Japan, still all sorts of activity are concentrated in large corporations. Here in Japan you find very few venture capitalists, very few spin-offs. Large corporations by their very structure and nature generally do not lend themselves to the kind of entrepreneurship that is needed to develop the next generation of technology. Academia has an important role to play in providing the kind of training and environment that allows entrepreneurs to

develop these unique skills in the areas of high technology, information technology, and biotechnology, which not too far down the road will merge. Both the private sector and academia should take a much more active and vocal role in accelerating deregulation of the Japanese economy. Japanese industry, having access to a more competitive environment, will be more able to compete in the global environment, and technology-related academia has a very big stake in deregulating some of the Japanese economy. We are entering a period where entrepreneurship or individual thinking is going to be the key in the new world of technological progress.

Hiromu Fukada:

First, I would like to ask our American partners to view Japan as a useful country. There are some who say Japan has already peaked as an economic power, but it can play a unique role. Consider Japan as a useful partner.

Second, on the role of the government in business-university cooperation, it is well to draw an analogy and say that the government's involvement should be a little greater than that of a relationship where only name cards are exchanged. It should be one where Christmas cards are exchanged.

Third, the largest cause of imbalance between the United States and Japan is the language barrier. Therefore, Japanese people should study English more, and more American people should study Japanese. Also, interpreting and translation should be automated. Development of a system where machines interpret and translate automatically from one language to another would certainly be welcome.

Last, it may be of benefit if our dialogue be expanded into a multilateral forum in the future, which would include West Europe and perhaps Asia as well.

Peter Likins:

It is important to realize that we are here today seeking to merge not two cultures but four. Not simply the Japanese and American cultures, we are also asking the industrial culture to work to understand the academic culture and vice versa in each of our two countries. American and Japanese industry are different in their perspectives in so many ways. American and Japanese universities are also different. So we have a four-dimensional challenge here. Part of success in the global marketplace must be understanding the cultures in which you trade, the cultures with which you deal in economic terms. Whatever the obstacles to our international exchange, we will strengthen international exchange because it is in our mutual self interest, which finally always prevail.

Kenneth H. Keller:

There are many, many ways in which science and technology affect society, but it isn't a unique, one-way kind of relationship. There is a feedback that occurs from society itself and it is only in our sensitivity to that part of the interaction, the

effect of what we do and the feedback that occurs, that we can accomplish more. Business-university interactions have great potential. Frequently when problems are very complicated and time scales are very long, it is easier to engage the leaders of industry and education in a dialogue which can lead to an understanding of those longer-term changes and they in turn can exercise their influence on society. We have an opportunity and an obligation acting between those of us who are in universities and those of us in business to serve society by being able to see and explain and affect its future.

Hiroyuki Yoshikawa:

Based on the awareness of the importance of communication and exchange of opinion, the significance of this conference lies in the active exchange of opinions. I believe that through this conference we were able to identify a number of agenda for discussion and communication.

For example, one item on the agenda had to do with whether the university is a business enterprise or a public property. In the field of education, there was a question of how the university should deal with required courses and elective courses. Another agenda item was how the university should strike a balance between teaching and research. Yet another was whether the university should emphasize its distinct characteristics, its independence; or whether it should be more open to respond to various demands of society. Where the university should draw a line to strike a balance was another. In the field of research, we had a discussion on how to strike a balance between large and small scale science projects.

It was proposed that we were trying to remove the barrier which separates our four cultures. In this forum, various issues, including those I have mentioned, were discussed, and viewpoints from each of the four cultures were presented. The fact that these issues were discussed in the forum has strengthened our conviction that, within the multi-dimensional and still nascent sphere of U.S.-Japan business-university cooperation, we have a good prospect of continuing our dialogue in the future.

GUEST SPEECH

Tomiichi Murayama
Prime Minister of Japan

I am most thankful to the organizers for inviting me to this Japan-U.S. Business and University Relations Workshop reception and to be given this opportunity to say a few words. I am very pleased to know that the leaders of Japanese and U.S. academic and business circles are meeting today to discuss the important subject of future Japan-U.S. business and university relations.

Science and technology have promoted the development of world economy and contributed greatly to enhancing human welfare. The role played by science and technology is becoming increasingly vital. For example, the key to the resolution of global environmental problems such as CO₂ accumulation and the depletion of the ozone layer is dependent on specialized technology. The search to combat AIDS, cancer and the medical problems of aging depends critically on the life sciences. And while the growth of the global economy threatens the world with serious food shortages, the development and application of bio-technology is expected to make it possible for us to meet this threat. In order to respond to the growing energy requirements of modern economies, it is hoped that there will be an aggressive commitment to power generation technology utilizing natural energy such as solar cells.

Moreover, rapid developments in information and communications technology will cause social activities to focus increasingly on the individual. Beyond the economic consequences, it is expected that education, medicare and other social fields will be affected. The other day, I had an opportunity to view the latest information systems where I was reminded that now one has access to every kind of information literally at one's fingertips. Through the information network individual people can now have direct communication with the rest of the world. These developments have an impact on the very notion of national borders, and cannot but influence the evolution of our culture. With this kind of progress we stand at the threshold, for the first time in history, of an era of "global culture". From this perspective the roles of Japan-US business and university graduates and of business leaders are enormous.

There are now hopeful indications of a modest recovery spreading within the Japanese economy. On the other hand, it is feared that the rapid appreciation of the yen is leading to a hollowing out of certain industries. In order to overcome this situation, it is important for Japanese industry boldly to develop new fields of business so as to become more creative. For this purpose, education and research must be positioned as advance investments for the future, and science and technology promoted under the aegis of a business-university alliance. In other

words, we have to construct a solid foundation on which the future can be built.

Having said this, it must be recognized that recently there have been fears that students are turning away from science and engineering subjects. For a country such as Japan which can only survive by stimulating its economy through developments in science and technology, it is of serious concern that potentially talented young people are not attracted to this field. In the past, these subjects enticed the minds of the young. Is it not of vital importance for business and the universities to work together to consider how science and technology can be promoted? The government will want to give active support to the task. Talking about the dream of science and technology, I personally was extremely impressed to listen to the moving message that Miss Chiaki Mukai, the first Japanese female astronaut, sent from space, about the beauty of the earth and the greatness of science and technology.

Today's workshop, which is sponsored by Business-University Forum of Japan, has been set up as the first forum in Japan of academic and industrial leaders under the initiative of Mr. Gaishi Hiraiwa, former chairman of Japan Federation of Economic Organizations, and Mr. Jiro Kondo, former chairman of Science Council of Japan. One of its main activities is to foster cooperation between business and the universities. From this perspective it has addressed the question of how science and technology can and should contribute to humankind. I have a deep regard for all who are concerned in this timely endeavour.

As you know, the Japan-U.S. economic framework talks have been a major issue throughout the year. As a result of intensive consultations at the ministerial level, wide areas of agreement have been found, but there are still a number of matters outstanding on specific issues. While it is extremely important to solve these economic and trade issues one by one, we should not forget that the building of cooperative and collaborative relations between Japan and the U.S. in diverse fields including science and technology is essential to the further healthy development of the countries concerned, as well as to the peace and prosperity of the Asian and Pacific region, the "growth center" of today's world. I will be participating in the APEC unofficial summit meeting which is to take place in Indonesia on 15th November. I hope to discuss these common and substantive issues with President Clinton when I meet him then.

In concluding, I hope that this conference will signal an ever closer collaboration between future leaders of the academic and business worlds in Japan and the US, and that it will provide a momentum towards an even greater scientific and technological contribution to the progress of all mankind. Please accept my best wishes for your health and success in your undertaking. Thank you for your attention.

PART II

Subcommittee Meeting: Restructuring the University

Role of the University
Professor in Society
Creating New Academic Fields

Session Chair:

Hiroyuki Yoshikawa

President of The University of Tokyo

Panelists:

Peter Likins

President of Lehigh University

Yasunori Nishijima

Vice President of Science Council of Japan

Round-table Members:

Hiroyuki Abe

Dean of Faculty of Engineering, Tohoku University

Yokichi Itoh

Managing Director of Corporate Technology Planning and Strategy, Fuji Xerox Co., Ltd.

Masateru Ohnami

President of Ritsumeikan University

Yoichi Okabe

Professor of University of Tokyo

Akinobu Kasami

Vice President and Director of Research and Development Center, Toshiba Corporation

Isao Karube

Professor of University of Tokyo

Kenneth H. Keller

Senior Vice President of Council on Foreign Relations

Jiro Kondo

Professor Emeritus of University of Tokyo

James W. Schmutter

Dean of College of Business and Economics, Lehigh University

Shuzaburo Takeda

Professor of Tokai University

Peter R. Bridenbaugh

Executive Vice President of Alcoa

Barbara S. Uehling

Interim Director of Business Higher Education Forum

Peter Likins:

If business-university relations are to change, then both businesses and universities must change. While many fine universities are quite independent of business and government intellectually, there are very, very few that are independent financially. We must acknowledge that financial pressures underlie these changes in the United States, and perhaps also in other countries in the world. In America the primary motivation for collaboration is the desire for greater financial support, both directly from industry and the general society, who seek evidence of economic value before investing in universities in the nineties and beyond. There is no requirement that individual professors demonstrate their economic worth, but increasingly such expectations are applied to universities as a whole. In this new environment university leaders look to industry to confirm the value of their institutions. When subjected to such accountability, we see ourselves in a whole new light. Personally I subscribe to the view that accountability to investors is healthy for universities, as it is for private corporations. Such pressures force us to define our missions clearly and meet performance expectations, whether our mission calls for isolated scholarship or collaboration with industry. There is still the opportunity for philosophical discourse, cultural enrichment, and fundamental scientific research, as long as we can successfully advance the argument for supporting the intellectual adventure that distinguishes a great university.

Yasunori Nishijima:

The university needs to maintain its originality, and it must have freedom. At the same time, it has a mission to lead society towards the future appropriately. It must move out of the era when science and technology were considered as part of national strength. It needs to go still further forward.

Isao Karube:

American universities are establishing an institution for business-university cooperation. Private companies participating in such an institution may insist on having a voice in the management. As a result, there is a possibility that to a certain extent the private company will decide the direction of generic technology and in other fields. The university also might have to take on new obligations, such as preparing a timely report and so forth.

In principle, the Japanese university is relatively free from having to reflect the views of companies which provide funding. This is due to a basic concept which

protects the autonomy of university in education and research. Whether or not it is advantageous or disadvantageous for the university to allow the views of private company to be reflected in its management in return for receiving funding is a difficult question to answer.

Peter Likins:

Arising from the absence of the Ministry of Education as an intermediary, money does not flow from corporations to universities through the government, but flows directly to universities from individual corporations. Corporations can give gifts to particular universities which have great strength relevant to an industry, or to particular departments within those universities, or even to particular professors to support their research laboratories. There is a targeting even in philanthropy by corporate America into American universities and that has come to be accepted as O.K. in our system. There is no intermediary university president or any other university official who substantially controls the research agreement between the corporation and the professor, who works within certain rules of university-controlled compensation and administration. But basic terms of the the research agreement are between the individual professor and the corporation. We deal with the potential for corporate control of the academic enterprise through diversification of resources. If we have many corporate sponsors and many different industries, sometimes in different parts of the world, those corporate research projects are balanced by government research projects. By never developing true dependency on any one corporate funding source we preserve our autonomy and our economic wellbeing is advanced in addition.

Kenneth H. Keller:

There is not a simple dichotomy between no involvement with industry and the situation where the university becomes nothing more than the research department of a corporation. Different universities have found an enormous range of possibilities for filling in the gaps between those two extremes. The key is to find ways that allow for the autonomy of the individual professor, freedom of information, for results when they come out, and continuation of our devotion to training graduate students so we don't compromise their training by having them do work without intellectual content.

Peter R. Bridenbaugh:

Industry has a lot more to bring to the table than dollars and potential jobs. We have the ability to judge good science and technical approaches and make some judgments about scientific mediocrity. Not all great scientists are in universities. And not all university scientists are great. There are some sloppy workers out there who are found out by academic review committees, not just by industry people. Second, if you have the right kind of people from industry advising you, they can

make connections between technology and commercial applications that are broader than just the immediate set of problems their companies face. There are opportunities to accelerate the commercialization of technology, which adds value to society. Third, industry has a much different technical network from academia. So we can often make connections to other people working on related topics, or have knowledge from other partners that can lead to collaboration outside our individual companies. Industry tries to add value and improve the relevance of the research work going on. Universities who don't involve industry people really are missing out on an opportunity.

Jiro Kondo:

Today, it requires a large amount of money even to do research in basic science. We need to consider whether or not the university professor's autonomy or freedom will be violated by joint research between business and university. One solution may be to have a joint venture and create a science park outside the university campus, where university professors and people from business can work together.

Hiroyuki Yoshikawa:

The ultimate question is whether or not autonomy will be violated by business-university cooperation. In the United States there is an assumption that legitimate advances in learning can be found in the balance between business and the university. The university cannot exist independently within society. On the other hand, business is where knowledge which cannot be produced by the university is produced. There is a perception in the United States to create learning together with business and the entire society.

Akinobu Kasami:

Centered around the information infrastructure, a new infrastructure is about to be launched toward the 21st century. Also, technology for developing a product is increasingly linked with marketing of a product. In this coming era, researchers themselves will need to understand what kind of world will be presented, and create necessary innovative technologies.

In order to achieve this, the existing scheme must be altered significantly. Researcher network will play the central role in creating the new era. Therefore, network between business and university should be further broadened and become more interactive. Japan should promote communication with business in a positive way, in order to observe the changing times and to create new structure.

Shuzaburo Takeda:

There is a cultural difference between university administration and the faculty

in American universities. Also in the United States, cultural difference exists between state and private universities. In Japan, there is a cultural difference between national and private universities. These differences should also be taken into consideration.

A key word for next step in business-university relations is "collaboration." Both American and Japanese universities are making various efforts in the exchange of people and information. However, is this enough? Consideration should be given to which next step to take.

Masateru Ohnami:

Today is an era of globalization and of the borderless world of which the university is a part. Would it be possible to establish a university similar to the United Nations University covering the Asia and Pacific region with the cooperation of the private sector, university and local government? The university must also have a self awareness as a "university citizen."

Furthermore, the Japanese university should be rooted in the region and opened to the community. Having an open academism will maintain conservatism which is an inherent part. The university should actively pursue research and education with the participation of local community. In addition, each university should be composed of a number of specialized areas, instead of each university covering comprehensive areas. These specialized universities will be linked to form a "virtual university."

Kenneth H. Keller:

What started out to be a marriage of convenience for American universities based on the fact that we needed money has been only a very small part of what we actually got. Instead we found an intelligent knowledge of people who had much to bring to the table and exchange and the role of business in that was in fact very important. What I fear as we move from a discussion of business-university relationships and research and involvement of society in the university is that we need to step back far enough and be cautious about just how appropriate it is to alter a university's curriculum. What you lose and what you gain by aiming in an unsubtle way, and the outcome. The problem of undergraduate education is not the same as the problem of research, which takes into account societal needs, and we have to begin being very careful about what it is we want to preserve as well as what it is we want to change.

Peter R. Bridenbaugh:

There has been almost no discussion on what impact low-cost, high-performance computing is having on our world. Discussion about curriculum needs to be rethought in terms of how we are to teach in this age of enormous computing

capability at our fingertips. Internet and the interconnectivity of the world has brought change to the relationships between everyone in society, and between every organization in society. The information revolution really is being driven by low-cost, high-performance computing that has changed everything. So I urge the American university to rethink their whole mission and how they will pursue that mission in light of the capability now existing worldwide.

Barbara S. Uehling:

Speaking on behalf of the U.S. Business Higher Education Forum one of our most difficult tasks is to try to define questions of mutual interest in the business-university relationship. Everyone is busy, it costs money to come together, and we have to find some outcome that will actually make a difference. I have been asking myself what questions we should address and I think we should spend a few minutes trying to identify what some of these issues might be and how we might all try to get together.

Jiro Kondo:

Mankind must work together with science and technology to solve problems. This is truly a new challenge for the university. We need to explore how we use new methods to solve and to control these difficult problems.

Hiroiyuki Yoshikawa:

There are two aspects of university autonomy. One is the essential autonomy given to teachers and researchers at the university and which protects them from criticism from others in their respective professional areas. The other is the autonomy which society commissions to the members of the academic community. Where there are discrepancies between the first and the second type of autonomy, it creates a positive tension between university and society, or between university and business. New knowledge is created through business-university cooperation where this positive tension functions properly. The tension in society is not same in the United States and Japan. Our countries, however, share common targets.

I believe, therefore, that with full understanding of the points where our societies differ, we can exchange information on how these targets are being realized in our two countries, and carry out cooperation in the future. I look forward to having this kind of forum in the future.

PROSPECTUS

Business and University Relations at a Turning Point

With the Cold War ended, there has been a major shifting of the global framework. National interests are turning from the once common objective of developing and defending liberal and democratic societies to focusing on domestic, socioeconomic, and democratic issues. Increasingly there is a visible move towards regional protectionism concerning the world's trade and security. At the same time, however, there is a compounding of issues which require a global approach. These include the global environment, north-south, East Europe and labor problems. To begin to resolve these issues and achieve a sustainable development worldwide, it is essential for Japan and the United States of America to go beyond national interests by establishing common objectives and collaborating with one another.

These days an all too-common phenomenon, especially among the world's developed nations, is a decline in scholarship and sense of social accountability, as well as the destruction of moral values. One reason is that education has been unable to adapt to rapid changes in society. Now that the Cold War is over the U.S. has shifted to a historical focus on national security to strengthen private competitiveness. As a result there is a greater need for American universities to begin searching "national economic development and promotion of national health" while moving to a stronger concentration on generic research to meet private sector demands.

In Japan by contrast, the private sector is accustomed to targeting basic research to meet shifting trends. But although industry continues to undertake basic and generic research in wide variety of fields, it is becoming more and more difficult for any business to cover all fields of research and development. Consequently, there is a fresh impetus for creating joint research projects in a beneficial, two-way alliance that can best tap a university's available human resources. For both universities, where the emphasis is on basic research, and for industry, where applied research is important, there is a heightened awareness of the importance of mutually understanding the future role of the university, and cooperating with one another to create a new business-university relationship. There is, therefore, a need to solve a wide range of issues such as exchange of researchers and information, as well allocation and sharing of research budgets.

One of the most important tasks now is to build a system that will encourage

mutual collaboration beyond borders, while minimizing any differences between universities and business. A corresponding infrastructure able to support business-university relations and expand mutual collaboration between different countries is already promised in the U.S. concept of the information superhighway.

In the past a business-university relationship was generally regarded as a national, domestic issue. At this turning point it has become more of a common issue faced by all societies and nations. The new challenge in the world today is how to have a dialogue that transcends differences among societies and nations and creates better ways of collaboration.

In Search of an International Business and University Collaboration: Workshop as a Starting Point

The Workshop is organized by Business-University Forum of Japan as a forum for educators, business leaders, government officials and journalists to come together to address issues facing Japan's business-university relationship, and to discuss additional shared international issues.

The Workshop will mainly address the theme of looking beyond national interests while increasing mutual collaboration to build a consensus. By discussing common issues facing both countries in business-university relations for the 21st century, we hope to learn from each other about the business-university relationship and to suggest a future direction for both bilateral and global collaboration.

TIMETABLE

Sunday, October 30, 1994

Welcome Reception

Venue: Annex of Hotel Okura, Ginga

18:00- 20:00

Chairpersons, Speakers, Members and Guests

Monday, October 31, 1994

Part One: Reinventing Business-University Relations

Opening Ceremony

Venue: Hotel Okura, Gyokutei no Ma

9:30-10:00

Opening Speech: **Jiro Kondo**, Professor Emeritus, University of Tokyo
President, Central Environment Council

Keynote Speech: **Gaishi Hiraiwa**, Counselor of The Tokyo Electric Power Company Incorporated
Honorary Chairman of Japan Federation of Economic
Organizations

Session 1

Present Status and Future Issues in Business - University Collaboration in Japan and the United States

Venue: Hotel Okura, Gyokutei no Ma

10:00- 12:00

Session Chair: Japan **Jiro Kondo**, Professor Emeritus, University of Tokyo
President, Central Environment Council

US **Peter Likins**, President of Lehigh University

Panelists: **Hiroshi Watanabe**, Chairman of Tokyo Gas Company Limited
Peter R. Bridenbaugh, Executive Vice President of Alcoa
Yoichi Okabe, Professor of University of Tokyo
Masao Ito, President of Science Council of Japan
Yasuo Goto, Chairman of The Yasuda Fire and Marine Insurance Co., Ltd.
James W. Schmotter, Dean of College of Business and Economics, Lehigh
University
George F. Clegg, Vice President and Managing Director, Japan Monsanto
Company

Lunch

Venue: Hotel Okura, Icho no Ma

12:15 - 13:45

Luncheon Speech

Speaker: **Ikuo Hirayama**, President of Tokyo National University of Fine Arts and Music

Session 2

Issues in Research Fields That Must Be Overcome Today; How Do We Resolve Them?

Venue: Hotel Okura, Gyokutei no Ma
13:45 - 15:35

Session Chair: Japan **Junichi Nishizawa**, President of Tohoku University
US **Barbara Uehling**, Interim Director of Business Higher Education Forum (Former
Chancellor of University of California, Santa Barbara)

Panelists: **Joichi Aoi**, Chairman of the Board of Toshiba Corporation
Kenneth H.Keller, Senior Vice President of Council on Foreign Relations
(Past President of the University of Minnesota)
Isao Karube, Professor of University of Tokyo
Peter R. Bridenbaugh, Executive Vice President of Alcoa
Toshihito Kohara, Chairman of The Board of Directors of NGK Insulators, Ltd.

Session 3

Promoting International Exchange in Business and University Forums

Venue: Hotel Okura, Gyokutei no Ma
16:00- 17:45

Session Chair: Japan **Hiroyuki Yoshikawa**, President of University of Tokyo
US **Kenneth H.Keller**, Senior Vice President of Council on Foreign Relations
(Past President of the University of Minnesota)

Panelists: **Yasuhiko Torii**, Chancellor and President of Keio University
Barbara Uehling, Interim Director of Business Higher Education Forum
(Former Chancellor of University of California, Santa Barbara)
Yasunori Nishijima, Vice President of Science Council of Japan
(Past President of Kyoto University)
Yutaka Kume, Chairman of Nissan Motor Company Limited
Thomas F. Jordan, President of American Chamber of Commerce in Japan
Hiromu Fukada, Advisor of Itochu Corporation
(Former Ambassador to Australia)
Peter Likins, President of Lehigh University

Closing Ceremony

Venue: Hotel Okura, Gyokutei no Ma
17:45 - 17:50

Closing Remarks: **Hiroyuki Yoshikawa**, President of University of Tokyo

Reception

Venue: Hotel Okura, Icho no Ma
18:00 - 19:30

Guest Speaker: **Tomiichi Murayama**, Prime Minister of Japan

Tuesday, November 1, 1994

Part Two: Reinventing the University

**Role of the University Professor in Society
Creating New Academic Fields**

Venue: Hotel Okura, Matsukaze no Ma

10:00 - 12:00

Session Chair:

Hiroyuki Yoshikawa, President of University of Tokyo

Panelists:

Peter Likins, President of Lehigh University

Yasunori Nishijima, Vice President of Science Council of Japan
(Past President of Kyoto University)

Campus Tour

Hongo Campus, University of Tokyo

14:00

MASS MEDIA COVERAGE

PRESS COVERAGE OF THE WORKSHOP:

**Japan-US Business-University Relations Workshop Opens
Lack of Cooperation in Japan Pointed Out**
(1 November, 1994, Nikkei Sangyo Shimbun, Morning)

Towards Stronger International Business-University Cooperation
- Interview with Two Participants at the Japan-U.S. Workshop
(7 November 1994, Asahi Shimbun, Evening)

Science and Technology - To Build Healthy Business-University Relations
(9 November, 1994, Mainichi Shimbun, Morning)

Multi-faceted Expansion of Business-University Cooperation
Expectations from a probe into future relations
(17 November, Yomiuri Shimbun, Morning)

Needed Sound Business-University-Government Relations
(20 November, 1994, Nihonkai Shimbun, Morning)

Business-University Relations at a Crossroads
(4 December, 1994, Sankei Shimbun, Morning)

Organization and Members of Business University Forum of Japan
(As of August, 1994)

CHAIRMAN

Kondo, Jiro Professor Emeritus, University of Tokyo
(Former President, Science Council of Japan)

VICE CHAIRMAN

Yoshikawa, Hiroyuki President, University of Tokyo

COMMITTEE MEMBERS (Alphabetical Order)

(Academic Members)

Arima, Akito President, The Institute of Physical and Chemical Research
(Past President, University of Tokyo)

Fukada, Hiromu Advisor, Itochu Corporation
(Former Ambassador to Australia)

Imura, Hiroo President, Kyoto University

Inose, Hiroshi Director General, National Center for Science
Information

Kondo, Jiro Professor Emeritus, University of Tokyo
(Former President, Science Council of Japan)

Kumagai, Nobuaki Member of the Council for Science and Technology
(Past President, Osaka University)

Matsumae, Tatsuro President, Tokai University Educational System

Mukaibo, Takashi Chairman, JAIF (Japan Atomic Industrial Forum
Incorporated)

Nishijima, Yasunori Vice President of Science Council of Japan
(Past President, Kyoto University)

Nishizawa, Junichi President, Tohoku University

Torii, Yasuhiko Chancellor and President, Keio University

Yoshikawa, Hiroyuki President, The University of Tokyo

(Corporate Members)

Aoi, Joichi Chairman of the Board, Toshiba Corporation **Goto,**
Yasuo Chairman, The Yasuda Fire and Marine Insurance
Company Limited
Hiraiwa, Gaishi Counselor, The Tokyo Electric Power Company
Incorporated
Honorary Chairman, Japan Federation of Economic
Organizations
Kawakatsu, Kenji Senior Advisor, The Sanwa Bank Limited
Kohara, Toshihito Chairman of the Board of Directors, NGK Insulators,
Limited
Kume, Yutaka Chairman, Nissan Motor Company, Limited
Nagano, Takeshi Chairman, Mitsubishi Materials Corporation
Chairman, Japan Federation of Employers' Associations
Watanabe, Hiroshi Chairman, Tokyo Gas Company Limited
Yamamoto, Kosuke Advisor, Toyota Motor Corporation

SECRETARY GENERAL

Takeda, Shuzaburo Professor, Tokai University

SECRETARIAT

Nishio, Harukazu

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